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Alina POPA, Florea IONCIOAIA (editors)

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(editors)



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Iași, December 4<sup>th</sup>- 5<sup>th</sup>, 2015

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## Foreword / Cuvânt înainte

Volumul de față reunește cea mai mare parte a lucrărilor prezentate la cea de-a doua ediție a Conferinței Internaționale CommScie, *Challenges for Sciences and Society in Digital Era*, desfășurată la Universitatea „Alexandru Ioan Cuza” din Iași, în perioada 4-5 decembrie 2015.

După cum se știe, în 2015 s-au împlinit nouăzeci de ani de la cunoscutul „proces al maimuțelor (*Scopes vs Tennessee*, 10-21 iulie, 1925), când, în Dayton, Tennessee, un tânăr profesor de biologie a fost judecat pentru încercarea sa de a preda teoria evoluționistă. Episodul este considerat adesea ca fiind „un moment instaurator” pentru ceea ce se numește astăzi *Science Journalism* sau *Communication Science*. Tot în acest an, s-au comemorat șapte decenii de la prima explozie experimentală de mare amploare cu o bombă nucleară, un fapt care, în scurt timp, a pus în discuție, pentru prima dată, problema consecințelor progresului cunoașterii umane și, mai cu seamă, a limitelor instrumentalizării acesteia.

Contextul în care știința operează astăzi presupune un set cu totul nou de probleme și provocări, de ordin economic, cultural și științific. De altfel, în ultimii ani, suntem martorii unor formule noi de exprimare a acestor interdependențe. De la conferințele-spectacol, la show-urile științifice din spațiul digital ori la marile reconstrucții mediatică din jurul unor evenimente sau fenomene științifice, veritabile epoei ale lumii moderne, avem o paletă extrem de largă de practici și modalități prin care savanții și publicul se întâlnesc pentru a comunica și a înțelege.

Ambele evenimente au generat întrebări radicale cu privire la problematica relației dintre știință și societate. Cât anume din această agendă mai este încă valabilă astăzi în plină eră digitală? Comunicarea științei mai poate pune oare aceleași probleme ca în perioada de aur a media tradițională? Ce anume s-a schimbat? Pe de altă parte, care este relația cercetătorului cu produsele activității sale sau cu publicul? În fine, ce mijloace are comunitatea științifică de a se autoregamenta, respectiv de a-și prezerva autonomia?

La aceste întrebări și-a propus să reflecteze cea de-a doua ediție a Conferinței Internaționale CommScie, *Challenges for Sciences and Society in Digital Era*. Conferința a fost organizată în cadrul proiectului „Sistem integrat de îmbunătățire a calității cercetării doctorale și postdoctorale din România și de promovare a rolului științei în societate”, POSDRU/159/1.5/S/133652, coordonat de Universitatea „Alexandru Ioan Cuza” din Iași, în parteneriat cu Universitatea din București și Universitatea „Petru Maior” din Târgu-Mureș, proiect cofinanțat din Fondul Social European prin Programul Operațional Sectorial Dezvoltarea Resurselor Umane 2007-2013. Astfel, peste o sută douăzeci de cercetători din țară și din străinătate, acoperind principalele domenii ale cunoașterii, de la disciplinele tradiționale la cele de frontieră sau emergente, de la chimie, geografie, biologie sau socio-umane până la nano- și bio-tehnologii, au prezentat comunicări și au participat la discuții.

Conferința a valorificat, în egală măsură, și expertiza acumulată în cadrul Școlii de Studii și Cercetare Postdoctorală CommScie, unica experiență de acest fel din sistemul nostru academic. Aceasta a fost fondată în 2013, în baza articolului 172, secțiunea I-a din Legea Educației Naționale nr. 1/2011, în contextul implementării proiectului POSDRU/89/1.5/S/63663, „Rețea transnațională de management integrat al cercetării postdoctorale în domeniul Comunicarea științei. Construcție instituțională (școală postdoctorală) și program de burse (CommScie)”, coordonat de Universitatea „Alexandru Ioan Cuza” din Iași în parteneriat cu Universitatea din Genova (Italia), Universitatea Babeș-Bolyai din Cluj-Napoca, Universitatea de Vest din Timișoara și Universitatea „Petru Maior” din Târgu Mureș.

Activitățile desfășurate în cadrul acestor proiecte au arătat că domeniul comunicării publice a științei este un teritoriu în plină expansiune, emergent, de maximă actualitate. În câmpul său, diferitele discipline care investighează raporturile științei cu societatea (de la cele cu o tradiție îndelungată precum filosofia sau istoria) până la cele mai tinere sau foarte tinere, ca *Science and Technology Studies* sau *Cultural Studies of Science and Technology*, concură pentru a furniza un arsenal teoretic noului domeniu. Comunicarea științei este în curs de a deveni astăzi o arie disciplinară autonomă, ca și un teritoriu distinct al practicilor de comunicare. Comunicarea științei depășește cadrele și mizele clasice de popularizare a științei. Mai cu seamă odată cu explozia mijloacelor de comunicare în masă, vechile practici de popularizare a științei au cunoscut o metamorfoză completă, devenind ceea ce astăzi se numește *Public Understanding of Science*.

Pe parcursul derulării celor două proiecte am cooperat cu cercetători recunoscuți în domeniile lor de competență: Al. Călinescu, Mircea Dumitru, Codrin Liviu Cuțitaru, Ovidiu Gabriel Iancu, Florin Alexandru Platon, Nicu Gavriluță, Liviu Antonesei, Ștefan Afloroaei, Iulian Boldea, Gheorghe Clitan, Florea Ioncioaia, Cornel Sigmirean, Ionel Mangalagiu, Liliana Mitoșeriu, Paolo Nanni, Alexandru Stancu, Lucel Sîrghi, Sebastian Popescu, Felicia Iacomî, Antonio Patraș, Ioan Lihaciu, Lăcrămioara Petrescu, Gheorghe Popa, Șerban Axinte, Bogdan Maleon, Ilie Rad, Dumitru Luca, Ioan Milică, George Bondor, Mihai Dinu Gheorghiu, Ovidiu Cârjă. Aceștia, precum și dlui Vasile Ișan, Rector al Universității din Iași, și dlui Constantin Rusu, președinte al Senatului, le mulțumesc în mod particular, pentru sprijinul și încurajările lor.

prof. univ. dr. Dorin Popa



**SECTION I**  
**TRENDS IN SCIENCE, TECHNOLOGY AND RESEARCH NOWADAYS**

# CHALLENGES IN THE EMBEDDED IMPLEMENTATION OF OPTICAL FLOW COMPUTATIONS

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## Abstract

Commonly, optical flow is defined as a vector field generated by the changes of feature positioning of the environment in a series of image frames, a video signal. Recent research results emphasize on the accurate, pixel-wise estimation of optical flow, which is a computationally demanding task. Optical flow can now be estimated in close to real-time for a reasonable image resolution. When all these requirements are proposed for an embedded implementation, the task complexity escalates quickly.

The first challenge is to select the proper hardware platform for the real-time extraction of optical flow. There is plethora of different embedded development environments available for the designer, supported by as many, sequential processor-based hardware devices. However, in order to maximize speed and accuracy, while maintaining resource- and power-efficiency, one should select a reconfigurable circuit-based development avenue. This avenue was the chosen one in the research project that will be summarized in this paper.

After the successful software implementation and testing, a new, hardware resource friendly method for optical flow extraction has been introduced. Later, this was implemented on a FPGA circuit-based platform, yielding a system performing in real-time. An overview will be given on the implementation details, emphasizing the main challenges that have been faced and solved.

**Keywords:** Motion extraction, optical flow, embedded implementation, real-time, FPGA circuit, VHDL.

## 1. Introduction

Motion estimation using consecutive shots is useful a wide range of applications, such as object detection in motion sensors, robot navigation and facial expressions evaluation. Optical flow (OF) is a two-dimensional (2D) vector signal computed from a series of changes in images that relate to the spatial and temporal movement of objects in a scene [1]. One of the first methods to compute OF was given by Horn-Schunck and Lucas-Kanade. Since then, there have been many studies to achieve an accurate estimate and dense optical flow [2], [3]. However, there are several limitations to adopt the Optical flow in practical real-world applications. The main issue still is the computational complexity of the optical flow extraction.

As reported in the previous studies, a number of operations are required, even at small-scale, as many equations are solved for each pixel of the image [4], [5], [6], [7]. This work presents a reconfigurable digital hardware architecture based on the extraction of the optical flow in real-time using edge displacement scales.

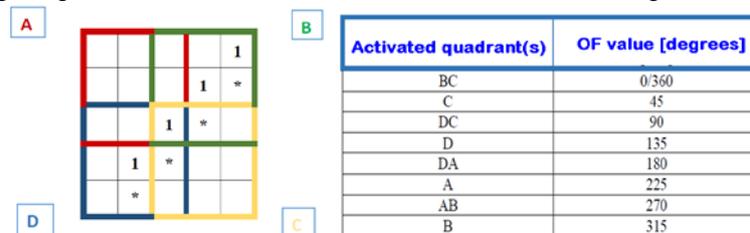
The whole procedure of the optical flow computation is integrated into a single FPGA, including the buffer control, edge distance calculation, and output image generation.

## 2. The method of real time OF calculation, implemented in embedded systems

In order to demonstrate the functionality of the developed, simplified algorithm for calculating the optical flow motion detection (movement direction and extent), in the first phase, we developed a software implementation. The goal was to find a solution that will lead to optimal hardware implementation using only digital circuit structures with reduced number of required resources (comparator circuits, counters, assembly, etc.), avoiding multiplication and division operations.

The newly developed algorithm consists of the following steps:

- a) For each frame of video input sequence we generate a matrix of edge locations (FLAGS), using a Sobel edge detection method, that scans the image with a 5x5 filter matrix.
- b) An active bit signal (flag, logical 1 value) is placed on the coordinates (x, y) of the generated matrix by replacing a 5x5 pixel image window.
- c) The result is a reduced size FLAGS matrix. For example, a 20x20 bits will yield for a picture of 100x100 pixels. Acquired frames are also reduced to a grayscale format, with 8 bits/pixel, in order to further reduce the hardware resources required for processing.
- d) The next step is to scan a pair of FLAGS matrices resulting from two consecutive frames - in parallel – with a window of 5x5 edge signaling bits, to determine the direction of movement of the local edges (LOF).



**Figure 1. – The developed OF extraction method based on edge displacement detection**

- e) These evaluation windows are divided into four quadrants, and the resulting value of the direction of movement will be saved to the coordinates that are at the intersection of these quadrants, the center pixel of the window of 5x5 pixels (Fig. 1).
- f) The local displacement of the edges is formed by four points. The number of points in each quadrant is then calculated for two consecutive frames assessed (i and i + 1).

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- g) An increase in the number of bits in a quadrant shows the direction of movement of the edge. The chosen quadrants will have a larger number of edge bits.
- h) The last stage involves the generation of the global OF value using a weighted average of local values, based on the number of bits in each window. Using these values, the angle (direction) and magnitude of movement in the video can be calculated.

We successfully implemented and tested this method in C++, with several real and artificial video sequences (animals, GRID, blocks, Yosemite) [8]. The designed and implemented software was used to test the method of OF calculation, that yielded the identification of a highly resources-efficient implementation in VHDL and FPGA using the Xilinx ISE development environment, Design Suite 14.7.

Actual movements are defined in the three-dimensional space, but through the lens of a camera they become a two-dimensional projection surface. Motion detection in image sequences involves differentiation of successive images. If the difference between images is not zero, we conclude that we detected movement because they do not have the same pixel values.

The two images below (Fig. 2) were taken when we detected a change, because the result of differentiating the two is not zero.

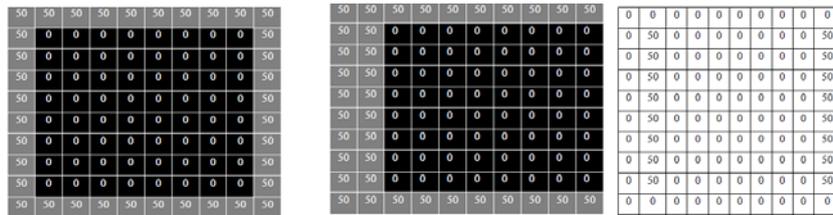


Figure 2. Differentiation successive images to detect movements

The images above are matrices of 10 x 10. Because they contain only shades of gray, only the 8-bit grayscale pixel values are used values of 0 to 255. One can see in Fig. 2. that by differentiating values greater than zero will show the "movement" footprint of the black block.

To accelerate the implementation of the algorithm it is useful to convert RGB-color images to grayscale, so we'll just have to go through a single layer. This single layer will contain the necessary information of images. Given that we are interested in moving shapes present in image sequences in any direction, we can simply look for the movements of their edges.

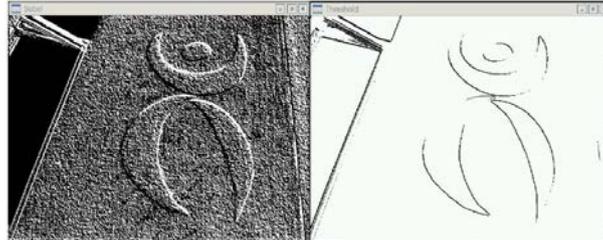


Figure 3. Conversion to grayscale and edge detection implemented on FPGA

The Sobel algorithm is a differentiation operator whose result is the gradient of color intensity of the image. The method uses two so-called kernels, one vertical and one horizontal, to browse through the image and generates a matrix summarizing the results of the two crossings.

### 3. Automation of the OF computation in the FPGA implemented circuit

As can be seen in Fig. 4 below, we designed machine control module dspBlk to facilitate the displaying of the detected OF values by displaying color-coded areas overlaid on the edge display. We have assigned a different color each of the 8 possible directions detected (45, 90, 135, 180, 225, 270, 315 or 360 degrees).

From every window of detection, formed by 5x5 signaling bits (each bit is the result of an operation with a Sobel matrix of 5x5 pixels) the edges are detected. The result of found moving edges in an area of 25 x 25 pixels, will be displayed with colored squares superimposed on the image that shows the edges in the image.

The finite state machine controlling the image processing circuit in the FPGA, contains several loops (reading from the input image SDRAM, SDRAM save the resulting image). On can identify in Fig. 4. the paralleled modules for localized OF calculation (Local OF) and assigned color codes calculation (Calc Cell Colors).

According to the measurements, the result of the whole algorithm reached (one full cycle) after approximately 25 microseconds.

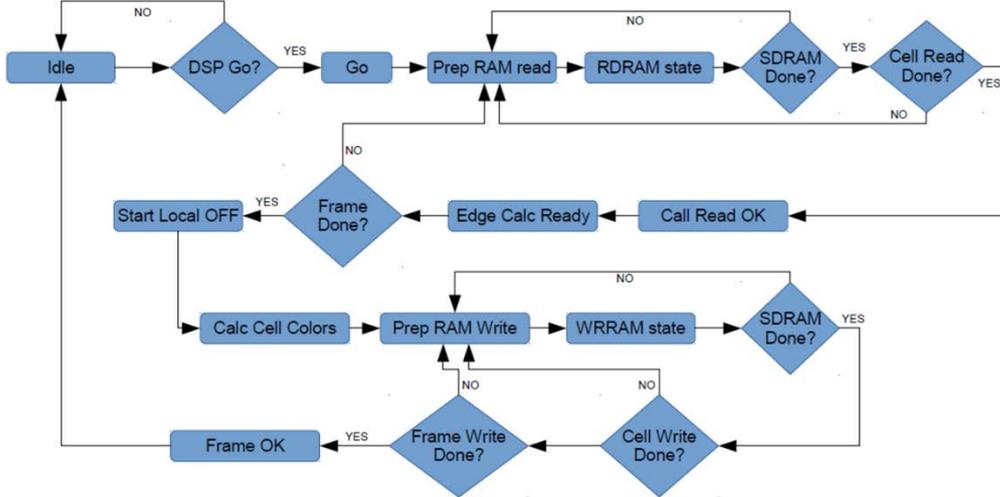


Figure 4. The machine control module designed as a real-time dspBlock, with color-coding the detected OF values

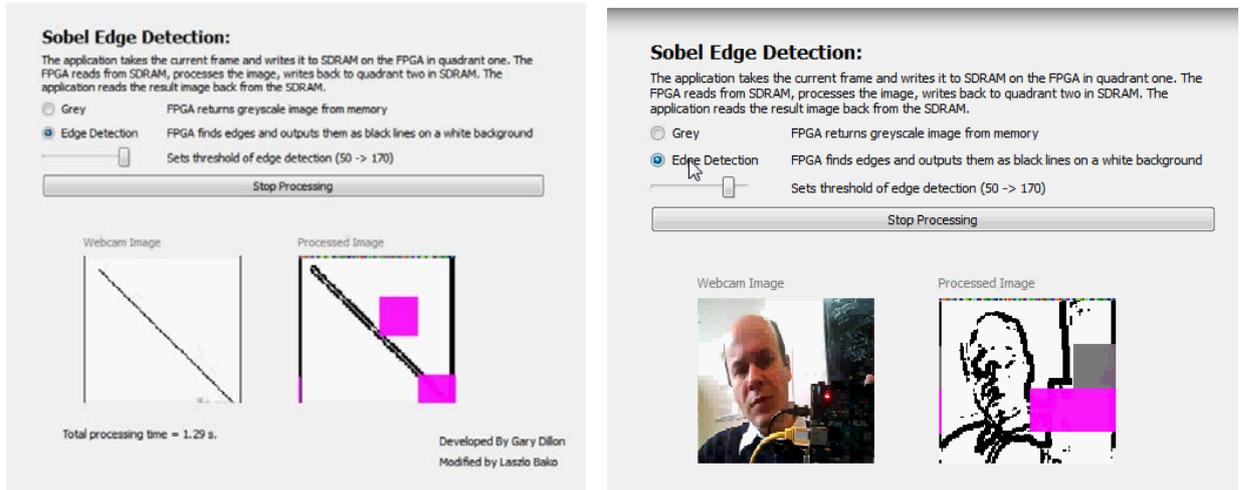


Figure 5. Graphical result display interface - OF extraction processed entirely on FPGA

In Fig. 5 above, one can see screenshots of the graphical user interface for displaying the OF result during operation.

#### 4. Test application design, an indoor localization enhancement for mobile robot navigation

As first test implementation of the method, we will use a three-wheeled mobile robot to achieve a test system. The image acquisition will use an Omniview OV7670 camera directly connected to the used Diligent NEXYS 3 development board with a Xilinx Spartan 6 FPGA. Two wheels (left and right) of the robot are controlled by DC motors and the third is a freewheel. The X, Y coordinates system of the mobile robot model that we have implemented is described in the following equation system (1, 2 and 3):

$$x[k+1] = x[k] + L \frac{v_2 + v_1}{k + |v_1 - v_2|} \sin(\phi[k]) \quad (1)$$

$$y[k+1] = y[k] + L \frac{v_2 + v_1}{k + |v_1 - v_2|} \cos(\phi[k]) \quad (2)$$

$$\phi[k+1] = \phi[k] + \frac{v_2 - v_1}{2L} T \quad (3)$$

In these equations,  $k$  is the discrete variable of the time,  $T$  - the sampling time,  $(x, y)$  - coordinates of the robot,  $\phi$  the angle of orientation of the robot coordinate system  $X, Y$  defined as an angle between the positive direction of the  $Ox$  perpendicular to the direction of the wheel,  $2L$  - the distance between the active wheels of the robot, and  $v_1, v_2$  - the angular velocity of the wheels (left and right) of the robot (Fig. 6.)

We developed a physical model of the robot, which must generate two signals to control the speed of the DC motors of the two wheels (left and right).

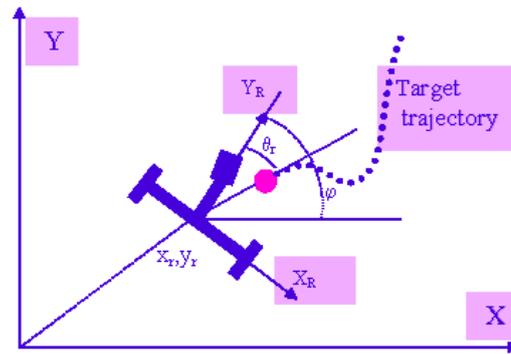


Figure 6. Coordinate systems in the robot application

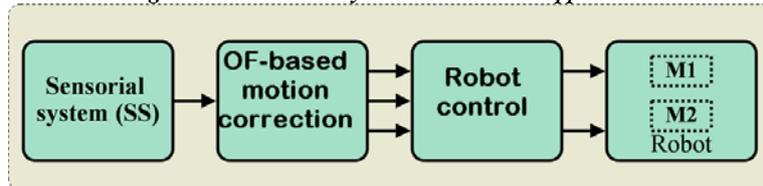


Figure 7. The devised control structure

The structure designed for the robot control system is presented in Fig. 7., where:

- SS - the sensory system to detect position and orientation of the robot,
- OF detection module for correcting sensory signals - this module determines the distance between the robot and the target point, the robot orientation and orientation of the target point.
- robot control module - this controller was also implemented on a Raspberry Pi embedded computer.

In the real system (Fig. 8.) will use a control module realized on Raspberry Pi, connected to the FPGA via radio signals. Consecutive robot positions are obtained from the video using image processing techniques and OF calculation. The next step is to determine the distance between the next target point and the robot, and obtain robot guidance and orientation for the target point relative to the robot coordinate system.

With these three inputs transmitted to the control module the Raspberry pie will issue motor control signals the robot. The output signals will be transmitted back to the FPGA. On the mobile robot, signal processing (receiving radio signal and DC motor control) will also be implemented on the Raspberry pie. A sequence of robot position detection, control signal processing, data transmission, and activating actuators (traction robot) is estimated to be about 20 ms.

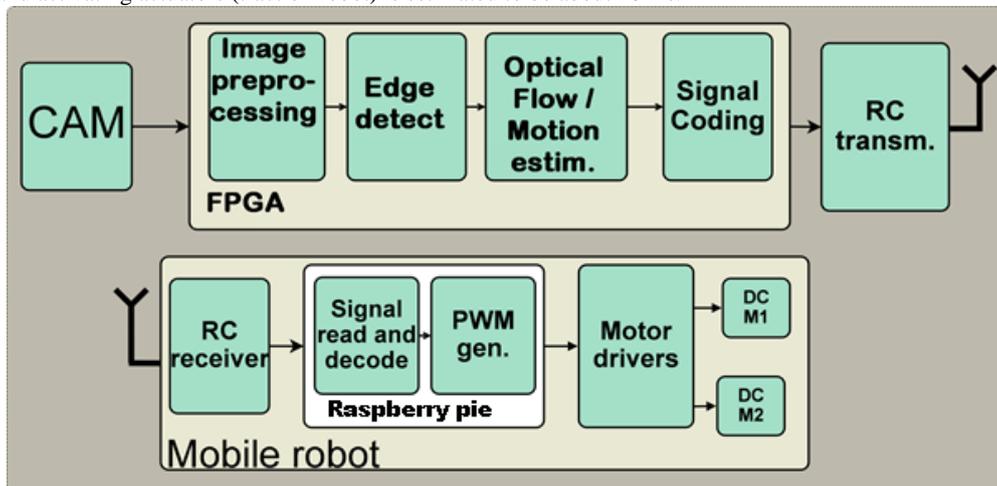


Figure 8. Components of the robotic system designed to test the OF detection method

## 5. Conclusions

It can be concluded that the system is operational as planned, but has some shortcomings that will be addressed in the next phases of the project. These will reduce the sensitivity of the method to noise induced by the edges detection method, which in its turn is influenced by the lighting conditions of the scene captured by the processed video signal. Using the external, dedicated camera instead of a webcam, the number of processed frames per second will increase to about 30 fps, limited in the current version to approx. 3 due to delays caused by the transfer to/from the computer (used for tests) and the FPGA system’s SDRAM memory.

## Acknowledgements

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THE DEVELOPMENT OF A NEW CELLULAR NETWORK CLASS

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**Abstract**

In modern times, conventional digital computation methods have run into a serious speed bottleneck due to their serial nature. To overcome this issue, a new computational model, called Neural Networks, has been proposed, based on aspects of neurobiology and adapted to integrated circuits. A class of locally coupled neural networks, called Cellular Neural Networks (CNNs) was introduced in 1988 by researchers as a novel class of information processing systems, which possesses some of the key features of neural networks and which has important applications in areas such as image processing and pattern recognition. The most impressive features of artificial neural networks is their ability to learn. CNNs can model this learning process by adjusting the weighted connections found between neurons in the network. This effectively emulates the synaptic connections’ strengthening-weakening alternation found in the brain.

In the present paper we consider that nervous influx (through the neural network of the brain) takes place on continuous but non-differentiable curves in the hydrodynamics variant of scale relativity (with an arbitrary constant fractal dimension). Dynamics types that are compatible with our model of a cellular neural network are analysed. In order to achieve this, we first developed the hydrodynamics variant of scale relativity theory. Then, based on differential equations solutions of the model, we found several Toda type lattices that are compatible with this model. Then, we determined the cellular neuronal networks types (and their way of self-structuring) by mapping. Finally, we studied the coherence between these CNNs, which are organized in pairs. We found that each of the pair’s components presents two functionality regimes, one of them being induced by the harmonic waves and harmonic waves packages and the other one by solitons and packages of solitons. Knowing this, we obtained, for each of the two pair’s components, the dispersion equations. Our results led us to the fact that the coherence of the pairs specifies that the “transmission” and “storage” of information is achieved by specific algebraic languages.

**Keywords:** cellular neural network, learning algorithm, non-differential physics, neuron.

**1. Introduction**

In modern times, conventional digital computation methods have run into a serious speed bottleneck due to their serial nature. To overcome this issue, a new computational model, called Neural Networks, has been proposed, based on aspects of neurobiology and adapted to integrated circuits. Neural Networks is a field of Artificial Intelligence, where data structures and algorithms for learning and classification of new data can be found, all inspired by the human brain.

A class of locally coupled neural networks, called Cellular Neural Networks (CNNs) were introduced in 1988 by L. O. Chua and L. Yang [1, 2] as a novel class of information processing systems, which possesses some of the key features of neural networks and which has important potential applications in such areas as image processing and pattern recognition. The most impressive features of artificial neural networks is their ability to learn. CNNs can model this learning process by adjusting the weighted connections found between neurons in the network. This effectively emulates the synaptic connections’ strengthening-weakening alternation found in the brain.

Many phenomena with complex patterns and structures are widely observed in the brain. These phenomena are some manifestations of a multi-disciplinary paradigm called emergence or complexity. They share a common unifying principle of dynamic arrays, namely, interconnections of a sufficiently large number of simple dynamics units can exhibit extremely complex and self-organizing behaviours. Because standard theoretical models of complex systems dynamics are sophisticated and ambiguous [3, 4], we must develop new theoretical models. In order to achieve this, we have to admit that the complex (in our case, biological) system entities with chaotic behaviours can achieve self-similarity associated with strong fluctuations at all possible space-time scales. Thus, non-differentiability appears as a universal property of complex systems. Under such circumstances, if we consider that the complexity of interactions in the dynamics of complex systems is replaced by non-differentiability, it is no longer required for us to use the whole classical arsenal of quantities from standard physics, and thus non-differentiable physics makes its mark [5, 6].

In the present paper we consider that nervous influx (through the neural network of the brain) takes place on continuous but non-differentiable curves in the hydrodynamics variant of scale relativity (with an arbitrary constant fractal dimension). Dynamics types that are compatible with our model of a cellular neural network are analysed. In order to achieve this, we first developed the hydrodynamics variant of scale relativity theory. Then, based on differential equations solutions of the model, we found several Toda type lattices that are compatible with this model. Then, we determined the cellular neuronal networks types (and their way of self-structuring) by mapping. Finally, we studied the coherence between these CNNs, which are organized in pairs. We found that each of the pair’s components presents two functionality regimes, one of them being induced by the harmonic waves and harmonic waves packages and the other one by solitons and packages of solitons. Knowing this, we obtained, for each of the two pair’s components, the dispersion equations. Our results led us to the fact that the coherence of the pairs specifies that the “transmission” and “storage” of information is achieved by specific algebraic languages.

**2. Spontaneous symmetry breaking at fractal scale and its implications**

Let us consider the static states

$$\partial_t = 0, \mathbf{V}_F = D(dt)^{\left(\frac{2}{D_F}\right)-1} \nabla S = 0, \tag{1}$$

i.e. the phase coherence,  $S = const.$  of the fractal fluid structural units. Then, the fractal hydrodynamic equation [7, 8] with the substitutions

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$$U = E\rho, E = \text{const.} > 0, \rho^{1/2} = g, \mathcal{D} = D(dt)^{\left(\frac{2}{D_f}\right)-1} \quad (2)$$

becomes

$$\frac{2m_0\mathcal{D}^2}{E}\Delta g = g^3 - g. \quad (3)$$

In the one-dimensional case and using the notation  $\xi = x(E/2m_0\mathcal{D}^2)^{1/2}$ , Eq. (3) takes the form:

$$\partial_{\xi\xi}g = g^3 - g. \quad (4)$$

The equation (4) can also be obtained through the fractal variational principle  $\delta\int Ld\tau = 0$  with  $d\tau$  the fractal elementary volume applied to the fractal Lagrangean density (we extend the method from [9]):

$$L = \frac{1}{2}(\partial_{\xi}g)^2 - \Theta(g), \quad (5)$$

with the ‘‘potential’’:

$$\Theta(g) = \left(\frac{g^4}{4}\right) - \left(\frac{g^2}{2}\right). \quad (6)$$

Equation (4) has the solutions  $g_F = 0, g_F = \pm 1$ . By calculating the second derivative with respect to  $g$  of the ‘‘potential’’ (5) and substituting the above critical values into the result of this differentiation we find  $\Theta_{\xi\xi}(0) = -1, \Theta_{\xi\xi}(\pm 1) = 2 > 0$ . Therefore the solution  $g_F = \pm 1$  is associated with the minimum ‘‘energy’’. Hence, the model under consideration has a double degenerated fractal vacuum state.

From (6) result both the ‘‘energy’’,

$$\varepsilon(g) = \int_{-\infty}^{\infty} d\xi \left[ \frac{1}{2}(\partial_{\xi}g)^2 + \Theta(g) \right], \quad (7)$$

and the ‘‘energy’’ relative to the fractal vacuum:

$$\varepsilon(g) - \varepsilon(g_F) = \int_{-\infty}^{\infty} d\xi \left[ \frac{1}{2}(\partial_{\xi}g)^2 + \frac{1}{4}(g^2 - 1)^2 \right]. \quad (8)$$

Since all terms in (8) are positive and in view of the infinite limits of integration, the finiteness of the ‘‘energy’’ implies that at  $\xi \rightarrow \pm\infty$

$$\partial_{\xi}g = 0, \frac{1}{4}(g^2 - 1)^2 = 0. \quad (9)$$

From this, it follows that at  $\xi \rightarrow \pm\infty$  the function  $g(\xi)$  tends to its fractal vacuum value  $g_F \rightarrow \pm 1$ . In order to find the explicit form of the solution of (4), we multiply it by  $\partial_{\xi}g$  and subsequently over  $\xi$ , This yields:

$$\frac{1}{2}(\partial_{\xi}g)^2 = -\frac{g^2}{2} + \frac{g^4}{4} + \frac{1}{2}g_0, \quad (10)$$

where  $g_0$  is a fractal integrate constant. From this, we have:

$$\xi - \xi^0 = \int_0^g \frac{dg}{\sqrt{\frac{g^4}{2} - g^2 + g_0}}, \quad (11)$$

where  $\xi^0$  is the other fractal integrate constant. To this general solution corresponds for an arbitrary  $g_0$  an infinite value of the ‘‘energy’’  $\varepsilon(g)$ . To obtain the solution with finite ‘‘energy’’, we make use of the boundary conditions  $g_F \rightarrow \pm 1$ . From (10) it results that  $g_0 = 1/2$ . Replacing this value of  $g_0$  into (11), the solution  $f_k(\xi)$  of the field equation (10) with a finite ‘‘energy’’ is:

$$g_k(\xi) = g(\xi - \xi^0) = \tanh\left[\frac{1}{\sqrt{2}}(\xi - \xi^0)\right]. \quad (12)$$

We denote it the fractal kink solution (details on the standard kink can be found in [13]).

Thus, the fractal kink solution is obtained by a fractal spontaneous symmetry breaking (the fractal vacuum states are not invariant with respect to the fractal transformations group which makes invariant equation (4), while the fractal Lagrangean density remains invariant). Moreover, the fractal kink corresponds to a fractal pattern in the form of a Cooper type pair. We note that for motions on Peano curves at Compton scale, the above fractal pattern can be reduced to a standard Cooper type pair [10].

### 3. Topology at fractal scale and multivalent logical elements

A fractal topological method can be applied because the admissible number of fractal kinks is determined by the fractal topological properties of the fractal symmetry group induced by equation (4) (details on the standard topological method can be found in [12]). In this context, the following problems must be solved: i) the number of admissible fractal kink solutions determined by the fractal topological properties of equation (4); ii) the fractal topological charge.

The fractal kink solution can be obtained as fractal mapping of a fractal spatial zero-sphere  $\mathcal{S}^0$ , taken at infinity onto the fractal vacuum manifold of the model given by means of equation (4). The fractal homotopy group for this model is  $\Pi_0(\mathcal{Z}_0) = \mathcal{Z}_2$  i.e. the model gives rise to two solutions: a constant solution  $g_F$  and the fractal kink solution. Details on a usual homotopy mapping are given in Ref. [9].

The fractal topological charge is:

$$q = \frac{1}{2} \int_{-\infty}^{\infty} j(\xi) d\xi = \frac{1}{2} \int_{-\infty}^{\infty} dg \quad (13)$$

The fractal vacuum solution (absence of spatial gradients) and the fractal kink solution can be characterized by attributing the  $q = 0$  and  $q = 1$ , respectively. This result is obtained by an adequate normalization of  $g$ . Since equation (4) is a fractal Ginzburg – Landau type equation [6], it follows that  $q = 0$  describes the fractal vacuum states, while  $q = 1$ , by means of fractal kink solution, describes the fractal Cooper type pair.

Now, one can associate to these fractal topological charge values the fractal bit, that is a fractal system which can exist in two distinct fractal states (an unstructured state or of fractal vacuum and a structured one or of fractal Cooper type pair). These states are used in order to represent  $0(dt)$  and  $1(dt)$ , that is a single binary fractal digit. In a particular case, for motions on Peano curves at Compton scale, the fractal bit is reduced to the quantum bit. Thus, the structural relations between the fractal Cooper type pairs generate a special topology, which implies defining the fractal bit. These states define the multivalent logical elements.

### 4. Fractal cellular neural network

Since the general solution (with infinite “energy”) of the GL type equation (4) has the explicit form,

$$g = \sqrt{\frac{2s^2}{1+s^2}} sn\left(\frac{\xi - \xi_0}{\sqrt{1+s^2}}; s\right) \quad (13)$$

where  $sn$  is the elliptical Jacobi function of modulus  $s$  [11], the specific fractal potential becomes:

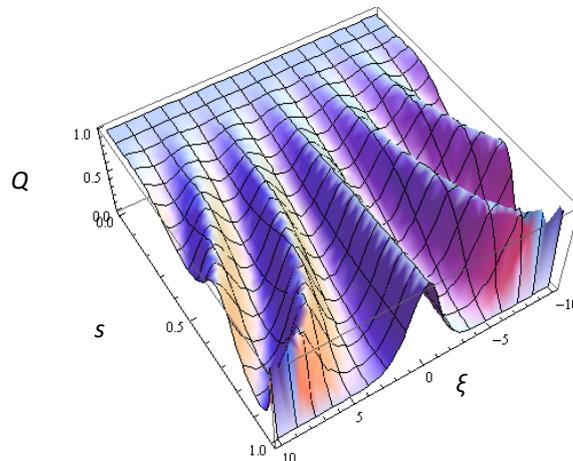
$$Q(\eta, s) = -\frac{1}{g} \frac{d^2 g}{d\eta^2} = (1 - g^2) = \frac{1-s^2}{1+s^2} + \frac{2s^2}{1+s^2} cn^2\left(\frac{\xi - \xi_0}{\sqrt{1+s^2}}; s\right) \quad (14)$$

- see Fig. 1. Therefore, the biological systems’ structural units’ dynamics can be described by cnoidal oscillation modes [12]. These modes, for  $s = 0$  or  $s \rightarrow 0$  imply linear waves or wave packets,

$$Q(\eta, s = 0, s \rightarrow 0) = \frac{1-s^2}{1+s^2} + \frac{2s^2}{1+s^2} \cos^2\left(\frac{\xi - \xi_0}{\sqrt{1+s^2}}; s\right) \quad (15)$$

while for  $s = 1$  or  $s \rightarrow 1$  they imply solitons or soliton packets,

$$Q(\eta, s = 1, s \rightarrow 1) = \frac{1-s^2}{1+s^2} + \frac{2s^2}{1+s^2} \sec^2\left(\frac{\xi - \xi_0}{\sqrt{1+s^2}}; s\right). \quad (16)$$



**Fig. 1. Cnoidal oscillation mode of the fractal potential. These modes can be assimilated by mapping with a cellular neural network.**

The normalized fractal potential (14) takes a very simple expression which is directly proportional to the Cooper type pairs states density. When the Cooper type pairs states density,  $g^2$ , becomes zero, the fractal potential takes a finite value,  $Q = 1$ . The

fractal fluid is normal and there are no coherent structures (Cooper type pairs) in it. When  $g^2$  becomes 1, the fractal potential is zero, i.e., the entire quantity of energy of the fractal fluid is transferred to its coherent structures, i.e., to the superconducting type pairs. Then the fractal fluid becomes “superconducting”. Therefore, one can assume that the energy from the fractal fluid can be stoked by transforming all the environment’s entities into coherent structures (Cooper type pairs) and then “freezing” them. The “superconducting” fluid acts as an energy accumulator through the fractal potential (14).

The cnoidal oscillation modes can be assimilated with a non-linear Toda lattice [13]. Now, by mapping these modes, a fractal cellular neural network can be defined. For details on this process, see refs. [13, 14].

## 5. Conclusions

The main conclusions of the present papers are the following:

- i) Assuming that the external scalar potential is proportional with the fractal states density, the one-dimensional solution with finite fractal “energy” in the form of fractal kink is obtained. This solution breaks the fractal vacuum symmetry and generates fractal Cooper type pairs by means of fractal spontaneous symmetry breaking mechanisms. Then, the phase coherence of the fractal pairs will produce a self-structuring of the fractal vacuum which is interpreted as a tendency of the system to make structures (patterns) in the form of fractal Cooper type pairs. In such a manner, biological systems self-structuring can manifest;
- ii) Since the admissible number of fractal kinks is determined by the fractal topological properties of the fractal symmetry group of equation (4), a topological fractal method can be applied. Then, the fractal bit and, in particular, the quantum bit, are obtained;
- iii) It can be shown that, by infinite energy solution mapping, a fractal cellular neural network can be defined;
- iv) The dimensional dynamics, from 0 to infinite, realized in our reality in up to 3 dimensions, can be performed multi-dimensionally in the complex field of psychic reality (through the fractal potential).

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## FEW-LAYER GRAPHENES OBTAINED IN SUPERCRITICAL FLUIDS

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### Abstract

Graphene's, due to its distinct and unique properties (intrinsic mobility limit of  $2 \times 10^5 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ , high specific surface area, thermal conductivity above 2,000 W/mK - for monolayer graphene), has attracted a great deal of attention in recent years. Few studies deal with graphite exfoliation at moderate pressures and temperature (close to 400°C) in different solvents (e.g. water, ethanol, tetrahydrofuran, DMF, methanol) In this paper, we deal with with graphite exfoliation in few layers graphene using reactive species developed by different water-solvent mixtures under supercritical conditions, at a set temperature, pressure and time. The natural graphite is a stack of intercalated graphene with different intercalants like nitric, sulphuric and acetic compounds. Few-layer graphene's resulted from graphite exfoliation in supercritical water-ethanol solutions are investigated by atomic force microscopy (AFM), Raman spectroscopy and scanning electron microscopy (SEM) revealing structures with a single to a few layers (1-5) of graphene. This report provides a simple and non-toxic approach for the production of few-layer graphenes, with a wide range of applications: fuel cells, supercapacitors, solar cells, electrochemical sensors.

**Keywords:** *graphene, few-layer, graphite, supercritical conditions.*

### Introduction

In the last decades, the remarkable physico-chemical properties of the graphene and graphene oxide are explored in different applications covering experimental and theoretical science [1,2,3,4]. The most applications have to deal with electronic properties [5,6], or thermal management [7]. The nanocomposites filed explores the mechanical strength elasticity [8], thermal conductivity [**Error! Bookmark not defined.**], high surface area ( $2620 \text{ m}^2 \text{ g}^{-1}$ ), and electrical conductivity. The high surface area of electrically conductive graphene sheets and the facile electron transfer between graphene and redox species have revealed the potential applications in electrochemistry. The electrochemical properties [**Error! Bookmark not defined.**] make graphene a promising material for applications in energy harvesting [9], electrocatalysis, lithium ion batteries, organic solar cell [10], hydrogen storage and capacitors [11,12,13]. In the fuel cells field, the graphenes are sought as advanced support for Pt nanoparticle catalyst [14,15].

There are a few methods for preparing graphenes [16,17]: *mechanical exfoliation* from highly oriented pyrolytic graphite (HOPG)- widely used in proof-of-concept devices; *thermal decomposition of SiC* wafer under ultrahigh vacuum conditions [18] - submicron domains not spatially uniform in number or size over larger length scales; *epitaxial growth through chemical vapour deposition (CVD)* on metal substrates [19,20] - potential for electronic applications, involves transfer to a desired substrate, expensive process; *exfoliation of graphite in solvents* [21] - pristine perfectly structured graphene layers in for scientific research. In this study we apply the principles of the supercritical fluids, such as low densities (thus low viscosity/high diffusivity) and diminished surface tension, for the conversion of natural graphite into few-layer graphenes. Complete exfoliation can only occur if we use a solvent that has high diffusivity and high solvation power, such as ethanol, in supercritical conditions.

## 2. Materials and Methods

### 2.1 Materials

The carbon material was provided by Asbury Carbons, Ultrapure water obtained from TKA Smart2Pure and 96% ethanol from Punic.

### 2.2 Synthesis of the natural graphite

All SCF exfoliations were performed in a stainless-steel reactor with a volume of 500ml.

In the experiment, 1 gram of expandable graphite was dispersed in a 300 ml mixture, in the ratio of 80/20 ethanol-water (v/v), by low power sonication for 10 minutes. The resulted mixture was transferred into supercritical reactor. Heat was applied to the vessel until the reactor reached supercritical conditions, temperature of 320°C and pressure 150b, and kept the parameters within 1 hour with constant shaking. The exfoliated graphite obtained from SCF was filtered and washed several times with high quality fresh solvent. The GS were collected, after the product was vacuum-dried for 24h at a temperature of 100°C.

### 2.3 Characterization methods

*Raman* measurements in the regions of G and 2D were carried out using Jasco NRS 3100 Raman with dual laser beams, 532 and 785 nm wavelengths, respectively with a power around 3mW.

*The electrochemical measurements (CV)* were performed with a Voltalab PGZ 301 potentiostat (Radiometer Analytical), in a typical 3-electrode Teflon cell. A small amount of sample was deposited onto a glassy carbon electrode (working as work electrode) and the circuit was closed by a graphite electrode working as auxiliary electrode. Perchloric acid 0.1M was chose as supporting electrolyte and the current density was recorded versus a Dynamic Hydrogen Electrode (DHE), while the potential was swept between two different values.

*Scanning electron microscopy* The material morphology has been investigated by using a Quanta Inspect-F scanning electron microscope (SEM), with a maximum.

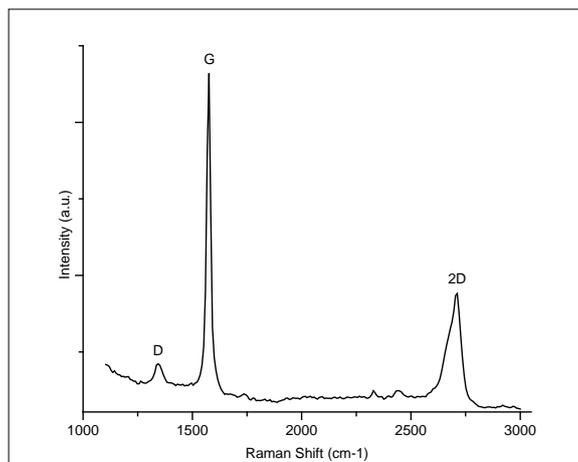
*AFM Topography* and phase contrast images were obtained by means of SPM-NTegra Prima AFM (NT-MDT), operated in semicontact mode in air, using a NSG 10 cantilever (resonance frequency: 190-325 kHz, elastic constant: 5.5- 22.5 N/m). Samples were prepared by spin-coating an aqueous graphene solution onto a freshly cleaved mica surface.

## 3. Results and discussion

### 3.1 Raman

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Raman spectroscopy is a powerful nondestructive method for identifying the number of layers, structure, quality and disorder of graphenes [22]. Because Raman spectroscopy analysis is agglomeration-blind and considers only interlayer interaction is the most ideal method for graphene characterisation. Results of the Raman measurements on graphene flakes are presented in Figure 1. Apart from the specific G band ( $1576\text{ cm}^{-1}$ ) we can observe the 2D band ( $2712\text{ cm}^{-1}$ ) and disorder peak, D band ( $1344\text{ cm}^{-1}$ ).

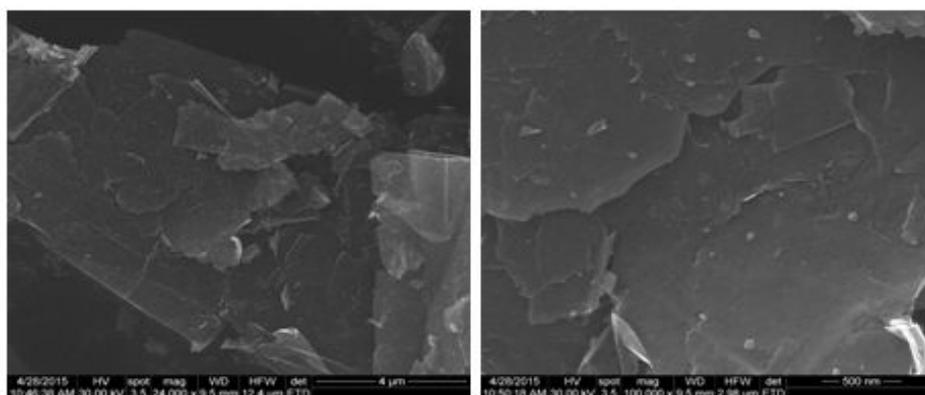


**Figure 1 Raman spectra for multi-layer graphene using a 532 nm excitation laser. Graphene can be identified by the position and shape of its G (1580 cm<sup>-1</sup>) and 2D (2690 cm<sup>-1</sup>) peaks**

From the shape and intensity of the 2D peak we can say that studied graphenes are few-layer (up to 5) structures. The disorder peak remains at low intensity in any case of graphene exfoliation.

### 3.2 SEM

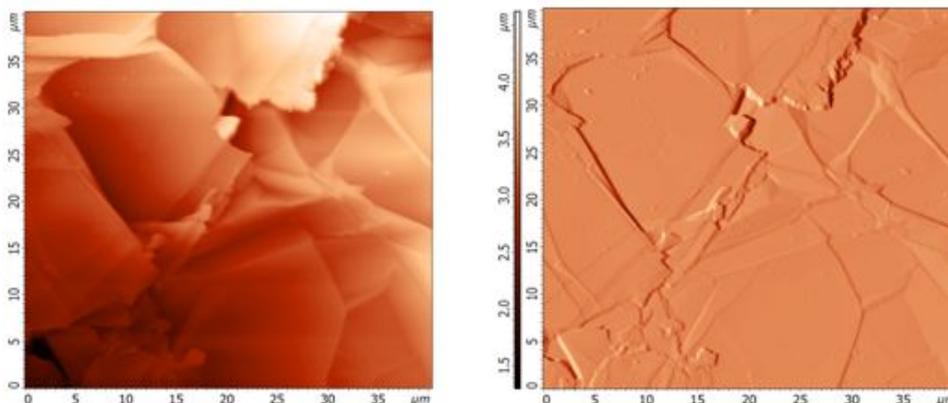
Figure 2 shows SEM measurements for obtained graphene. We have examined the state of the graphene sheet by scanning electron microscopy. SEM showed that the exfoliated graphite brake down in small flakes up to 20 $\mu$ m. Also, scanning electron microscopy clearly shows us a layered structure of graphene.



**Figure 2 SEM image (down) of few-layer graphenes: 4 $\mu$  and 500nm**

### 3.3 AFM

The exfoliation of graphene was confirmed by measuring the thickness of a single graphene sheet on a substrate of mica by atomic force microscopy. AFM specimens were prepared by drop-casting the dispersion of graphene on mica. Therefore, the exfoliation of graphite in few-layer graphene (up to 5 layers) was further confirmed by measuring the thickness.



**Figure 3 shows AFM semi-contact topography and error mode**

#### 4. Conclusions

In conclusion, in this report we present a new supercritical fluid processing technique for rapid producing few-layer graphenes. Our procedure is simple and clean and involves direct conversion of graphite into high-quality graphene. After a treatment under supercritical conditions, graphite has exfoliated in few-layer graphenes, up to 5, according to Raman, SEM and AFM measurements. Therefore, we can relate that producing graphenes in a mixture of supercritical water-ethanol is a suitable technique for producing defect free graphenes. In addition, this process is very simple and the cost for materials and equipment are very low.

#### Acknowledgements

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**NON-PLATINIC METALS (Cu, Fe)  
AS CATALYSTS IN METHANOL FUEL CELLS:  
ELECTROCHEMICAL CHARACTERIZATION**

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**Abstract**

*Among the various metals investigated as catalysts in fuel cells, copper based alloys possess the highest thermal and electrical conductivity. In this paper, Cu, Fe and a Cu-Fe alloy are investigated as non-platinic replacement catalysts for Pt in the methanol fuel cell. The metallic particles were synthesized via two chemical methods, deposited onto different carbonic supports (Ketjen Black and graphenic oxide) and electrochemically investigated by cyclic voltammetry. The electrochemical analysis revealed reversible redox behavior in acidic media for all the samples. The alkaline media inactivated the catalyst sites, producing a decline in current densities. Dynamic light scattering and scanning electron microscopy were employed for particle size measurements and topography. The Cu-Fe intermetallic catalyst was electrochemically tested in a hydroalcoholic solution, exhibiting declining results for potential, current densities and charge densities.*

**Keywords:** *fuel cell, catalyst, chemical methods.*

**1. Introduction**

The need for affordable, environment-friendly energy systems has pushed the research towards creative and „green” alternatives. In fuel cells design, the general catalyst is Pt due to its high activity. Its scarcity, expensiveness and dissolution with operation temperature and time are the main disadvantages that have led to the design of cheaper catalyst materials based on non-platinic metals and alloys [1]. Pt alloys with transition metals have enhanced activity for oxygen reduction reaction (ORR) due to the modification of the interatomic distances and to the delay in the formation of Pt-OH intermediate, thanks to a leaching effect of the non-noble metal. Cu, Ni, and Co rich platinum alloys exhibit the highest activity, according to [1]. The mechanism of oxygen reduction on copper particles has been discussed extensively [2-5]. In acidic solutions, the oxygen reduction reaction occurs either by reduction of the dissolved oxygen to water (by accepting  $4e^-$ ) or to hydrogen peroxide (by accepting  $2e^-$ ) [6,7]. The ORR process is controlled by diffusion, followed by a kinetic process [2, 8]. However, few studies have been performed following copper catalysts deposited onto carbonic substrates or non-platinic intermetallic copper based alloys. The present study reports the synthesis of a bimetallic catalyst, Cu-Fe alloy, deposited onto a carbonic substrate (graphene oxide) and tested in a typical electrochemical cell to a solution of 30% methanol.

**2. Materials and methods**

**2.1. Materials**

Copper sulphate ( $CuSO_4$ ) was purchased from Sigma Aldrich; 25 % glucose solution was prepared from pharmaceutical-grade glucose; ethylene glycol,  $NaNO_3$ , polyvinylpyrrolidone (PVP) were purchased from Sigma Aldrich and were used without purification. Ketjen Black (China) and graphene oxide (prepared from expanded graphite via modified Hummers method) were used as support materials for the catalysts. Formic acid ( $HCOOH$ ) was purchased from Redox and was used without further purification. For all dilutions, ultrapure water was used.

**2.2. Synthesis of Cu(I)**

Fehling's reagent was prepared by dissolving 7 g crystallized  $CuSO_4$  in 100 mL of water. A solution of Seignette salt and NaOH was prepared by dissolving 35 g potassium sodium tartrate and 26 g NaOH in 100 mL distilled water. In a test tube, 5 ml of Fehling's reagent was placed and heated to boiling, then 25 % aqueous solution of glucose was added as a reducing agent. A fine dispersion of red  $Cu_2O$  was observed. The solution was centrifuged and  $Cu_2O$  particles were dissolved using an ammonia solution and stored in the refrigerator, as stock solution of 80 mM Cu(I), in the course of the experiments.

**2.3. Catalyst synthesis via polyol method**

The catalysts were prepared via a polyol synthesis method, according to the literature [9, 10, 11]. Firstly, a stock solution of 33 mM  $NaNO_3$  was prepared. In a Berzelius glass were added: 5.25 mL of 40 mM PVP, 462  $\mu$ l of 500 mM  $NaNO_3$  and 1.288 mL of ethylene glycol. The solution was heated at  $160^{\circ}C$ , adding, during heating, 1 ml of 80 mM Cu(I). Ethylene glycol was used both as solvent and as a reducing agent, while  $NaNO_3$  was used as a sizing element for the metallic particles (to limit the growth of the particles). Since ethylene glycol couldn't reduce the entire amount of Cu(I) particles, and the metallic particles couldn't be deposited on the substrates via classical chemical methods, the solution was subjected to a heat treatment in the interval  $30-800^{\circ}C$  in order to remove polyvinylpyrrolidone [12, 13]. The same thermal treatment was applied to a solution composed of Cu(I) and Fe (III), synthesized by the same polyol method as the Cu (I), alloy which gave a reddish powder with a metallic tinge of yellow.

**2.4. Ketjen Black/GOx supported catalysts**

Two types of catalysts, with different loadings, were prepared: 40 % and 60 % both on Ketjen Black (KJB) as well as GOx. For a loading of 40 % on KJB 1.55 mL of water, 100  $\mu$ l  $HCOOH$ , 7 mg of Cu(I) and 0.5 mg KJB were used. For a loading of 60 % on KJB 1.55 mL of water, 100  $\mu$ l  $HCOOH$ , 11.1 mg of Cu (I) and 0.5 mg KJB were used. For the same loadings on the GOx [14], we used in the same amounts, changing only the support material. After deposition, the liquid samples were placed in an oven to remove the solution. The powder obtained was used for subsequent experiments.

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### 2.5. Characterization methods

All samples were electrochemically characterized by cyclic voltammetry using a Voltalab 40 potentiostat, with a typical electrochemical cell, comprised of a saturated calomel electrode as a reference electrode and a spectroscopic graphite electrode as counter electrode. The working electrode was prepared by modifying a glassy carbon electrode with the catalysts prepared by previous methods: 35 µg/cm<sup>2</sup> catalysts were immobilized by dropcast technique on the grassy carbon surface and dried using a IR lamp. Electrolyte solutions used for the investigations were: 0.5 M NaOH , 0.5M H<sub>2</sub>SO<sub>4</sub> and 0.1M HClO<sub>4</sub>, freshly prepared each day. SEM analysis and DLS measurements (Dynamic Light Scattering - Malvern Instruments) were employed for size and image characterization of samples.

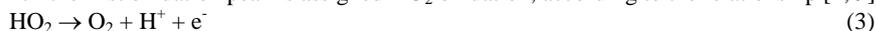
### 3. Results and discussions

DLS measurements revealed particle size around 200 nm for KJB and dimensional values around 400 nm for GOx support. The size value for GOx is higher than the one for KJB due to the effects of self-assembly. For the metallic particles, the size measurements showed values of 70 nm for copper, 110 nm for iron and 150 nm for Cu-Fe alloy.

The results of the cyclic voltammeteries performed on Cu 40% and Cu 60% loadings on KJB are shown in Fig.1a. It is noted that for the Cu 40% loading on KJB there are no intense peaks, the reduction peak shown at 300 mV, is attributed to the reduction of Cu (II) to Cu (I) and to the reduction of Cu (II) to Cu (0) in acidic electrolyte solution (H<sub>2</sub>SO<sub>4</sub> 0.5 M ) in HO<sub>2</sub> , according to the relation [2, 9] :



For Cu 60% loading onto KJB, the cyclic voltammetry performed in the same solution yielded better highlighted peaks, among which the first oxidation peak is assigned HO<sub>2</sub> oxidation, according to the relationship [2, 9]:



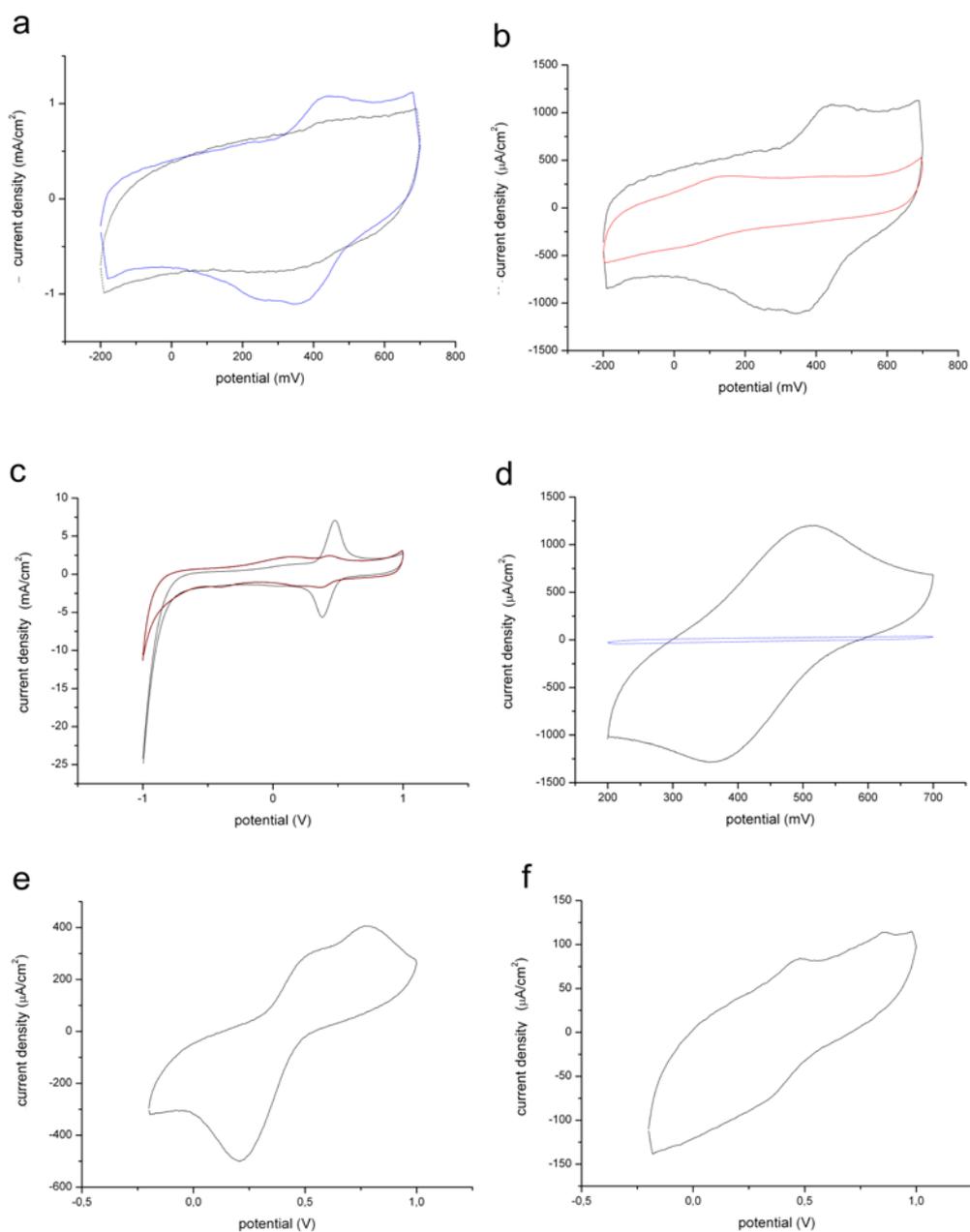
The second oxidation peak shown around 400 mV and the corresponding reduction peak around 20 mV, can be assigned to a redox process for the copper ions (relations 1&2), due to the fact that after the fourth cycle, these two peaks greatly decrease, the anodic peak being shifted slightly to lower values (422 mV) while the cathodic peak is being shifted to higher values (54 mV) .

After 4 cycles, the voltammetry changes, the now dimmed oxidation peak has a value of 155 mV and (  $i_{pa} = 311.327 \mu\text{A}/\text{cm}^2$  ), indicating a decrease of HO<sub>2</sub> in the solution.

The electrolyte used had an influence on the electrochemical results. Thus, for 0.5 M NaOH electrolyte, the cyclic voltammetry showed no redox peaks, corresponding to no electrochemical behaviour in basic solutions; in 0.1 M HClO<sub>4</sub>, the redox peaks obtained had a relatively low intensity, while the H<sub>2</sub>SO<sub>4</sub> solution, the redox peaks were the highest (Fig.1b).

Fig.1c shows the cyclic voltammeteries for Cu 60% and Fe 60 % loadings onto KJB support material. It is noted that the peaks occur at approximately the same potential, and therefore, they are determined by the processes occurring in solution and not by the nature of the catalyst. Since the peaks for Fe 60% are more pronounced than for Cu 60%, it can be concluded that the catalytic activity of iron is superior. Furthermore, for Fe 60%, the peaks are clearly defined, and the oxidation and reduction peaks occur at close values, indicating a high degree of reversibility for the reaction.

Fig. 1d shows the electrochemical results for Cu 60 % loading on GOx, investigation carried out in an acidic solution. For this type of support material, the catalyst does not indicate a redox behaviour, the only notable electrochemically phenomenon is the electric double-layer. Since both Cu 60% and Cu 40% loadings onto GOx showed no reduction or oxidation peaks, we concluded that the deposition method is not appropriate for this certain support material. Compared to Cu 60%, Fe 60 % loaded onto GOx showed major differences. First, the current density obtained for the copper catalyst is small (µA/cm<sup>2</sup> ) compared to that obtained for Fe (mA/cm<sup>2</sup>). Secondly, the peaks corresponding to the iron catalyst are wider, indicating a large electric double-layer, and they appear at close potential proving a reversibility for the redox process. The electrochemical behaviour for the iron catalyst is independent of the supporting material. We can conclude that, for the copper catalyst, the optimum loading is 60% and the supporting material is KJB. The activity of copper is lower than that of iron, and this is determined by agglomeration of particles on the GOx support, which leads to inactivation of the catalytic sites.



**Fig.1. Cyclic voltammeteries for: a) Cu 40% (black line) and Cu 60% (blue line) loadings onto KJB – the supporting electrolyte was  $H_2SO_4$ ; b) Cu 60% loading on KJB in two different electrolytes –  $H_2SO_4$  (black line) and  $HClO_4$  (red line); c) Fe 60% (red line) and Cu 60% (black line) onto KJB support – the supporting electrolyte was  $H_2SO_4$ ; d) Fe 60% (black line) and Cu 60% (blue line) loading on GOx – the supporting electrolyte was  $H_2SO_4$ ; e) Cu-Fe alloy, after the thermal treatment in  $H_2SO_4$  solution; f) Cu-Fe alloy, in an acidic solution with 30% methanol solution.**

Fig.2 shows SEM images obtained for the two catalysts, Cu 60% and Fe 60% deposited on GOx. It can be noted that for the copper catalyst, the metal is completely covered by the GOx sheet, leading to a partial inactivation of the catalyst, while for the iron catalyst, the SEM image revealed a well dispersed quantity of metallic particles on the surface of the substrate. Fe catalyst shows a certain degree of packing, thus indicating a high porosity for the aggregates; this leads to a higher number of catalytic sites and, consequently, to a better performance.

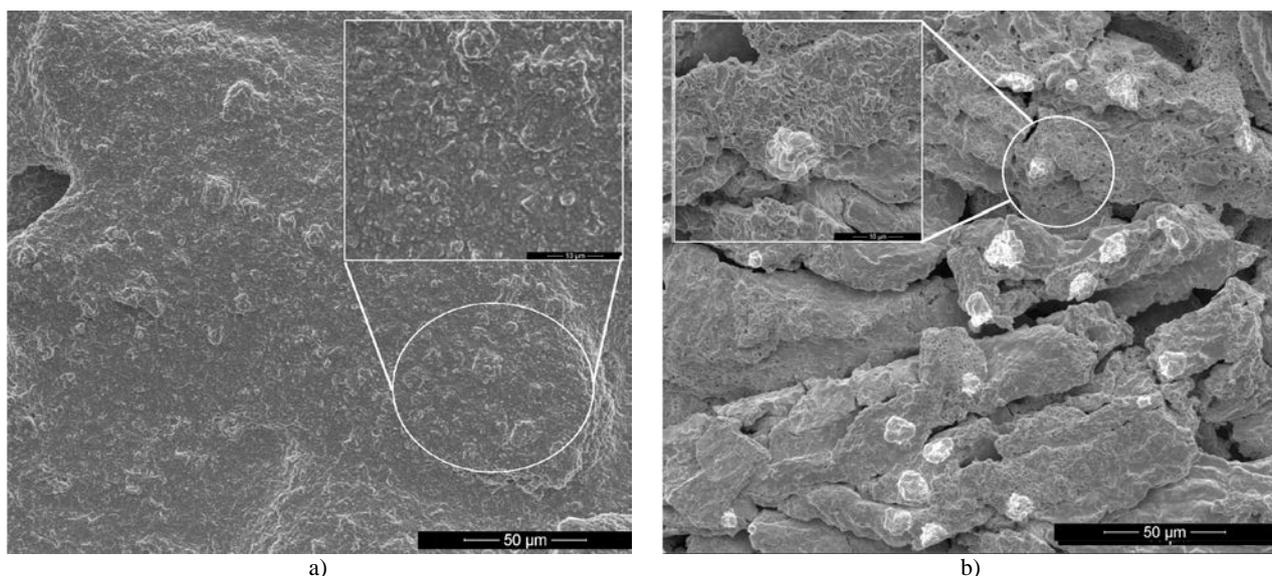


Fig.2. SEM micrographs for a) Cu 60% loading onto GOx and b) Fe 60% loading onto GOx.

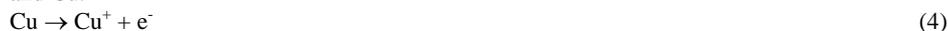
Sample	$E_{pa}$ (V)	$E_{pc}$ (V)	$i_{pa}$ (mA/cm <sup>2</sup> )	$i_{pc}$ (mA/cm <sup>2</sup> )	$I_{pa}$ (mA)	$I_{pc}$ (mA)	$\Delta E_p$ (V)	$E^{0'}$ (V)	$\frac{I_{pa}}{I_{pc}}$
<b>Cu 40% (KJB)</b>	0,437	0,3175	0,0968	0,17487	1,3691	2,4733	-0,12	0,377	0,55354
<b>Cu 60% (KJB)</b>	0,033	0,031	0,58829	0,07795	8,3209	1,1025	-0,002	0,032	7,54707
<b>Fe 60% (KJB)</b>	0,475	0,382	4,89	4,338	69,165	61,357	-0,093	0,428	1,12725
<b>Fe 60% (GOx)</b>	0,497	0,378	0,733	0,582	10,367	8,2319	-0,119	0,437	1,25945

Table 1 shows the synthesis of cyclic voltammetry results for the samples discussed above.

The results presented above refer to samples prepared by chemical reduction with HCOOH. A second batch of samples was prepared by polyol synthesis and thermal treatment, for Cu 60% catalyst on KJB and an intermetallic Cu-Fe catalyst deposited onto KJB. For the Cu 60% loading on KJB, we obtained improved results compared to the chemical method of synthesis. A sharp oxidation peak is observed at 52 mV, corresponding to the oxidation of hydroxyl species (HO<sub>x</sub>)<sup>\*</sup><sub>ads</sub>, adsorbed on the surface of the catalyst. Also, a reduction peak appears at -152 mV, corresponding to the reduction of sulphate ions to sulphite [2, 15]. The improved electrochemical results are due to the formation of smaller particles within the micelles formed by the association of polyvinylpyrrolidone and by growth decline induced by NaNO<sub>3</sub>.

A bimetallic catalyst, Cu-Fe (1:1 weight ration) was prepared by thermal processing, using the polyol synthesis method and the thermal treatment.

Fig.1e shows the cyclic voltammetry of the bimetallic catalyst in an acidic electrolyte solution (0.5M H<sub>2</sub>SO<sub>4</sub>). In the anodic part of the graph, two oxidation peaks are present, between 500-700 mV, yet not well defined, corresponding to the oxidation of Fe and Cu:



The cathodic peak at 227 mV is assigned to the reduction of sulphate species to sulphite, according to the relationship :



Fig. 1f shows the cyclic voltammetry of the bimetallic catalyst in a solution of 30% methanol [16]. Two low intensity oxidation peaks are observed and a wide reduction peak; the current density is in the range of μA/cm<sup>2</sup> and a large electric double-layer is present. The current densities are lower than the ones exhibited by the intermetallic catalyst in acidic solution, while the large electric double-layer indicates a sluggish kinetic mechanism for the reduction reaction of methanol.

Table 2 shows the main features of the cyclic voltammetry for the catalyst prepared by thermal treatment (Cu and Cu- Fe).

Sample	$E_{pa}$ (mV)	$E_{pc}$ (mV)	$i_{pa}$ (mA/cm <sup>2</sup> )	$i_{pc}$ (mA/cm <sup>2</sup> )	$I_{pa}$ (mA)	$I_{pc}$ (mA)	$\Delta E_p$ (mV)	$E^{0'}$ (mV)	$\frac{I_{pa}}{I_{pc}}$
<b>Cu</b>	51	-147	1,025	0,285	0,07247	0,02015	-198	-48	3,59649
<b>Cu-Fe</b>	736	232	0,14821	0,33511	0,01048	0,02369	-504	484	0,44227
<b>Cu-Fe (methanol)</b>	458	337	0,015	0,01508	0,00106	0,00107	-121	397,5	0,99489

#### 4. Conclusions

For the synthesis of the catalyst particles, two methods have been employed: the first method of preparation is based on the chemical deposition of catalyst particles on a carbon support, by chemically reduction with HCOOH; the second method was based on the formation of nanoparticles within the micelle by the association of polyvinylpyrrolidone and by PVP release via thermal treatment. A bimetallic catalyst was prepared by mixing two solutions of polyol based on Cu (I) and Fe (III) in 1:1 weight ratio and the Cu-Fe was tested in a hydroalcoholic solution of 30% methanol.

We obtained good results for Cu 60% loading onto KJB, while for the loading of 40% Cu on KJB and Cu 60% on GOx, the results were poor. At the same time, compared with the results obtained for the Fe catalyst, Cu catalyst indicated inferior cyclic voltammeteries. Therefore, the Fe catalyst has a better activity than the catalyst of Cu. The catalyst shows good results in solution of H<sub>2</sub>SO<sub>4</sub>, while the other solutions, HClO<sub>4</sub> and NaOH, the results were poor.

The results obtained for the Cu catalyst prepared by heat treatment have improved compared to those obtained by chemical deposition, the high temperature proving to be critical in the activation of catalytic centers. Meanwhile, the bimetallic catalyst had a pretty good electrochemical behavior due to the presence of Fe, which provided a better electrochemical activity. Cyclic voltammetry in a 30% solution of methanol scored badly, the redox peaks present in the graph were of low intensity.

SEM images confirmed the results shown in the electrochemical investigation of the catalysts.

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## METAL OXIDE BASED SMART MATERIALS

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### Abstract

Tailoring the functional properties of metal oxides nanostructured materials and thin films leads to new materials which meet designed optical, mechanical and electrical properties. Such materials have unique properties that can be employed for various potential applications in different areas. Among the most important applications, involving metal oxides, are the architectural ones with high impact in environment and energy. As a few examples, the modern self-cleaning, photochromic and electrochromic windows are obtained using metal oxides. Transparent conducting oxides, instead of the metallic electrodes, are used today in displays and smart screens as well as in solar conversion energy devices. Metal oxides are also active ingredients in photocatalytic paints that help reduce pollution in our homes, as well as in cities. They find uses as antibacterial and antifungal coatings on walls, textiles or packaging. Metal oxides can be prepared with controlled sizes and geometries by various physical and chemical growth techniques, but one of the greatest challenges remains the precise control of the particle size, shape and crystalline structure as key parameters in their physical properties engineering. To control materials at nanoscale, very sensitive and complex characterization tools are required. Among these, electron microscopy and atomic force microscopy techniques allow today atoms and molecules observation in a material. The present contribution will review the most recent advances in metal oxide based smart materials. Research in the field of metal oxide smart materials engineering remains a very challenging topic with high impact in our everyday life.

**Keywords:** metal oxides, material engineering, smart materials, daily life applications.

### 1. Smart materials

Smart materials are materials that have capabilities to respond to stimuli (such as environmental changes) and to activate their functions according to these changes. The stimuli can be internally or externally. Since its beginnings, materials science has undergone a distinct evolution from the use of inert structural materials to materials built for a particular function, to active (or adaptive) materials. Finally it led to smart materials with more acute recognition, discrimination and reaction capabilities. Today's generation of materials breaks new ground, many are able to anticipate and respond to changes in the environment. Dynamic and interactive, materials have the power to change what the human body experiences and how the urban environment is built to assure a maximum of comfort. Combined new potentials of advanced materials create opportunities for architecture, industrial design and medical science. Smart materials have the capacity to transform our way of life more radically now than ever before. For example, the gathering of solar energy to create food, or water to nourish plants or induce structural changes in plants to deal with various weather conditions all vary from organism to organism. Low cost or affordable construction technologies and materials are often refereed as priorities in meeting the ever growing demand for rapid housing delivery in developing economies. New advanced materials offer opportunities to change the way in which we construct and retrofit buildings. They give added value in terms of increased performance and functionality. New materials can also help address the new challenges of durability in a changing climate and help meet CO<sub>2</sub> reduction targets.

Advanced building materials are in general classified as:

- I. Intelligent building materials
- II. Interactive building materials

Intelligent building materials; are those which can sense, respond to various stimuli on their own. These are more like having their own brains and acting upon their own decisions and senses. An example can be photochromic window which darken when light intensity increases during the day in such a way that it maintains the visual comfort in the room.

Interactive building materials; are those which are developed for the ease of humans but along with also have nature to develop a sensible relationship with human world. These require command or external force to perform their function. These are materials which respond to your choice and interest. An example can be electrochromic windows which change colour when apply a voltage across so, during the day you can change the colour of the window to maintain the visual comfort in the room or for privacy reason.

### 2. Metal oxides as smart materials

#### 2.1 Photochromic materials

The word “photochromism” derives from two Greek words meaning light and colour, which refers to such a phenomenon that the material can change colour in a reversible way by electromagnetic radiation (UV, visible, and IR illumination) [1–6]. The reverse process can take place by exposure to the light at a different frequency [1–3], by heating in the dark [1–3], by electrochemical polarization [7], or by chemical oxidation [8]. Photo-chromic materials exhibit a wide range of optical properties, which makes them attractive and promising for a variety of applications. In the book edited by Brown [1], Bertelson presents an comprehensive review of these applications. The sensitivity of the materials to light radiation makes them useful for self-developing photography, protective materials, dosimetry and actinometry. The materials with good photochromic reversibility have potential applications in reusable information storage media, data display, optical signal processing, chemical switch for computer, smart window (control of radiation intensity). A great interest [7–9] was paid to photochromism of transition-metal oxides (TMOs) and polyoxometalates (POMs), specifically in MoO<sub>3</sub> and WO<sub>3</sub>. The photochromic response of MoO<sub>3</sub> [7] and WO<sub>3</sub> [10] thin film was extended from ultraviolet (UV) light to visible light by special treatments and/or doping of the material.

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## 2.2. Electrochromic materials

Oxide-based electrochromic materials came into the attention during the first half of the 1980s, when it became widely accepted that this technology can be of very significant for energy-efficient buildings [11, 12]. The term ‘smart window’ was introduced in 1984-1985 [13, 14] and become usual for researchers as well as for media and the general public. Electrochromic glasses has attracted interest for decades. Photochromic glass or plastic has been widely used in sunglasses and goggles, but photochromic devices have some limitations: their coloration relies on ultraviolet solar irradiation, so they are not of much use inside buildings and vehicles, and the coloration and bleaching are quite slow especially for bleaching at low temperatures. Electrochromic-based eyewear does not have these drawbacks, which motivates a lasting interest. Studies have been reported for sun goggles [15] and helmet visors [16]. There are two principally different kinds of electrochromic oxides: “cathodic” colouring under ion insertion and “anodic” colouring under ion extraction. Most oxide-based electrochromic devices employ two electrochromic films, and combine one cathodic oxide (e.g. based on W, Mo, Ti or Nb) and another anodic oxide (e.g. based on Ni or Ir). Applying a voltage in order to transport ions and electrons between the two electrochromic films in one direction makes both of these films colour, and transporting ions and electrons in the other direction makes both of them bleach. The most commonly used oxides are based on tungsten and nickel, which exhibit cathodic and anodic electrochromism, respectively.

## 2.3. Superhydrophobic surfaces/ selfcleaning surfaces

Research in superhydrophobic surfaces originates from the “lotus effect”, but have been extended to new surface materials with self-cleaning properties. One of the methods to obtain a superhydrophobic surface is the interplay sphere/nanofiber composite films. Via this simple method a cheap industrial polymer affords superhydrophobicity without any further modification [17]. For example a surface roughness created on boehmite and silica films by simple sublimation of aluminium acetylacetonate during calcination, and subsequent coating with fluoroalkylsilane yields to transparent superhydrophobic films of these materials [18].

Similarly, transparent, photocatalytic, superhydrophobic thin films are prepared by using  $\text{TiO}_2$  as sublimation material and subsequent coating with fluoroalkylsilane [19].

Inorganic oxides are the best candidates for many industrial applications due to their intrinsic advantages: good chemical and mechanical stability, low cost, and outstanding photoelectric properties. The study of photo-induced and controllable surface wettability has emerged recently as an important topic in surface science. Inorganic semiconductor metal oxides such as  $\text{WO}_3$ ,  $\text{TiO}_2$ ,  $\text{ZnO}$ ,  $\text{SnO}_2$ ,  $\text{V}_2\text{O}_5$ , and  $\text{Ga}_2\text{O}_3$  are recognized for their ability of switching their surface chemical environment between two stable states (oxygen vacancies and hydroxyl groups) [20-23]. As a result, fabrication of micro-/nanometer-scale rough surfaces using these materials results on responsive surfaces which switch reversibly between superhydrophobic and superhydrophilic states by simply alternating UV irradiation with dark storage.  $\text{V}_2\text{O}_5$  rose-garden-like films that switch reversibly between superhydrophobic and superhydrophilic states upon exposure to light/darkness were also reported [23]

The superhydrophilic surface upon exposure to UV light is closely related to the preferential adsorption of water on the photo-generated surface defect sites and the nanostructure of the surface (in sub-micrometer to micrometer features) strongly enhances the wettability. On the one hand, when the film is hydrophobic, the rough surface increases the air/water interface, [24] on the other hand, when the film is hydrophilic (as a result of irradiation with ultraviolet light), water enters the microgrooves beneath the water drop [25]. In these two states, the surface roughness is the dominant factor that influences both hydrophobicity and hydrophilicity. Photo-stimulative, dual-responsive  $\text{WO}_3$  nano-structured films can be prepared through a simple electrochemical deposition process. They show reversible conversion of wettability between superhydrophobicity and superhydrophilicity, and photochromism at the same time. The morphology of their nanostructures resembles a pebble beach. The as-prepared film turns yellowish-green (initially brown) upon UV irradiation and reversibly changes in the dark.

## 2.4. Photocatalytic surfaces

Photocatalytic oxidation processes which involve the generation of highly reactive hydroxyl radical (HO), have emerged as a promising water, wastewater and air treatment technology for the degradation or mineralization of a wide range of organic contaminants [26-28]. The photoactivated reactions are characterized by the free radical mechanism initiated by the interaction of photons of a proper energy level with the catalyst ( $\text{TiO}_2$ ,  $\text{ZnO}$  semiconductor catalysts) [29, 30]. The efficiency of a photocatalytic system is also affected by the form of  $\text{TiO}_2$  and  $\text{ZnO}$  nanoparticle catalysts used as immobilized on surface or as colloidal suspension [31-33]. The photocatalysis reaction for the degradation of various organic contaminants in waste water is limited due to the difficulty in separating the nano-catalysts particles after the photocatalytic reaction [34-36]. For air purification systems the photocatalytic material is immobilized onto substrates or a specific matrix. It can be immobilized in a paint, cement or concrete as well as onto textile substrates. Photocatalytic activity of both,  $\text{TiO}_2$  and  $\text{ZnO}$  is often correlated with antibacterial activity and selfcleaning properties.

$\text{TiO}_2$  (titanium dioxide) also known as titanium (IV) oxide or titania, is the naturally occurring oxide of titanium. When used as a pigment, it is called titanium white. Generally  $\text{TiO}_2$  crystallizes in three different forms: brookite, rutile and anatase. The last two are the most frequent. It has a wide range of applications:

A. *Pigment*:  $\text{TiO}_2$  is the most widely used white pigment because of its brightness and very high refractive index, in which it is surpassed only by a few other materials. When deposited as a thin film, its refractive index and colour make  $\text{TiO}_2$  an excellent reflective optical coating for dielectric mirrors and some gemstones like “mystic fire topaz”.  $\text{TiO}_2$  powder is also used to provide whiteness and opacity to products such as paints, coatings, plastics, papers, inks, foods, medicines (i.e. pills and tablets) as well in the toothpaste. Opacity is improved by optimal sizing of  $\text{TiO}_2$  particles.  $\text{TiO}_2$  is often used to whiten skimmed milk and to increase skimmed milks palatability.

B. *Sunscreen and UV absorber in cosmetic and skin care products*:  $\text{TiO}_2$  is used as a pigment, sunscreen, and thickener. It is also used as a tattoo pigment and in styptic sticks.  $\text{TiO}_2$  is produced in varying particle sizes, oil and water dispersible for the cosmetic industry.

C. *Photocatalyst*:  $\text{TiO}_2$ , particularly in the anatase form, is a photocatalyst under ultraviolet (UV) light. Recently it has been found that  $\text{TiO}_2$ , when doped with nitrogen ions or doped with metal oxide like  $\text{WO}_3$ , works also as a photocatalyst under either visible or UV light.  $\text{TiO}_2$  is thus immobilized in paints, cements, windows, tiles, or other products for sterilizing, deodorizing and anti-fouling properties. It is also used in dye-sensitized solar cells.  $\text{TiO}_2$  has potential for use in hydrogen production from water splitting. The efficiency of this process can be greatly improved by doping the oxide with carbon.

Superhydrophilicity phenomenon for titanium dioxide coated glass exposed to sun light resulted in the development of self-cleaning glass and anti-fogging coatings. TiO<sub>2</sub> incorporated into outdoor building materials, such as paving stones, blocks or paints can substantially reduce concentrations of air pollutants such as volatile organic compounds and nitrogen oxides. TiO<sub>2</sub> offers great potential as an industrial technology for wastewater and air purification.

D. *Sensing*: Even in mildly reducing atmospheres TiO<sub>2</sub> tends to lose oxygen and become sub-stoichiometric. It becomes semiconductor and the electrical resistivity of the material can be correlated to the oxygen content of the atmosphere to which it is exposed. Consequently TiO<sub>2</sub> can be used to sense oxygen or reducing species present in an atmosphere.

E. *Antimicrobial Coatings*: The photocatalytic activity of TiO<sub>2</sub> leads to thin films exhibiting self cleaning and disinfecting properties under exposure to UV radiation. These properties make TiO<sub>2</sub> a good candidate for applications such as medical devices, food preparation surfaces, air conditioning filters, and sanitary ware surfaces.

Zinc oxide (ZnO) is the second material that exhibit similar properties to TiO<sub>2</sub> and finds similar applications. Due to its tendency to react with acids and bases, its range of applications limits to mild environments. Compared with TiO<sub>2</sub>, ZnO has a better electrical conductivity and higher optical transmittance in visible range of the electromagnetic spectrum. These enhanced optical and electric properties make ZnO more suitable material for use as window coating or transparent electrode. Unlike TiO<sub>2</sub>, ZnO exhibit also piezoelectric properties. This means when subjected to an electric charge or a variation in voltage, piezoelectric material will undergo some mechanical change, and vice versa. These events are called the direct and converse effects. It shows also photoplastic effect. These properties, makes ZnO is a very good candidate for smart materials applications.

### 3. Conclusions

The present contribution is a comprehensive review of recent advances in metal oxide based smart materials. Tailoring the functional properties of metal oxides nanostructured materials and thin films leads to new materials which meet designed optical, mechanical and electrical properties. Such materials have unique properties that can be employed for various potential applications in different areas. Among the most important applications, involving metal oxides are the architectural ones with high impact in environment and energy. Research in the field of metal oxide smart materials engineering remains a very challenging topic with high impact in our everyday life.

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## GRAPHITE OXIDE POST-SYNTHESIS PROCESSING PROTOCOLS

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### Abstract

Graphite oxide has attracted considerable attention as a precursor for the synthesis of graphene, and due to its potential applications in electronic/optoelectronic devices. A synthetic compound of carbon, graphite oxide was first synthesized in 1859. Since then, its synthesis top-down method has been refined to obtain high yields of the material with increasing efficiencies, reaching up to 97% in the case of the Marcano-Tour method that succeeded the Hummers method in popularity amongst the research community. Due to the strong oxidizers involved in the material's synthesis, extensive processing is paramount to yielding a final product with the least amount of impurities and contaminants. Processing methods encountered in the literature generally involve successive washings with deionized water and hydrochloric acid, centrifugation, and filtration. However, due to graphite oxide gelation during washing, processing can be tedious and time-consuming. To remedy this, we introduce sedimentation and drying steps prior to washing that markedly expedite the overall process. Finally, we compare the results of our method to the standard washing method and its various permutations encountered in the literature: the sedimentation method clearly succeeds in removing most of the synthesis residues, thus augmenting and expediting the standard washing procedure without significant additional costs.

**Keywords:** *graphite oxide, Marcano-Tour synthesis, post-synthesis processing, sedimentation.*

### 1. Introduction

Graphite oxide (GO) is a synthetic form of carbon first synthesized by B.C. Brodie, a British chemist in the 19<sup>th</sup> century, who prepared the first batch of graphite oxide when he was investigating the chemistry of graphite in 1859 [1]. A compound of carbon, oxygen, and hydrogen in variable ratios, it is obtained by treating graphite with strong oxidizers. The maximally oxidized bulk product is a brown-yellow solid with C:O ratio between 2.1 and 2.9 that retains the layered structure of graphite, but with a much larger and irregular spacing [2-4].

Graphene oxide is a wrinkled 2-dimensional carbon sheet with oxygenated functional groups on its basal plane and peripheries, thickness around 1nm and lateral dimensions varying between a few nm and several  $\mu\text{m}$ . Stacks of graphene oxide form the layered graphite oxide; however the two terms are interchangeable in the literature, although the strict definition calls for addressing as graphene oxide only the single-layer material [5,6]. Graphene oxide is obtained through the exfoliation of graphite oxide into separate sheets via various methods (e.g. sonication). Subsequent reduction of graphene oxide via chemical or physical methods yields graphene sheets, which can accumulate back to graphite.

The Brodie synthesis method consisted of adding potassium chlorate ( $\text{KClO}_3$ ) into a slurry of graphite with fuming nitric acid ( $\text{HNO}_3$ ) in a prolonged oxidation process that yielded a substance with light yellow color, which would not change under additional oxidation [1]. One of the earliest improvements on Brodie's work was introduced in 1898 by L. Staudenmaier [7,8], with two major additions: a) concentrated sulfuric acid ( $\text{H}_2\text{SO}_4$ ) to increase the acidity of the mixture, and b) gradual introduction of the  $\text{KClO}_3$  solution over the course of reaction. These changes led to a highly oxidized GO product with the same composition as Brodie's in a single reaction vessel, thus simplifying the synthesis procedure. However, Staudenmaier's method was both time-consuming and hazardous: the addition of  $\text{KClO}_3$  typically lasted over a week, and chlorine dioxide ( $\text{ClO}_2$ ) emitted during the reaction needed to be removed by an inert gas, while explosion was a constant hazard.

Almost 60 years after Staudenmaier, chemists Hummers and Offeman developed a different recipe for GO preparation [9]. They used an anhydrous mixture of concentrated  $\text{H}_2\text{SO}_4$ , sodium nitrate ( $\text{NaNO}_3$ ) and potassium permanganate ( $\text{KMnO}_4$ ) maintained below  $45^\circ\text{C}$  to oxidize the graphite. The oxidation process terminated within two hours, and led to a final product with a higher degree of oxidation than in the Staudenmaier method. Since then, GO synthesis top-down methods have been refined to obtain high yields of the material with increasing efficiencies, reaching up to 97% in the case of the Marcano-Tour method [10], which succeeded the Hummers method in popularity amongst the research community. The Marcano-Tour method abandoned  $\text{NaNO}_3$ , increased the amount of  $\text{KMnO}_4$ , and introduced phosphoric acid ( $\text{H}_3\text{PO}_4$ ) into the reaction vessel (9:1 mixture of concentrated  $\text{H}_2\text{SO}_4$  and  $\text{H}_3\text{PO}_4$ ). One of the advantages of this protocol is the absence of toxic gases (e.g.  $\text{NO}_2$ ,  $\text{N}_2\text{O}_4$ ,  $\text{ClO}_2$ ) during the reaction.

The quality of the graphite source acts as an important factor in GO fabrication [11,12]. The most common source of graphite is a naturally occurring mineral, which has been purified to remove heteroatomic contaminations (e.g. S, Fe). As a result, there must be certain defects in the crystalline structure, which can serve as starting sites for chemical oxidation. However, due to the inherent defects and complexity of the structure, the precise oxidation mechanism in those reactions is hard to decipher. So far, two different combinations of oxidative reagents have been used to oxidize graphite into GO, including  $\text{KClO}_3$  with  $\text{HNO}_3$ , and  $\text{KMnO}_4$  with  $\text{H}_2\text{SO}_4$ . In the literature,  $\text{HNO}_3$  has been reported to react with aromatic carbon surfaces (e.g. carbon nanotubes [13] and fullerenes [14]), which result in various oxygenated functional groups (e.g. carbonyls, lactones, and ketones), while releasing toxic gases ( $\text{NO}_2$  and  $\text{N}_2\text{O}_4$ ). Similarly,  $\text{KClO}_3$  provides its oxidation potential by *in situ* generating highly reactive dioxygen ( $\text{O}_2$ ). When the Brodie and the Staudenmaier methods were introduced, these chemicals were considered to be the strongest oxidizers available at the time. As for the second combination,  $\text{KMnO}_4$  and  $\text{H}_2\text{SO}_4$ , the permanganate ion ( $\text{MnO}_4^-$ ) is a typical oxidative reagent, but its reactivity can only be activated in an acidic solution, mainly described by the following reactions [15]:



The transformation of  $\text{MnO}_4^-$  into the more reactive form  $\text{Mn}_2\text{O}_7$  helps to oxidize the graphite, but the bimetallic form of manganese oxide has been reported to detonate when heated up to  $55^\circ\text{C}$ , or when reacted with organic compounds [15,16]. The final acid that has been introduced into the GO synthesis is  $\text{H}_3\text{PO}_4$ , which is considered to have the advantage of producing more intact 6-membered rings in the basal planes of the final product [17].

Due to the strong oxidizers involved in GO synthesis, extensive processing is paramount to yielding a final product with the least amount of impurities and contaminants. Processing methods encountered in the literature generally involve successive

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washings with deionized water and hydrochloric acid, centrifugation, and filtration. The synthesis of GO typically involves potassium salts (i.e.  $\text{KMnO}_4$  and  $\text{K}_2\text{S}_2\text{O}_8$ ), which give various potassium compounds (e.g.  $\text{KOH}$ ,  $\text{KCl}$ ,  $\text{K}_2\text{SO}_4$ , and  $\text{KNO}_3$ ); although such salts are highly soluble in water, their removal from GO is not trivial: filtration usually becomes time-consuming, since both exfoliated and gelled GO tend to block the filters. It has been reported that GO contaminated with potassium salts is highly flammable, which poses a fire hazard [18]. The volume expansion and gelation observed during water washing of GO also significantly slows down the purification process. To remedy this, we have introduced sedimentation and drying steps prior to washing that markedly expedite the overall process.

## 2. Materials and Methods

Graphite oxide was synthesized using granular synthetic carbon ( $248.92\text{m}^2\text{g}^{-1}$  surface area, Grade 4827, Asbury Graphite Mills Inc.). All reagents (Sigma-Aldrich) were of analytical grade and were used as received without further purification. Our control sample was single-layer GO flakes, procured from a commercial provider (Graphene Laboratories Inc.).

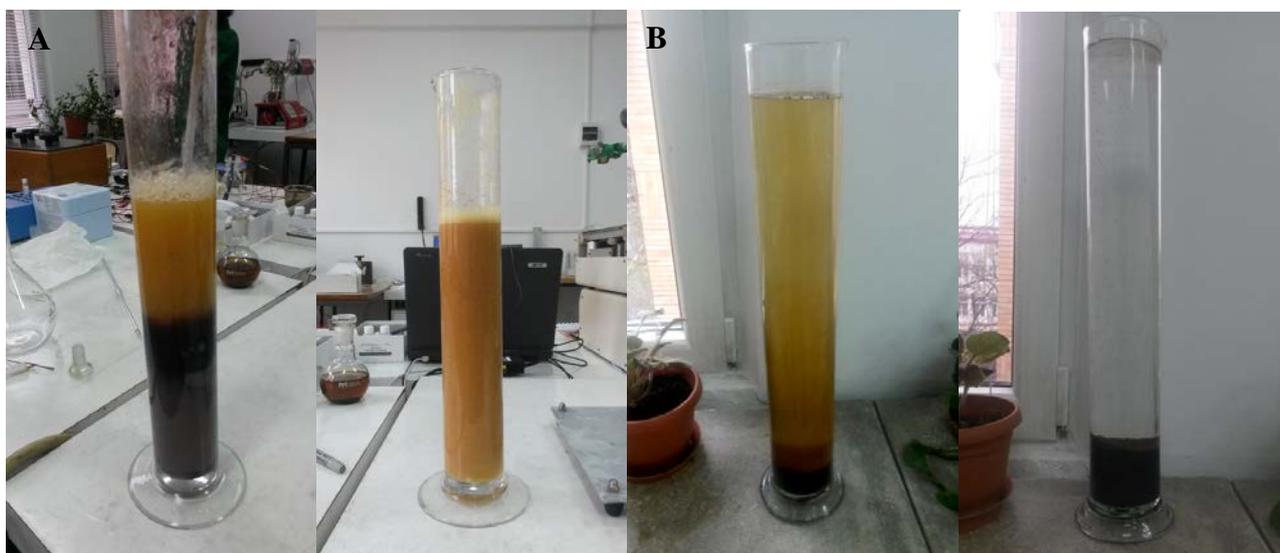
Raman Spectroscopy was performed on a Jasco NRS 3100 Raman Spectrometer, using 514nm laser excitation at room temperature with a laser power of 5mW.

Scanning Electron Microscopy (SEM) was performed on a Quanta Inspect-F SEM (FEI, NL), fitted with a Field Emission Gun operating in SEM mode.

Energy Dispersive X-Ray Fluorescence (EDXRF) was conducted on a MiniPal 2 PW4025 spectrometer (PANalytical, BV). The XRF determinations have been carried out in a Helium atmosphere, without any filter, for a period of 300s, at 20kV and automatic current intensity, using a  $3.6\mu\text{m}$  Mylar tissue.

### 2.1. Synthesis Method

Graphite oxide was synthesized according to the Marcano-Tour method [10]. Briefly: a 9:1 mixture of concentrated  $\text{H}_2\text{SO}_4$  and  $\text{H}_3\text{PO}_4$  (360:40mL) is added to a mixture of graphite flakes (3.0g) and  $\text{KMnO}_4$  (18.0g), producing a slight exotherm at 35-40°C; the mixture is then heated until 50°C and stirred for 12 hours; the mixture is cooled to room temperature and poured onto ice of deionized water (400mL); the reaction is terminated by adding 3mL of  $\text{H}_2\text{O}_2$  (30%) (Figure 1A).



**Figure 4:** A) Synthesis reaction termination, according to the Marcano-Tour method, proceeding gradually down the column after the addition of  $\text{H}_2\text{O}_2$ ; and B) Colloidal suspension of untreated GO in hard water and sedimentation over time.

### 2.2. Post-Synthesis Processing Protocols

The standard post-synthesis processing protocol retains basic steps that are outlined in the following procedure: the mixture produced after the main oxidation is centrifuged (4000rpm for 4h), and the supernatant is decanted away; the remaining solid material is then washed in succession with 200mL of water, 200mL of HCl (30%), and 200mL of ethanol (twice); for each wash, the mixture is filtered over vacuum, with the filtrate being centrifuged (4000rpm for 4 hours) and the supernatant decanted away. This process will be referred to as the standard (or Marcano-Tour) procedure.

A dual-step washing process (HCl-acetone) has also been proposed to speed up filtration and centrifugation of GO [18]: before each step of acid-washing, the GO gel is dispersed in acetone, centrifuged to remove the acetone and dried over a hot plate; the dried cake is washed and filtered with 750mL of 10% HCl to remove any remaining metal ions, rewashed with 200mL of distilled  $\text{H}_2\text{O}$  and again with 200mL of HCl. After repeating the HCl-acetone washing steps 3 to 4 times, the product is dried in air, re-dispersed in acetone, and then subjected to filtration and rinsing using more acetone to effectively remove the remaining HCl without causing gelation.

A variant to the standard washing method introduces coagulation with ether [19]: the material remaining after the extended multiple-wash process is coagulated with 200mL of ether and the resulting suspension is filtered (450nm pore size) over vacuum; the solid obtained on the filter is dried overnight at room temperature.

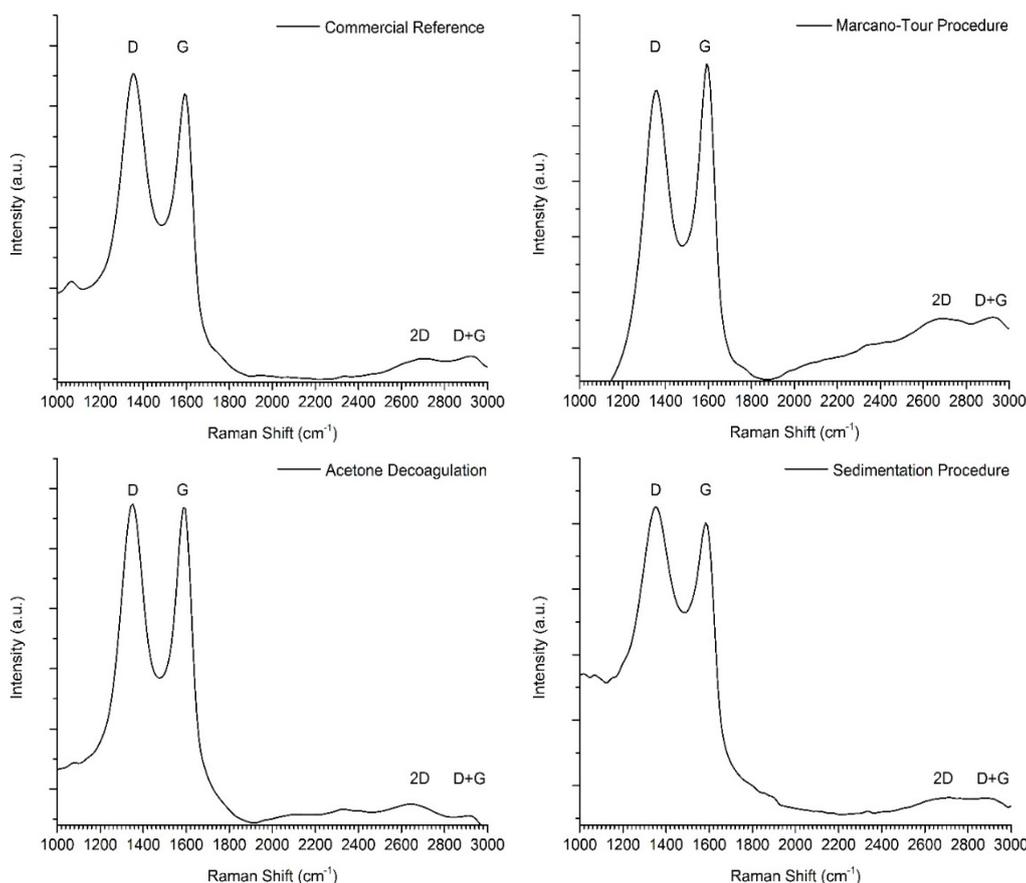
The above washing methods call for the drying of the first product - this becomes challenging as the acidic environment hinders the drying process, forming a viscous layer at the surface. The various alternatives that aim to prevent gelation by re-suspending the GO come with an increase in processing time and cost. We introduce an alternative method that calls for diluting the acidic mixture with tap water instead of distilled water. The dissolved ferric salts in the tap water reverse the colloidal suspension of GO (this constitutes a common practice in the water purification industry), which instead aggregates as sediment at the bottom (Figure 1B). Successive dilutions effectively remove the acid, allowing the GO to be dried and powdered; then it can be introduced in

the washing cycle of HCl and ethanol with a minimal risk of filter clogging. This sedimentation method augments and expedites the standard washing procedure without significant additional costs.

### 3. Results and Discussion

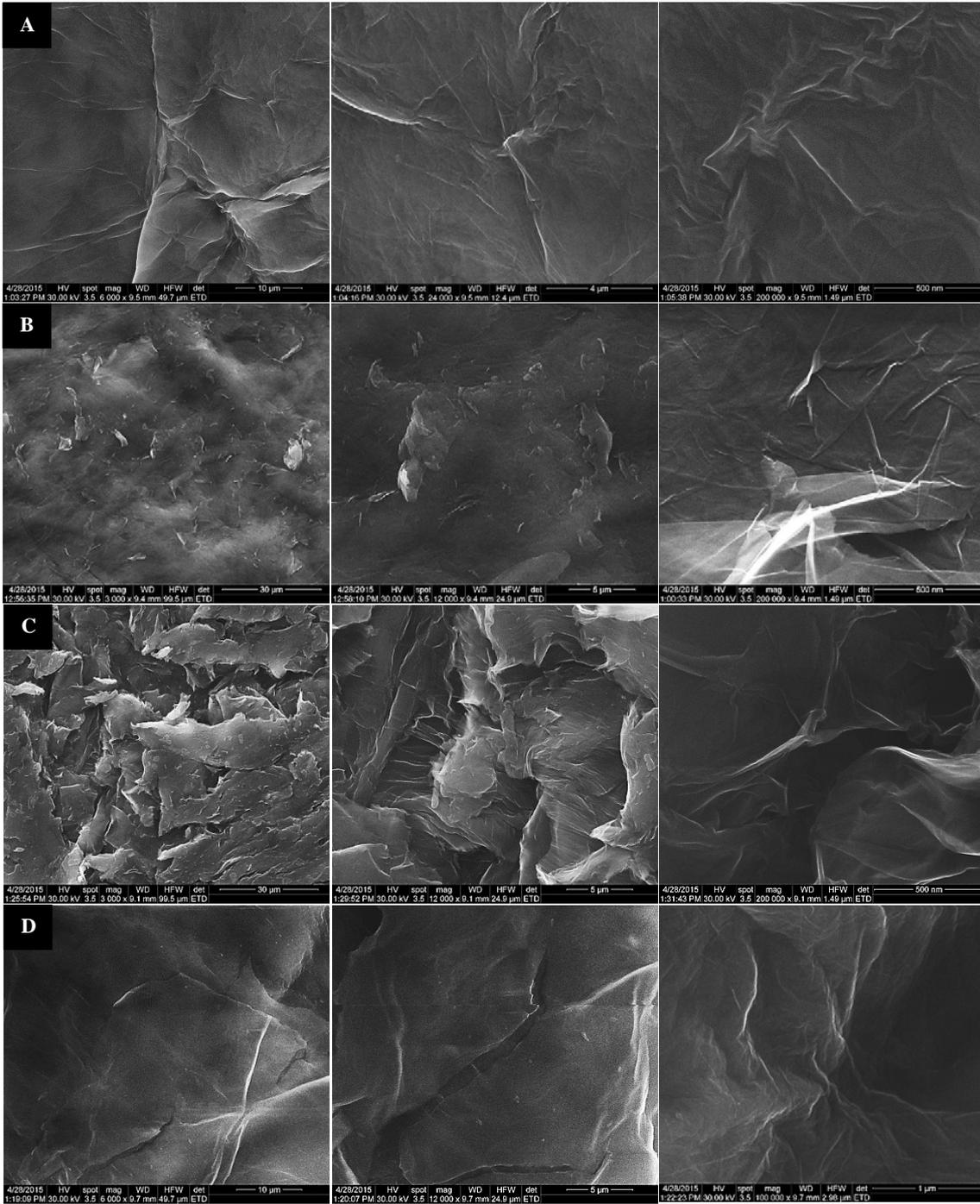
Raman spectroscopy indicated that all post-synthesis processing methods yield similar results, compared to the commercial control sample (Figure 2). Raman spectra presented the expected D peak at 1590cm<sup>-1</sup>, induced by defective sp<sup>2</sup> carbon bonds, and the 1<sup>st</sup>-order allowed G peak at 1350cm<sup>-1</sup>, arising from the stretching of C-C bonds in graphitic materials, with weak responses at the 2D and G+D bands.

SEM investigation has revealed that most post-treatment methods produce good results, retaining very few impurities on the produced GO surfaces with minimal levels of fracturing. The acetone washing method, however, introduced extended fractures at the μm level, as acetone attacked the graphite oxide flakes (Figure 3).

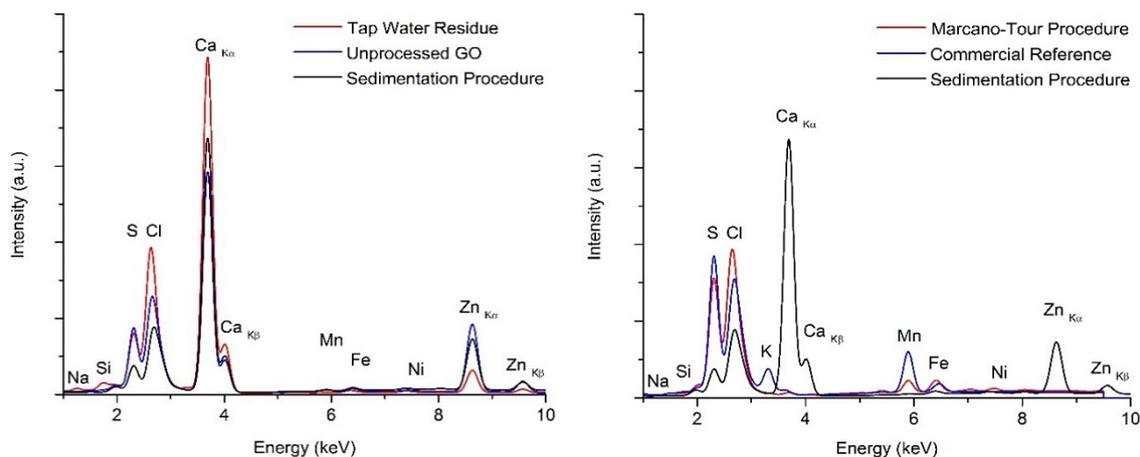


**Figure 5: Raman spectra for GO produced via the Marciano-Tour synthesis method and processed under various schemes, showing the typical peaks for GO. Baselines were problematic due to interference between ranges.**

EDXRF spectrometry has been employed to identify and quantify impurities in GO samples processed by different methods (Figure 4). Due to the use of unfiltered tap water in the sedimentation method, we initially had to compare the impurity levels between unprocessed GO, processed GO via the sedimentation method, and tap water residue. The high levels of Ca, S, Cl, and Zn in the local hard water migrated to the unprocessed GO; these were mostly removed, with the exception of Ca and Zn, which precipitated as salt flakes on the sample. However, comparing the GO processed via the sedimentation method to GO processed via the standard method and to the control sample displayed interesting results. The commercial sample displayed high concentrations of S, Cl, K, Fe, and Mn – these were mostly eliminated (with the exception of small traces of Cl) from our processed sample. The GO processed via the standard method also retained high concentrations of the above elements, indicating that the sedimentation method is more successful in removing these residues from the GO. The main problem of our sedimentation method was the elimination of Ca and Zn, inherited from the hardness of tap water. This was achieved by a second round of washing with strong HCl (2M) and DI water.



**Figure 6: SEM imaging of GO processed via: A) standard washing, B) ether coagulation, C) acetone washing, and D) alternative sedimentation method.**



**Figure 7: EDRFX analysis GO post-processing protocols. The sedimentation GO is compared to tap water residues and unprocessed GO, showing high mineral levels in the unfiltered water that persist in the unprocessed GO, but are mostly removed –with the exception of Ca and Zn- in the sedimentation GO (left). EDRFX comparison between a commercial reference sample, GO washed by the standard method, and sedimentation GO showed high concentrations of minerals that are removed successfully only in the sedimentation method (right).**

#### 4. Conclusions

We have synthesized graphite oxide (GO) according to the Marcano-Tour method, and we have implemented various schemes of post-synthesis treatment procedures to clean the GO, including our sedimentation method that employs tap water to prevent GO from forming a colloidal suspension. Successive dilutions with tap water allow the complete removal of acidic residues, and thus expedite the drying process, allowing the introduction of the material into standard washing cycles with small risk of gelation and filter clogging. The procedure is completed with a final washing cycle using strong HCl (2M) to dissolve and remove remaining salts originating from the tap water hardness. Raman spectroscopy and scanning electron microscopy have verified the comparable quality of our sedimentation-processed GO to both commercial control samples and to GO processed through other washing procedures, while EDRFX analysis has highlighted the merits of our method in removing mineral residues that fail to be eliminated by other washing methods. Overall, we have presented an alternative post-synthesis processing protocol to expedite GO treatment without additional costs.

#### Acknowledgements

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## MICROBIOLOGICAL ACTIVITY IN HYDROCARBON TRANSPORTING PIPELINES AND ITS EFFECTS

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### Abstract

Since the advent of modern oil and gas production, scientists and engineers have faced problems caused by microorganisms. Hydrocarbons are an excellent carbon source for a wide variety of microbes. Microbiologically influenced corrosion (MIC), or biocorrosion, is of considerable concern to the oil, gas and aircraft industries. Microbial metabolic products alter interface chemistry, resulting in increased corrosion rates. Furthermore, biofilms consisting of complex communities that have developed on the metal surface create gradients of pH and dissolved oxygen, leading to localized forms of corrosion. Microbiological activity is believed to be responsible for greater than 75% of the corrosion in production oil and gas wells, and it is likely that greater than 50% of failures of buried pipelines are due to the metabolic activities of microbes. Microorganisms exist in a consortium; interacting, cooperating and competing with one another for growth nutrients and growing space. This competition and/or codependence will affect the growth rate and the types of microorganisms present. Where biofilm deposits inert, they would contribute to MIC by simply creating chemical and electropotential (Galvanic cell) gradients between biofilm covered surfaces and surfaces that are exposed to the bulk fluid. There exists a general consensus on the macro-role of each of these factors, but less is known about the nuances of how these factors interact. Moreover, a clear understanding of the relationship between bioburden and biodeterioration has yet to emerge.

Although reports on the microbial growth in hydrocarbons have increased, at present there are no official standards to regulate the microbiological quality.

In this paper we analysed hydrocarbon transporting steel pipes and the effects on them in order to help the understanding of the relationship between the microbiological activity, effects and the mechanisms that take place under different forms.

**Keywords:** stainless steel, corrosion products, degradation.

### 1. Introduction

Many microorganisms possess the ability of utilizing hydrocarbons as a sole source of energy in their metabolism. Gaseous, liquid and solid hydrocarbons are susceptible to microbial decomposition. Nearly a hundred species of bacteria, yeasts and molds representing thirty genera have been described, which attack one or more kinds of hydrocarbons. Such microbes appear to be quite widely and abundantly distributed in nature where they may be of considerable importance in the carbon cycle and to various industries.

Wherever exposed to mineral solutions in which microbial life is possible, petroleum, rubber or other types of hydrocarbons may be slowly decomposed by microorganisms [1].

A wide range of studies have dealt with biotransformation, biodegradation, and bioremediation of petroleum hydrocarbons [2-5], and interest in exploiting petroleum-degrading organisms for environmental clean-up has become central to petroleum microbiology [6].

A molecular approach is also contributing to a more detailed characterization of bacterial membrane structure. We are learning a great deal about cellular and other physiological adaptations to the presence of hydrocarbons, as well as the biochemical mechanisms involved in hydrocarbon accession and uptake [7-9].

Although the electrochemical nature of corrosion remains valid for microbiologically influenced corrosion (MIC), the participation of microorganisms in the process nonetheless induces several unique features, the most significant being the modification of the metal–solution interface by biofilm formation [10]. Biofilms affect interactions between metal surfaces and the environment, not only in biodeterioration processes such as MIC, but also in several biotechnological processes applied to materials recovery and handling [11]. Thus, the key to the alteration of conditions at a metal surface, and hence the enhancement or inhibition of corrosion is the formation of a biofilm [12]. Microorganisms influence corrosion by changing the electrochemical conditions at the metal–solution interface. These changes may have different effects, ranging from the induction of localized corrosion, through a change in the rate of general corrosion, to corrosion inhibition [13]. Any biological effect that either facilitates or impedes one of the anodic or cathodic reactions of the corrosion process, or that permanently separates anodic and cathodic sites, will increase corrosion. For instance, stimulation of the anodic reaction by acidic metabolites or the cathodic reaction by microbial production of a cathodic reactant such as hydrogen sulfide, the breakdown of protective films, or the increase in conductivity of the liquid environment enhances corrosion.

All these involve the process of metal dissolution and corrosion-product formation. Both biological and inorganic processes occur within the same time period, but in opposite directions at the metal–solution interface. Whereas corrosion and corrosion-product accumulation occur from the metal surface towards the solution, biofilm formation is the result of accumulation processes directed from the bulk towards the metal surface. Thus, a very active interaction between corrosion-product layers and biofilms can be expected. The approach for a sound interpretation of any microbial corrosion case must then be interdisciplinary, and must include a thorough process analysis combined with well-defined microbiological and electrochemical methodologies [14].

### 2. The negative impact

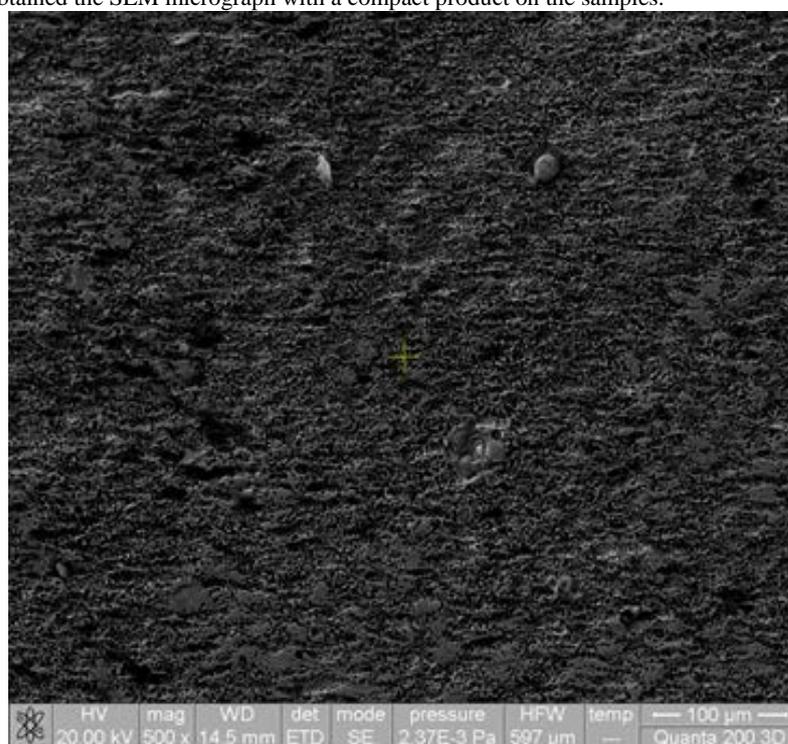
MIC is induced by indigenous microorganisms that naturally reside in hydrocarbon and secondary water injection systems [15]. Microbial metabolic products, for example, sulfide and organic acids such as acetic acid, may alter interface chemistry, resulting in increased corrosion rates. Furthermore, biofilms consisting of complex communities of microbes and extracellular polymeric substances (EPS) that have developed on the metal surface create gradients of pH and dissolved oxygen, leading to

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localized forms of corrosion, such as pitting and crevice formation [16]. Bacterial activity (e.g., sulfate reduction) is believed to be responsible for greater than 75% of the corrosion in production oil and gas wells, and it is likely that greater than 50% of failures of buried pipelines and cables are due to the metabolic activities of microbes. The main types of bacteria associated with metals in pipeline systems are sulfate-reducing bacteria, iron reducing bacteria, iron and manganese oxidizing bacteria, and acid producing bacteria [17]. For several reasons, SRB have been recognized as the major contributor to MIC in pipeline systems primarily due to their predominantly anaerobic lifestyle and continuous production of corrosive hydrogen sulfide [18]. However, in practical situations, MIC results from synergistic interactions of different microbial consortia, which coexist in the environment and are able to affect the electrochemical processes through co-operative metabolisms. At a minimum, hydrogen sulfide is thought to be responsible for a variety of environmental effects which include reservoir souring, contamination of natural gas and oil with H<sub>2</sub>S, corrosion of metal surfaces, the “plugging” of reservoirs due to the formation of extensive pore-space microbial biofilms and the precipitation of metal sulfides. SRB has received much attention in the oil and gas industry and MIC investigations, as these microorganisms have several detrimental metabolic activities including the ability to: (1) oxidize hydrogen, (2) use O<sub>2</sub> and Fe<sup>3+</sup>, (3) utilize aliphatic and aromatic hydrocarbons, (4) couple sulfate reduction to the intracellular production of magnetite and (5) compete with nitrate-reducing/sulfur-oxidizing bacteria (NRB-SOB) (since they may have a nitrite reducing activity) (Ref 5, 6). In total, all of these activities can significantly degrade the quality of oil and gas in a reservoir to be economically extractable. Moreover, SRB adversely impacts the integrity of oil and gas installations [19].

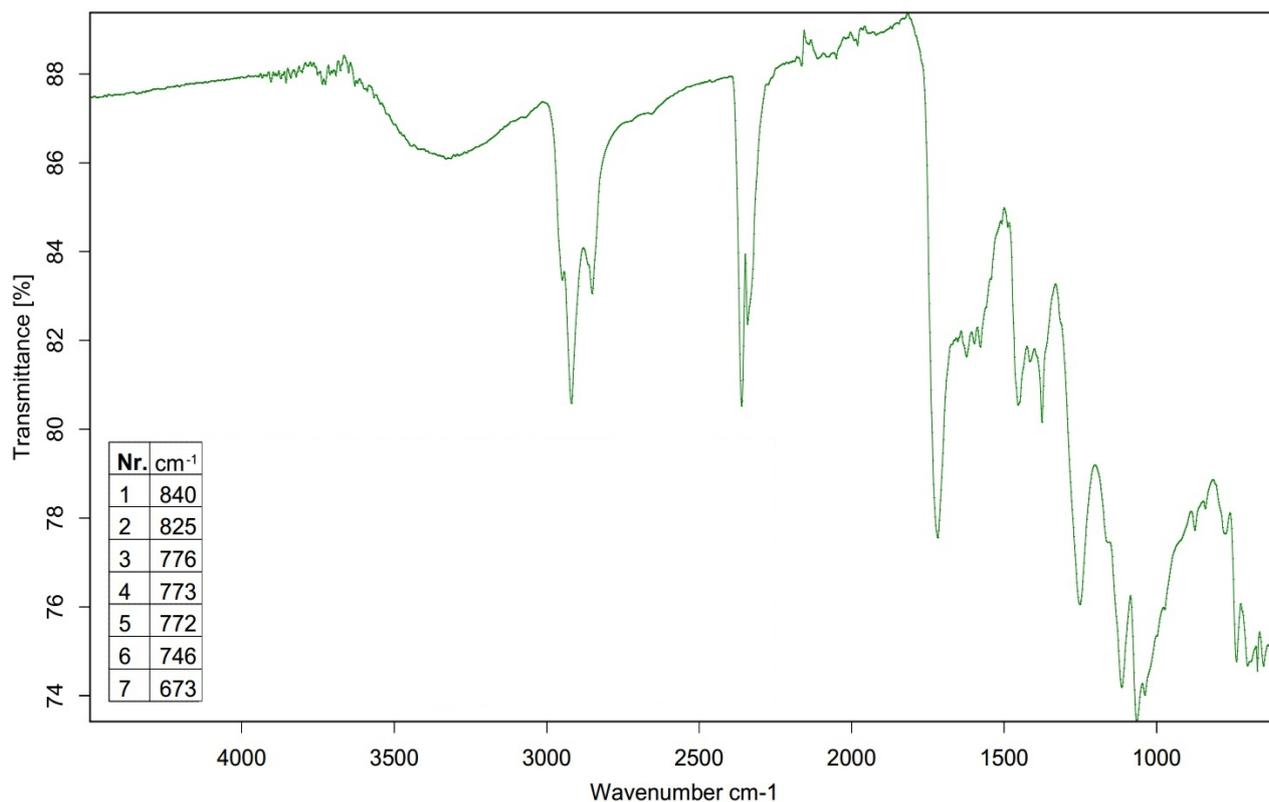
### 3. Experimental analysis

For the analysis we first investigated the samples by Scanning Electron Microscopy (SEM) from the surface to the microstructure. The analysed samples are made from steel with the following main elements composition: 0.22% C, 17% Cr, 12% Ni and 0.08% S. As in [20] we obtained the SEM micrograph with a compact product on the samples.



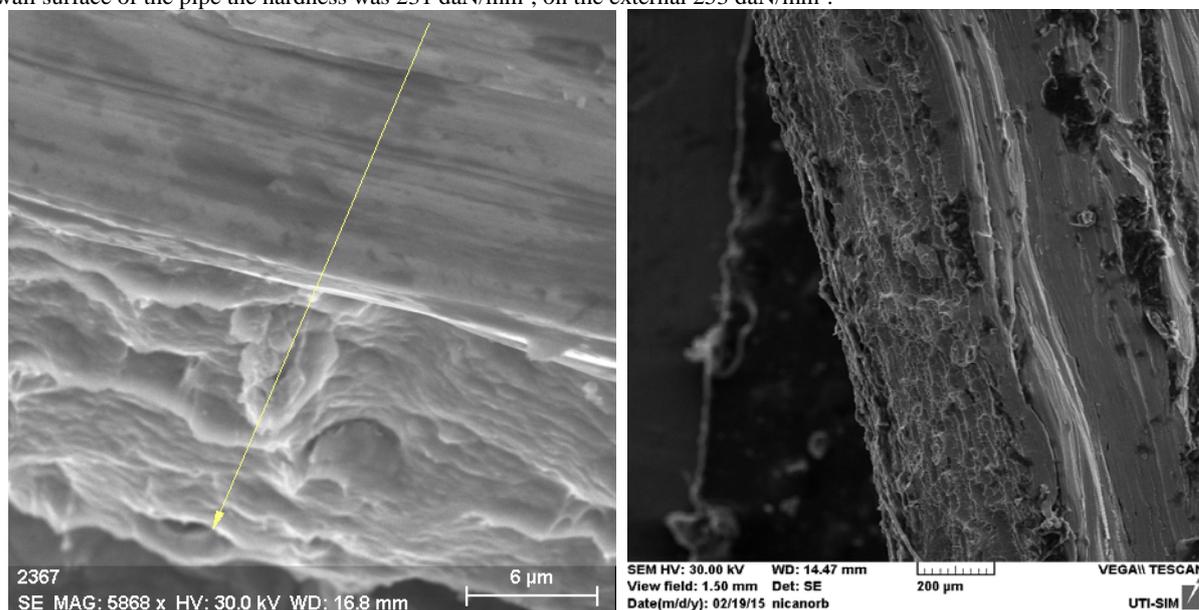
**Fig. 1 SEM micrograph of the samples surface.**

Using Fourier Transform Infrared Spectroscopy (FTIR) we analysed the same surface, without cleaning, so it could detect as many substances as possible (Fig. 2). FTIR results revealed vibration bands of functional groups such as aromatic and aliphatic C–H, C=C, -CH<sub>2</sub> and -CH<sub>3</sub> stretching and -OH groups capable of forming hydrogen bonds. These groups are capable of donating or accepting protons inter- and intra-molecularly.



**Fig. 2 FTIR spectrum of the sample surface.**

For further SEM analysis we broke the samples and investigated the fractures. It could be seen that the character of the fracture is not uniform and is different from wall to wall (Fig. 3), showing that the medium diffusion is intensified from the internal wall so that the strength properties of the steel are more severely reduced. The microindentation hardness tests showed that on the internal wall surface of the pipe the hardness was 231 daN/mm<sup>2</sup>, on the external 253 daN/mm<sup>2</sup>.



**Fig. 3 SEM micrograph of the fractures.**

#### 4. Conclusions

- Although reports on the microbial growth in hydrocarbons have increased, at present there are no official standards to regulate the microbiological quality;
- The analysed deposition results are quite similar to crude oil depositions, although the pipe was used for transportation of relatively clean jet fuel;
- The microbiological activity is able to worsen the mechanical properties of a steel that does not present any defects, but only in combination with the other mechanisms of degradation.

#### Acknowledgements

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# MICROBIAL FUEL CELLS FOR EFFICIENT WASTEWATER TREATMENT AND ENERGY PRODUCTION

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## Abstract

Advances in waste management technology constitute an absolute necessity in a world where human population is rapidly expanding, giving rise to increasing demands of efficiency and coverage in order to safeguard both economic and ecologic sustainability. With these foundational concepts in mind, our research focuses on simultaneous energy production and organic matter removal in wastewater treatment: we investigate the potential of monochamber Microbial Fuel Cells (MFCs) for electricity generation coupled with reduction of the organic load of wastewaters collected from Facai's Wastewater Treatment Plant in Romania. Three MFC systems were inoculated with microbial cultures obtained from: i) the active sludge of a wastewater treatment facility (MFC-TP); ii) the silt from a river basin that regularly accepts heavy loads of nitrates from the local agriculture (MFC-BR); and iii) the silt of a river near an industrial zone from Bucharest (MFC-SR). The systems were characterized according to their capacity for simultaneous organic matter and nitrate removal, as well as current and power density production. Their electrochemical response was monitored by cyclic voltammetry, polarization and power curves. Dissolved oxygen, pH, and conductivity profiles of the systems in operation were consistent with the metabolic characteristics of the inoculants; the faster conductivity drop after enrichment in the MFC-BR system suggested that silt microbes metabolize nutrients more efficiently. Constant monitoring of nitrate levels (every 24 h for 14 days) showed a higher efficiency of 85% in nitrate removal of MFC-BR versus the 37% recorded for the oligotrophic community from MFC-TP and a 1% nitrate removal efficiency for MFC-SR.

**Keywords:** Microbial Fuel Cells (MFCs), wastewater treatment, energy production, nitrate removal.

## 1. Introduction

Only lately have economic models taken into account the finiteness of available freshwater resources – this represents a major turning point in present-day economics, linking projected development with water availability at a time that this particular resource is threatened by shortages, droughts and pollution. [1]

The roots of the water crisis can be traced to poor administration and resource allocation, coupled with competition for the remaining freshwater resources in the context of economic activity, catalyzed by an ever-increasing global population. [2] In tandem, surface and ground water pollution escalates, leading to the alarming shrinkage of available freshwater resources. The main sources for water pollution can be traced to human residential, industrial, and agricultural waste, coupled with ineffective waste treatment and disposal practices. [2, 3]

Microbial electrochemical systems (microbial fuel cells - MFCs and microbial electrolysis cells - MECs) constitute a breakthrough in environmental technology. Such systems use wastewater as the raw material for producing energy or recovering valuable compounds through the biodegradation of the organic fraction. The technology has been intensively studied and developed for over a decade, representing an interdisciplinary research effort by integrating microbiology, electrochemistry, engineering and materials science; it is considered by some researchers to be the future of wastewater treatment. [4, 5, 6]

With this foundational concept in mind, our research focused on simultaneous energy production and water purification using a simple monochamber – MFC model having as electrolyte wastewater collected from a Wastewater Treatment Facility from Romania and three types of microbial cultures: i) The active sludge of the wastewater treatment facility; ii) The silt from a river basin that regularly accepts heavy loads of nitrates from the local agriculture – Burtea River; iii) The silt of a river near an industrial zone from Bucharest – Sabar River.

## 2. Materials and Methods

### 2.1. Materials

The following materials were used in the assembly of the MFC:

**Anolyte solution:** the anolyte total volume of 300ml was comprised of 150ml wastewater and 150ml of sediment bearing microorganism cultures. Wastewater samples were collected from the Facai Wastewater Treatment Plant in Oltenia. Microbial cultures: i) Sediment collected from a depth of 10cm below the Burtea River silt basin which housed a naturally occurring mixture of microorganisms; ii) active sludge from a wastewater treatment plant in Romania supplied by “SC Compania de Apa Oltenia S.A.”; iii) Sediment from a depth of 10 cm below Sabar River silt - river near an industrial zone from Bucharest. All anolyte ingredients were used as received.

**Electrodes:** both anode and cathode electrodes were fabricated from carbon felt (AM&T VDG) with a surface area of 56.54cm<sup>2</sup>, and activated as follows: a.) soaked in HCl (1M) for one hour, washed with distilled water (DW), then soaked for a full day in HCl (1M) and washed again with DW; b.) soaked for a day in NaOH (1M), washed with DW, then soaked for another day in HCl (1M) and rewashed with DW; and c.) soaked for a day in NaOH (1M), washed several times with DW until the pH was close to neutral, and kept in DW until use.

The monochamber MFC system was assembled from acrylic, having a single chamber of 6cm height by 9cm diameter (available volume of 382ml), containing the anode and the cathode at opposite sides of the chamber (activated carbon felt electrodes of 56.54cm<sup>2</sup> surface area each), and the 300ml of anolyte. A cylindrical Plexiglas of 3cm height was used as a spacer between the electrodes, each one connected with titanium wire to a data acquisition unit (Picotech ADC 10/11) that monitored the electrical potential in real time. The three systems were monitored for 7 days of operation.

### 2.2 Analytical techniques

The following techniques were used in our analysis:

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*Polarization and power density profiles:* obtained using a variable resistor box to set the external loads ranging from 20MΩ to 5Ω in a periodical decreasing order. Current density was calculated according to:

$$I = E (R \cdot A) \tag{1}$$

where E is the cell voltage (V), R is the external resistance (Ω), and A is the projected surface area of the anode (56.54cm<sup>2</sup>).

*Power density* was calculated according to:

$$P = (I \cdot E) / A \tag{2}$$

*Cyclic voltammetry:* conducted using a Voltalab 401 system to examine the electrochemical behavior of the MFCs; to determine the double layer capacity (CDL) of the bioelectrodes; and to observe the microbial redox activity. Electrochemical analysis performed on the anolyte employed the opposite electrode as an auxiliary electrode, and a standard calomel reference electrode (SCE XR110) placed close to the working electrode.

*Nitrate content:* measured every 24 hours using a nitrate ion selective electrode (Vernier ISE Nitrate NO<sub>3</sub>-BTA).

*Organic matter removal (ΔCOD):* calculated by measuring the water samples initial and final COD values on the first and final steps of operation. The COD measurements were conducted using an AquaFast AQ4000 Colorimeter (Thermo Scientific Orion) at a wavelength of 610nm, equipped with a COD125 thermo-reactor, and using an Orion CODHP0 (0 to 15mg•L<sup>-1</sup>) kit.

### 3. Results and discussions

#### 3.1. Polarization and power density curves

By setting variable external loads of resistances in a decreasing order, we were able to observe the electrical performance of the MFC systems. We waited 15 minutes between measurements and for electricity and potential measurements we used 2 multimeters.

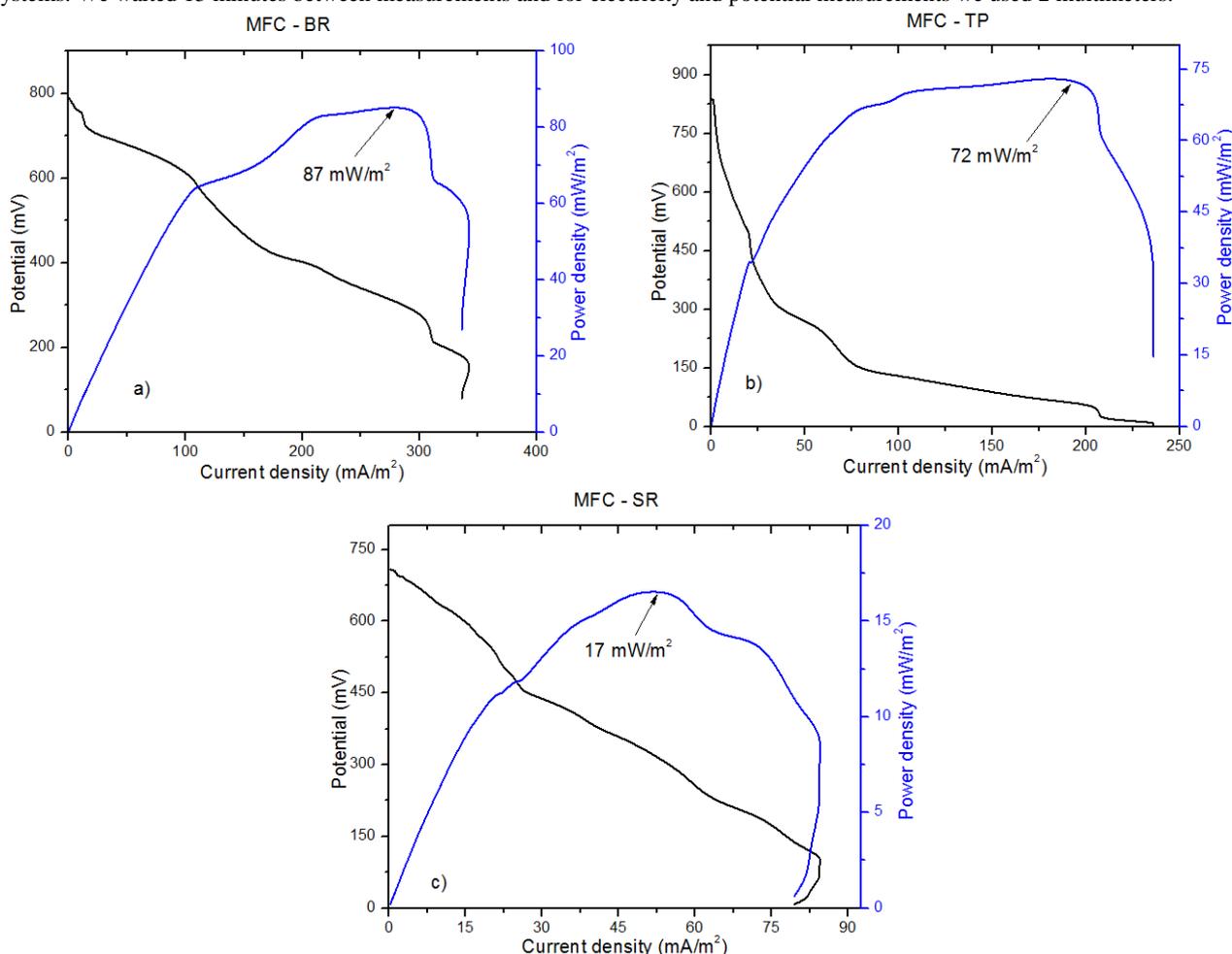


Figure 1. Polarization and power density curves for: a) MFC – BR; b) MFC – TP; c) MFC – SR

Once the MFCs reached a stable voltage output of 839mV for MFC – TP, 708 mV for MFC – SR and 789 mV for MFC – BR respectively, we initiated measurements of current and voltage. Current and power densities were calculated by normalizing the values over the anode surface area.

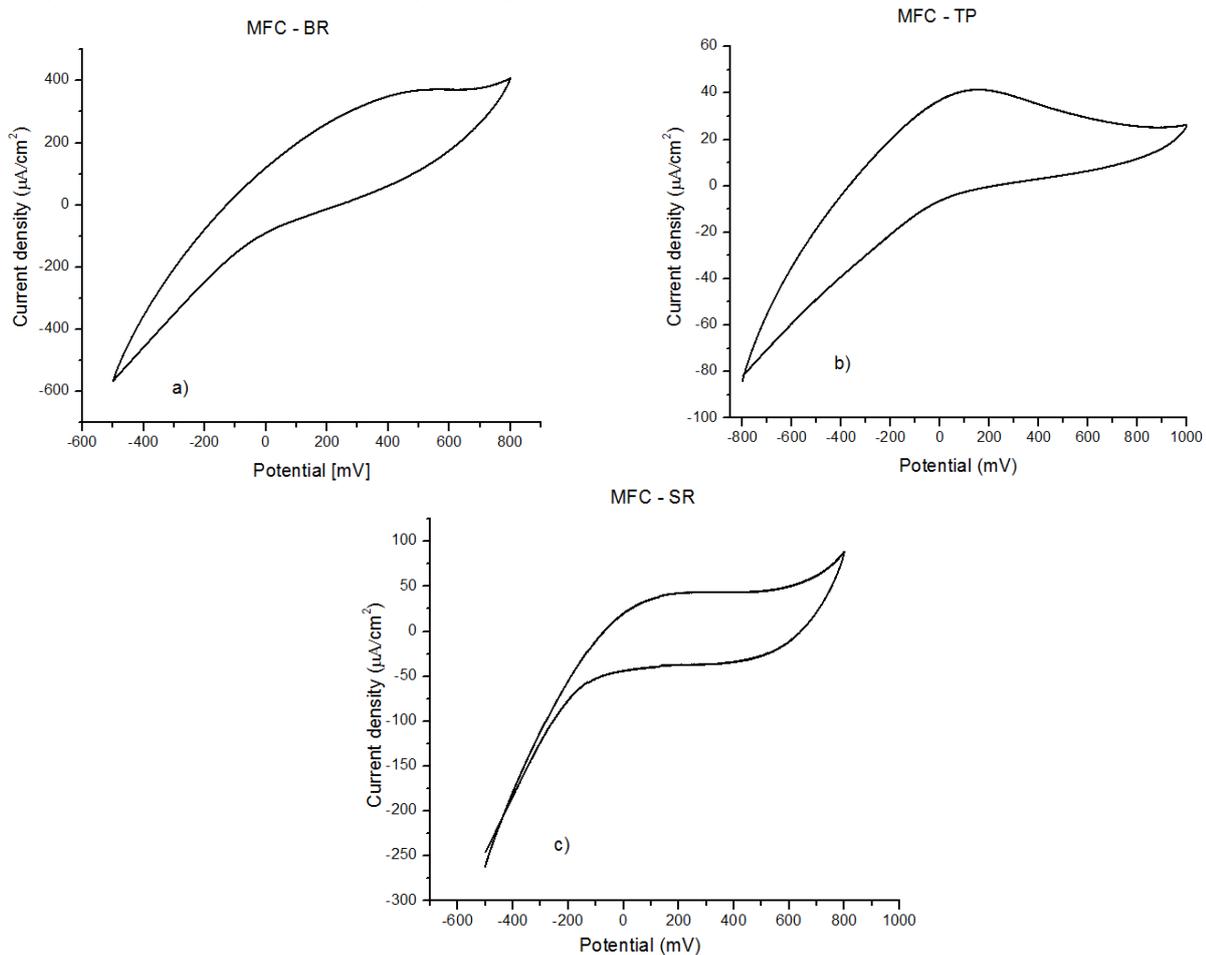
From the data obtained we were able to determine the maximum power output, the internal resistance, the optimum current density and the maximum current density attained by every MFC system, data shown in table 1.

System	Internal resistance (Ω)	Optimum current density (mA/m <sup>2</sup> )	Maximum power density (mW/m <sup>2</sup> )	Maximum current density (mA/m <sup>2</sup> )
MFC - TP	300	181	72	236
MFC – BR	90	240	87	341
MFC - SR	220	52	17	84

Table 1. Electrical performance measured for all MFCs

### 3.2. Cyclic voltammetry

Cyclic voltammetry (CV) measurements were conducted under a three electrode setup at a 50 mV/s scan rate and 25 cycles considered sufficient for an equilibrated response. The potential range differ for the analyzed MFCs due to the electrolysis appearance: for MFC – BR the potential range was set from 500mV to 800mV; for MFC – TP the potential range was from -800mV to 1000mV and for MFC – SR was from -500mV to 800 mV.



**Figure 2. Cyclic voltammetry measurements for: a) MFC – BR; b) MFC – TP; c) MFC - SR**

From the CV profiles shown in figure 2, we could observe the microbial redox activity developed by the three microbial cultures present at the anode electrodes. The MFC - BR had a small, but stable electrochemical response with an oxidation peak of 65.1  $\mu\text{A}/\text{cm}^2$  at 315 mV and a reduction peak of 50  $\mu\text{A}/\text{cm}^2$  at 454 mV. Through this measurement we observed that the microbial community was capable to oxidize the organic matter releasing in the process electrons to the electrode.

In figure 2 b) is shown the electrochemical response of the microbial community collected from the Wastewater Treatment Facility, which presented just a stable oxidation peak of 39  $\mu\text{A}/\text{cm}^2$  at 40 mV with no returning reduction peak. By this we concluded that this specific oligoculture was capable to oxidize the organic matter but was less dependent of the anode electrode as the final electron acceptor.

The last CV measurement made for the MFC – SR showed a weak electrochemical activity with no oxidation and reduction peaks what so ever. This values are consistent with the results obtained from the electrical performance of the systems – through polarization curves and power densities.

### 3.3. pH, DO, Cond and $\text{NO}_3^-$ content

Dissolved oxygen (DO), pH, conductivity (Cond) and nitrate content ( $\text{NO}_3^-$ ) were monitored in 24-hour intervals for the full 7 days of operation in the analytes of all three MFC configurations, values observable in figure 3.

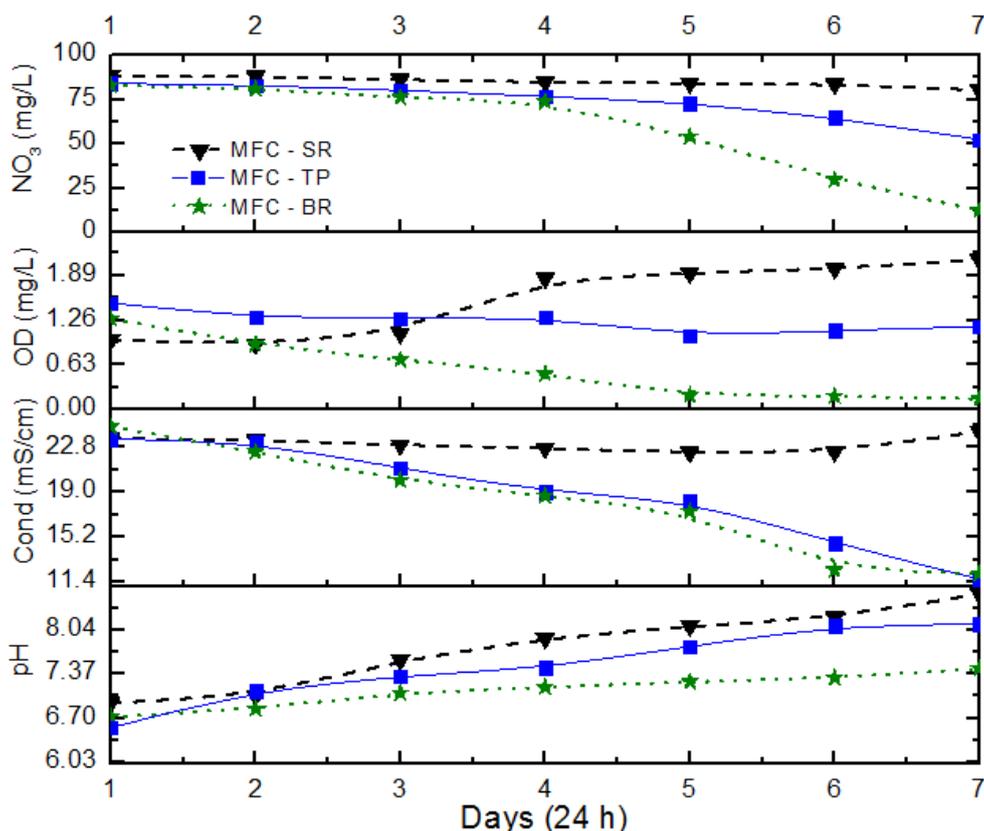


Figure 3. pH, Cond, DO and NO<sub>3</sub><sup>-</sup> values for all three systems (MFC – BR, MFC – TP and MFC – SR) for the entire experiment

The wastewater pH used as electrolyte increased for all systems from a value of approx. 6.8 to 7.4 for MFC – BR, 8.3 for MFC – TP and 8.6 for MFC – SR respectively. MFC – SR presented the most pronounced pH increase. This behavior was determined by the metabolic activity of the microbial communities used in our research

Conductivity values for the analytes of MFC – BR and MFC – TP showed a significant decrease throughout the entire experiment. MFC – BR started from an initial value of 23 mS/cm and ending up with a value of 12 mS/cm, same behavior was observed also for MFC – TP that had an initial value of 23 mS/cm and reaching a value of 11 mS/cm. The MFC – SR presented a different behavior, increasing slightly its value from 23.3 mS/cm to a final value of 24 mS/cm after 7 days of MFC operation. This suggests that the microbes used in MFC – BR and MFC – TP metabolized more efficiently the organic matter present in the wastewater, displaying a faster substrate consumption.

From the DO values we observed that MFC – BR and MFC – TP had a decrease in dissolved oxygen concentration while MFC – SR showed an increase in dissolved oxygen. MFC – BR and MFC – TP started from an initial value of 1.3 mg/L and 1.2 mg/L respectively. MFC – BR had the most pronounced decrease in oxygen concentration reaching after 7 days of operation 0.17 mg/L. From this values we observed that the microbial communities used in this two systems had their metabolic pathways dependent on oxygen. MFC – TP decreased to 1.18 mg/L in the final day of operation. MFC – SR showed an increase of dissolved oxygen reaching a value of 2.1 mg/L after 7 days of operation.

The nitrate reduction capacities of the systems were differing one of another, the NO<sub>3</sub><sup>-</sup> concentration started from an initial value of 83 mg/L. The most pronounced nitrate reduction was observed for the MFC – BR which ended up with a value of 13 mg/L showing an efficiency of 85%. MFC – TP had a nitrate reduction efficiency of 37% reaching in the final day to a nitrate concentration of 52 mg/L. MFC – SR had the lowest value in nitrate reduction reaching in the final day of operation 81 mg/L, showing a nitrate removal efficiency of 1%.

### 3. Conclusions

Using three monochamber MFCs inoculated with three different microbial communities taken from: i) The sediment collected from a depth of 10 cm below the Burdea River silt basin which housed a naturally occurring mixture of microorganisms; ii) The active sludge from a wastewater treatment plant in Romania supplied by “SC Compania de Apa Oltenia S.A.”; iii) The sediment from a depth of 10 cm below Sabar River silt - river near an industrial zone from Bucharest; we investigated their capacity in power production, nitrate removal and their electrochemical activity.

We managed to generate power and to remove nitrates from wastewater generating up to 87 mW/m<sup>2</sup> of power with an optimum current density of 240 mA/m<sup>2</sup> simultaneously with a nitrate removal efficiency of 83% using MFC – BR system having a fresh water microbiota from a river near an agricultural zone from Romania. Using MFC – TP with the specific oligoculture from the wastewater facility - SC Compania de Apa Oltenia S.A.. we managed to attain a power density of 72 mW/m<sup>2</sup> with an optimum current density of 181 mA/m<sup>2</sup> in tandem with a nitrate removal efficiency of 37%. MFC – SR presented the lowest values in power performance 17 mW/m<sup>2</sup> and nitrate removal efficiency 1%, due to the microbial community that was less electrochemical active than the other two cultures used in MFC – BR and MFC – TP.

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## SYNTHESIS OF HIGHLY CONDUCTIVE GRAPHENE BASED CARBON XEROGELS FOR ELECTROCHEMICAL ENERGY CONVERSION APPLICATIONS

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### Abstract

Graphene-based carbon xerogels are commonly synthesized via sol-gel polymerization of resorcinol with formaldehyde in the presence of graphene oxide (GO) and a basic catalyst such as Na<sub>2</sub>CO<sub>3</sub>. However, many market applications request pure carbon materials with high porosity and low electrical resistivity, thus the presence of a metal based catalyst contaminates the final product. The present study reports a variation on the classical method for carbon xerogel-graphene synthesis, where the graphene oxide plays the role of the catalyst due to the presence of different groups in the GO basal plane (i.e. <sup>-</sup>OH, <sup>-</sup>COOH) that act as nucleation active centers in the resorcinol-formaldehyde sol-gel polycondensation reaction. After crosslinking and drying, the xerogel is composed of interconnected particles linked with GO bridges; in the final pyrolytic stage of the method, the GO films are reduced to graphene. This structure constitutes a highly conductive material with morphological and structural properties which can be tailored according to different applications of interest.

**Keywords:** carbon aerogel, graphene oxide, nanocomposites.

### 1. Introduction

One of the main problems in the 21<sup>st</sup> century is high energy demand and consumption, thus new approaches in terms of energy storage and conversion are needed to produce green energy using renewable and alternative sources [1,2]. In this respect, novel low-cost materials with enhanced physical properties need to be designed [3,4]. Porous carbon nanomaterials are emerging as promising components in energy devices. Usually the erratic structure of such materials inhibits the electron flow through the network, deteriorating the performance of the device, thus we need to design nanomaterials with structural, morphological and electrical properties tailored for specific applications [5].

Carbon aerogels are a special class of solid nanomaterials with high surface areas and a tubular porous structure [6]. A clear disadvantage is the high electrical resistivity of carbon aerogels, produced by the boundaries between interconnected nanoparticles and the numerous free spaces within their structure [7]. An easy method to reduce the electrical resistivity of a carbonic material is to introduce highly conductive materials in its structure, such as graphene: a single layer of sp<sup>2</sup> carbon atoms in a hexagonal lattice [8]. By combining carbon aerogels with graphene sheets, we can create a new class of carbon nanocomposites with high surface area and porosity, improved electrical and thermal conductivity, and better mechanical strength. However, in aqueous solutions the graphene sheets tend to agglomerate and lower the electrical properties of the composite. This problem can be rectified by the use of graphene oxide (GO), which doesn't agglomerate due to functional groups (-OH, -COOH) on the basal plane [9].

Worsley et al. produced graphene based aerogels using a precursor aqueous solution of resorcinol (R), formaldehyde (F), sodium carbonate and graphene oxide [10]. The graphene oxide sheets from the aerogel are reduced to graphene by pyrolysis at high temperatures (1050°C). However, energy applications demand components based on pure carbonic materials, thus the residual Na ions constitute impurities in the composite aerogel.

To counter this problem, we eliminated the conventional basic catalysts from the RF crosslinking reaction and used only graphene oxide. GO plays the role of a basic catalyst due its basal plane groups, which act as nucleation active centers in the RF reaction: the clusters form around the nucleation active centers in the sol-gel process. The GO sheets form carbon bridges in the porous structure between the interconnected nanoparticles after carbonization, which offer pathways for the electrical charge transfer. In our research, we have aimed to produce pure carbonic materials with high surface area and porosity, but also with higher electrical conductivity than the conventional carbon xerogels synthesized using basic catalysts.

### 2. Experimental

#### 2.1. Precursor materials

Resorcinol (≥99.0%, pellets, Sigma-Aldrich), formaldehyde (37wt% in H<sub>2</sub>O, Sigma-Aldrich) and graphene oxide produced according to a modified Hummers Method [11].

#### 2.2. Carbon xerogels preparation

##### 2.2.1. Carbon xerogels - graphene composites synthesized with graphene oxide as basic catalyst

Carbon xerogels with graphene were obtained using a triple-step synthesis method. First, an aquagel was produced through the catalytic polycondensation of resorcinol and formaldehyde with a molar ratio R:F=1:2. The RF reaction catalyst was graphene oxide at concentrations 0.5%, 1% and 3% of R; with pH of 3.2, 3.5, and 3.8 respectively; and gelation times at room temperature of 74 hours, 50 hours, and 74 hours respectively. The second step involved the encapsulation of the aquagel and its thermal treatment for 10 days at 50°C, followed by drying for 15 days while gradually raising the temperature to 180°C. The final pyrolysis was performed considering the mass loss parameters of the carbon xerogel with 1% graphene oxide obtained from thermogravimetric analysis (Figure 1). Nomenclature: considering the catalyst concentration used in the xerogel synthesis, the samples are notated as: CX-GO-0.5%, CX-GO-1% and CX-GO-3%.

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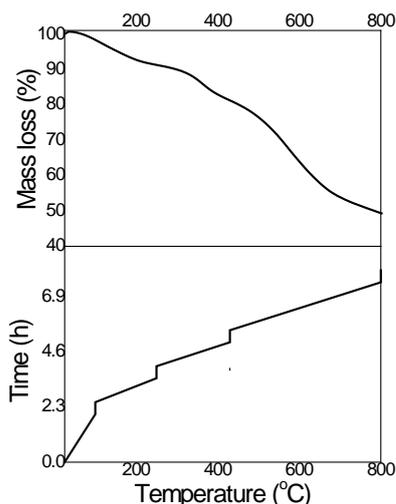


Figure 8. The diagram of the pyrolysis process used for the carbonization of the organic xerogels with graphene oxide correlated with the thermogravimetric degradation curve of the organic xerogel with 1% graphene oxide.

### 2.2.2. Reference carbon xerogels synthesized with $\text{Na}_2\text{CO}_3$

For comparison, a reference carbon xerogel was produced using a conventional catalyst ( $\text{Na}_2\text{CO}_3$ ) with a molar ratio R:C of 100. The precursor solution pH was 3.5 and the gelation time was 5.5 hours. Aging, drying, and pyrolysis were performed in the same conditions as in the CX-GO samples. Nomenclature: the carbon xerogel synthesized with  $\text{Na}_2\text{CO}_3$  was simply noted as CX.

### 2.3. Characterization methods

Xerogel structure was investigated by a scanning electron microscope (SEM, FEI Inspect S).

Thermogravimetric analysis (TGA, SDTA Mettler Toledo) was performed in nitrogen at a heating rate of  $10^\circ\text{C}/\text{min}$  in the temperature range of 25 to  $1000^\circ\text{C}$ .

Xerogel molecular structure and crystallinity were analyzed with Raman spectrometry (NRS-3100 JASCO, using a red laser at 532nm).

X-ray Photoelectron Spectroscopy (XPS, SPECS Phoibos 150) experiments were performed in vacuum at a base pressure of  $6 \cdot 10^{-10}$  mbar. High resolution C1s and O1s core level spectra were recorded at normal emission take-off angle, using an energy step of 0.05eV and a pass energy of 14eV, giving an overall energy resolution of 0.48eV as measured at the Fermi edge of a silver reference sample.

Water uptake (WU) was calculated according to the following:

$$WU[\%] = 100 \frac{m_{wet} - m_{dry}}{m_{dry}} \quad (1)$$

where  $m_{wet}$  is the mass of the xerogel after 24 hours of soaking in water and  $m_{dry}$  the mass of the material after drying for 12 hours at  $80^\circ\text{C}$ .

Apparent density (bulk density),  $\rho_a$ , is defined as the mass of the material divided by the total volume it occupies, determined by weighting a number of rectangular or cylindrical samples of known dimensions.

Skeletal density (real density),  $\rho_s$ , is defined as the density of the solid material measured by methanol pycnometry. Before measurement, the samples were dried at  $120^\circ\text{C}$  for 24 hours to negate the distorting effects of water adsorption. The volume of methanol introduced in the pycnometer containing the samples was measured to determine the xerogel dislodged volume.

Porosity,  $\phi$ , and specific pore volume,  $V_p$ , were calculated from the apparent and skeletal densities.

Electrical resistivity was determined from the intensity-potential profile (Voltalab 40 potentiostat: PGZ 301, Radiometer Analytical SAS, France).

### 3. Results and Discussion

SEM imaging was employed to study the surface morphology of carbon xerogels in comparison to the composite xerogels with graphene. The conventional carbon xerogel presented interconnected particle structures with large pores - in comparison, the carbon xerogels with graphene had highly packed structures with small pores and particles. At small catalyst concentrations, the particle dimension was higher than at higher GO concentrations, because at small catalyst concentrations in the gelation phase there were few nucleation active centers and larger clusters were formed around them.

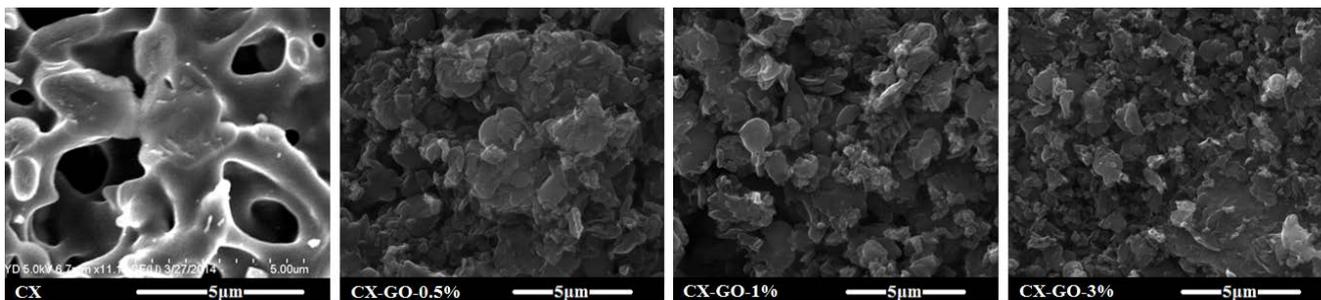


Figure 9. SEM images of the carbon xerogel in comparison to the carbon xerogels with different graphene concentrations and  $\pi-\pi'$  interactions; the oxygen was bonded with carbon atoms forming O-C and O=C bonds.

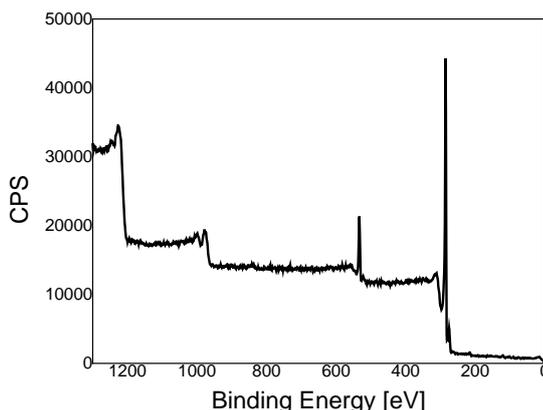


Figure 10. XPS analysis of the carbon xerogel with graphene (CX-GO-1%) which presents a pure carbon structure

Raman spectra (Figure 4) were typical to carbonic materials, showing the G band corresponding to  $sp^2$ -hybridized carbons from the polyaromatic structures, and the D band corresponding to  $sp^3$ -hybridized carbons from the amorphous disordered structures. The  $sp^2$ -hybridized carbons, derived from the resorcinol aromatic nuclei, maintained a trigonal planar configuration after pyrolysis. The D band presented a lower intensity value than the G band and their intensity ratio ( $R_{D/G} = I_D/I_G$ ) presented values slightly smaller than unity, with higher  $R_{D/G}$  values for higher GO concentrations, as the D band intensity increased with GO concentration (induced by the decrease of the pore and particle size). The small peaks at  $1,100\text{ cm}^{-1}$ , attributed to the mixed C-C and C=C bonds with  $sp^2-sp^3$  hybridization, were present in all three cases.

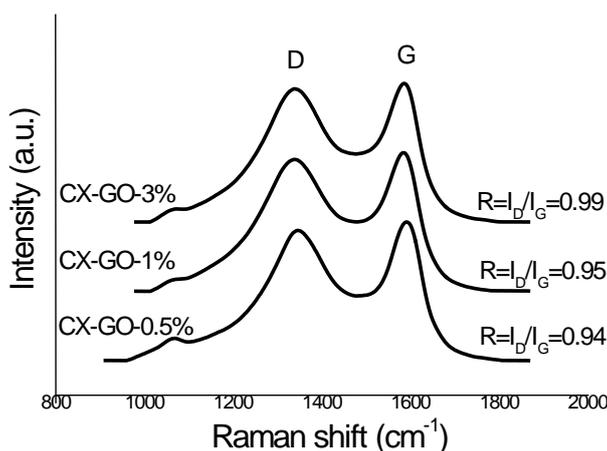


Figure 11. Raman spectra of the carbon xerogels with graphene synthesized with different GO content

Aquagel with graphene oxide presented a decrease in contraction with higher GO concentrations due to more carbon bridges between the particles, providing a firmer network structure (Table 1). After carbonization, this led to a decrease in porosity, density and water sorption capacity, and to an increase of the electric conductivity. In comparison, the CX presented higher porosity and water sorption, and lower electric conductivity values

Material	$C_c$ (%)	WA (%)	$\rho_a$ (g·cm <sup>-3</sup> )	$\rho_s$ (g·cm <sup>-3</sup> )	$\phi$ (%)	$V_p$ (cm <sup>3</sup> ·g <sup>-1</sup> )	$\rho$ $\Omega$ ·cm
CX-GO-0,5%	13.8	91.4	0.19	1.82	89.6	4.71	1.05
CX-GO-1%	13.1	85.7	0.22	1.90	88.4	4.02	0.91
CX-GO-3%	11.4	79.8	0.36	2.09	82.8	2.30	0.83
CX	14.2	94.3	0.15	1.98	92.4	6.16	1.79

**Table 1. Physico-chemical and electrical properties for convectional xerogels in comparison to composite xerogels with graphene:  $C_c$  – drying contraction coefficient; WA – water uptake;  $\rho_a$  – apparent density;  $\rho_s$  – skeletal density;  $\phi$  – porosity;  $V_p$  – pore specific volume and  $\rho$  – electrical resistivity**

#### 4. Conclusions

Composite carbonic xerogels (carbon xerogels and graphene) were developed, aiming to produce highly porous structures with higher electric conductivity than the conventional carbon xerogels for energy applications. The resorcinol-formaldehyde reaction was performed in the presence of graphene oxide as a basic catalyst. The hydroxyl and carbonyl groups on the GO basal plane acted as nucleation active centers in the RF crosslinking process, forming bridges between the newly formed interconnected particles in the xerogel structure; after pyrolysis, the GO was reduced to graphene. Such graphene bridges provided additional pathways for the electron transport through the xerogel, raising the overall electrical conductivity of the composite material. The composite xerogel presented modified structural and morphological properties, which can be tailored by varying the initial synthesis conditions, targeting specific applications for electrochemical energy convertors.

#### Acknowledgements

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INFLUENCE OF TiO<sub>2</sub>-NATURAL DYE STRUCTURES ON DSSCs PERFORMANCE

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**Abstract**

Currently, the dye-sensitized solar cells (DSSCs) are considered a promising alternative technology for energy conversion and generation. In order to make the transition from research to the market the DSSCs efficiency and stability are equally important. Thus, the photo-electrochemical system, developed by O'Regan and Grätzel, proved to be an efficient combination (8%-10%) with promising stability. In order to achieve a high efficiency a high TiO<sub>2</sub> active surface is required. In this respect we investigate the influence of natural dyes on TiO<sub>2</sub> nanoparticles for DSSCs applications. We deposited TiO<sub>2</sub> nanoparticles (mostly anatase) with natural sensitized dyes on conducting plastic substrates (ITO) and used a solution of iodine (iodide I<sup>-</sup>/triiodide I<sub>3</sub><sup>-</sup>) as redox electrolyte. This researches the TiO<sub>2</sub>-natural dye complex structural and electrochemical characteristics and its efficiency in DSSCs.

**Keywords:** DSSCs, ITO, TiO<sub>2</sub> nanoparticles, natural dye.

**1. Introduction**

Dye-sensitized solar cells are third generation photovoltaic cells that convert the visible light into electrical energy. Formed by a combination of organic (i.e. organic dyes) and inorganic components, the DSSCs are considered a promising alternative technology for energy conversion and generation due to their low production cost, ease of fabrication and tunable aesthetic features, such as 4 colour and transparency [1]. The DSSCs electrical conversion efficiency (6-11%) depends on the type and structure of the component materials and also by the applied technology [2]. The photoelectrode of the DSSC is generally produced by coating metal oxides nanoparticles (i.e. zinc oxide, titanium dioxide, niobium pentoxide) on a conducting substrate which works as a current collector and a n-type semiconductor support (i.e. indium tin oxide – ITO [3], indium zinc oxide – IZO [4], fluorine doped tin oxide – FTO [5]).

Between the oxide nanoparticles, TiO<sub>2</sub> is preferred due to its high resistance to a continuous electron transfer. However, as TiO<sub>2</sub> only absorbs a small fraction of photons (those in the UV spectra) a second material with wide absorption range and fast electron injection is necessary. Molecular sensitizers, such as different organic dyes, are attached to the TiO<sub>2</sub> substrate. After the dye photo-excitation, an electron is injected into the oxide conduction band.

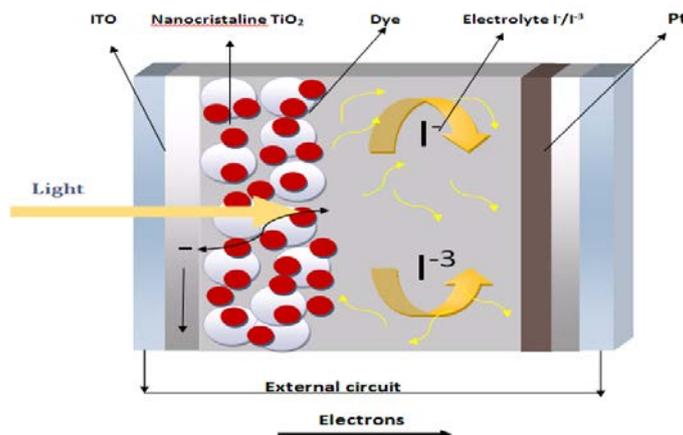


Figure 12. Operation principle of dye sensitized solar cell: electron excitation and injection in the TiO<sub>2</sub>, iodine reduction at the counter electrode, diffusion in the electrolyte and regeneration of the oxidized dye

The TiO<sub>2</sub> substrate transports the electron to the external contact. The sensitizer is restored to the original state by electron donation from the electrolyte (usually composed of an organic solvent containing a redox system such as the iodide/triiodide couple) [Figure 1]. The purpose of the electrolyte is to maintain equilibrium (I<sub>2</sub>+I<sup>-</sup>↔I<sub>3</sub><sup>-</sup>) giving up electrons to the dye molecule which has lost one electron in favor of the TiO<sub>2</sub>. This way the iodide becomes oxidized. Neutrality is reached because the triiodide is reduced at the counter electrode and, thus the electron is returned to the iodide. Thus, the DSSC converts light to electric power without suffering any permanent chemical transformation [6,7,8].

This work explores two directions: designing flexible DSSCs and the influence of different substrates.

**2. Experimental**

**2.1. Precursor materials**

TiO<sub>2</sub> (5 wt%, aq, Plasma Chem), Indium Tin Oxide coated PET sheet (resistivity 35Ω/sq surface, Sigma Aldrich), Iodide solution (99,5%, Fluka), industrial alkyd transparent resin, betaine dye extracted from beetroot red. Pt contacts were produced by thermic evaporation of Pt on a plastic substrate.

**2.2. Preparation of betaine-TiO<sub>2</sub> mixture**

- Chopped Beetroot red (100g) was immersed in 500ml methanol (99,8%, Riedel-Dehären) and introduced in a microwave oven for 70 minutes at 200W to produce a BR dye.

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- TiO<sub>2</sub> (anatase 5-10 nm) solution was dried until it became a tick paste.

A paste was produced by mixing 80% TiO<sub>2</sub> paste with BR dye (10%) and 10% alkyd transparent resin.

### 2.3. DSSC manufacturing

The betaine-TiO<sub>2</sub> mixture was deposited on clean ITO substrates (1 mL/0.81 cm<sup>2</sup> on a ITO substrate of 1 cm<sup>2</sup>). The samples were dried at room temperature for 24h. After drying on top of the samples were deposited 0.2 mL of 10 wt% Iodine solution in water. A silicone rubber gasket was used as a spacer who also maintained the electrolyte in position. The circuit was completed by adding the Pt contact deposited on the ITO substrate

### 2.4. Characterization methods

The betaine-TiO<sub>2</sub> nanoparticles size distribution was investigated by NanoZetaSizer ZEN 3600 using a red laser at 633 nm. The analysed samples contained 0.1 mL of BR-TiO<sub>2</sub> mixture dispersed in 10 mL of distillate water.

The phase composition of TiO<sub>2</sub> (anatase-rutile) was established by Raman Spectroscopy (Jasco NRS-3100 spectroscope) using a double laser beam (green-532nm, red-785nm).

The band gap of the TiO<sub>2</sub> nanoparticles and betaines desorption and sorption capacity in ultraviolet-visible spectra of was determined by UV-VIS-NIR (Jasco V-570 with integrated sphere).

The characteristics I-V (current-voltage) of the manufactured DSSCs was investigated using a Keithley 2400 source meter.

## 3. Results and discussion

### 3.1. BR dye-TiO<sub>2</sub> mixture characterization

The BR dye-TiO<sub>2</sub> mixture presents a good dispersion in water with particles of 20-40 nm (Figure 2).

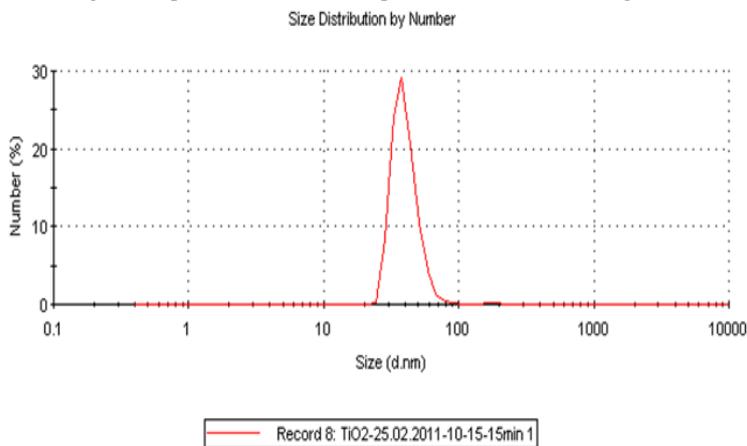


Figure 13. The size distribution by number of BR dye-TiO<sub>2</sub> in aqueous solutions which presents a mean value of 20-40 nm

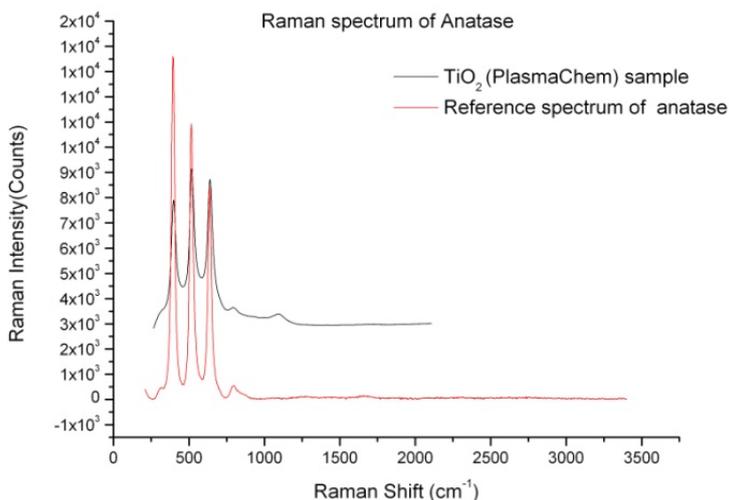


Figure 14. Raman emission spectra for TiO<sub>2</sub> powder in respect to the reference spectra of anatase

Raman spectroscopy was used to analyse the structural form of titanium dioxide. It is visible that the TiO<sub>2</sub> phase anatase is predominant (Figure 3).

The band gap energy of the TiO<sub>2</sub>-BR dye mixture, calculated from the UV spectra, is 2.3 eV and, respectively, 2.6 eV (Figure 4).

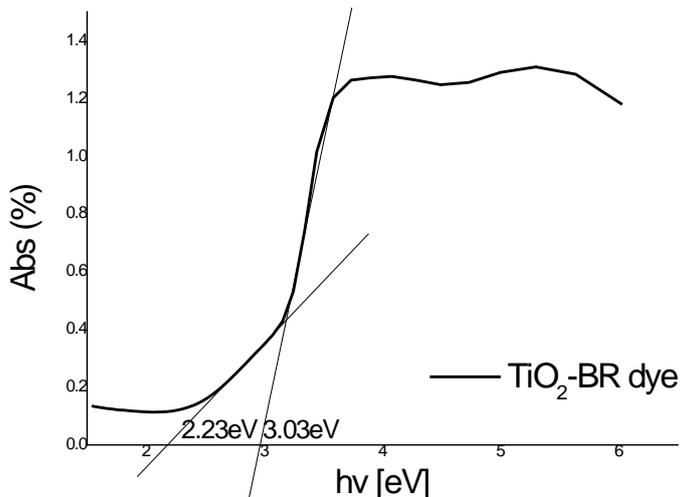


Figure 15. UV spectra of TiO<sub>2</sub> – BR dye and the corresponding band gap energies

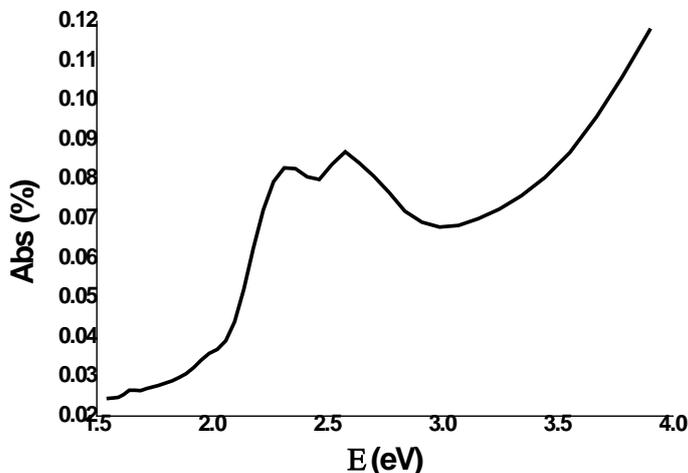


Figure 16. Ultraviolet-visible spectra of betanine (B.R.): desorption and sorption characteristics

3.2. DSSC Characterization-The current density -potential (I-V) characteristics

The current density-potential characteristics of the diode are represented in Figure 4.5. The inset from the lower right corner presents the I-V characteristics at positive potential values which presents the typical behaviour of a tunnel diode. Initially, the current density increases to a maximum value (peak current density), then decreases to a minimum value of I before presenting another exponential increase.

In the potential negative region it’s observable, in both cases a deep a large valley ranging from -20V to -30 V.

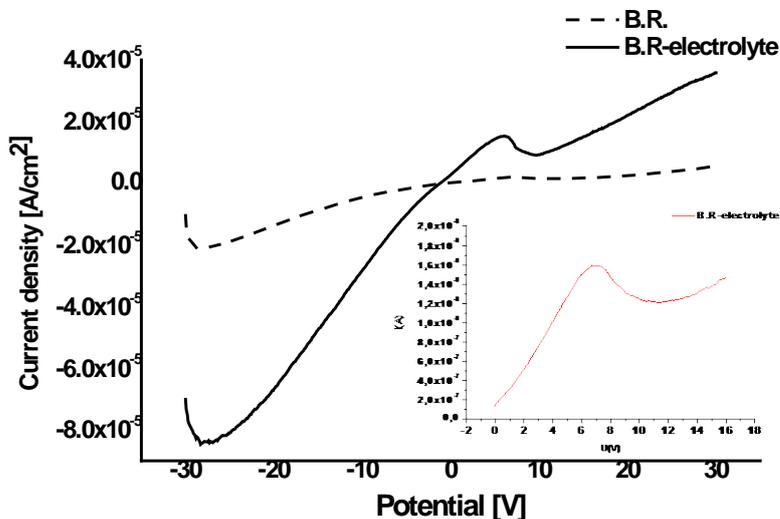


Figure 17. I-V characteristics of the experimental DSSCs with electrolyte (continuous line) and without electrolyte (dashed line)

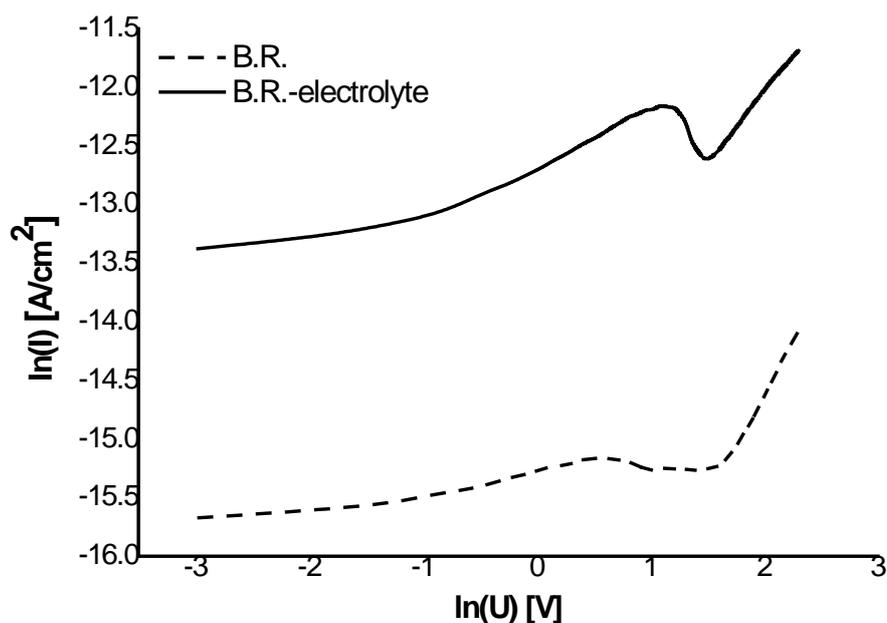


Figure 18. I-V Characteristics of spatial load currents limit (CLSS)

#### 4. Conclusions

Highly efficient DSSCs on ITO-substrate with TiO<sub>2</sub>-BR dye were developed using a Doctor Blade method. Their I-V characteristics offer important information on the investigated material electrical properties and can characterise a number of parameters of interest.

In conclusion the DSSCs fabricated by the proposed method are highly efficient and can be produced at low cost.

#### Acknowledgements

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## THE CASE FOR ACCELERATOR DRIVEN NUCLEAR RESEARCH REACTORS

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### Abstract

Nuclear research has been a part of our society since the explosions of the nuclear bomb over the cities of Hiroshima and Nagasaki and continue to have a broad impact on our society developments in both civil and military environments.

This work focuses on a less known technology, the accelerator driven reactors but also on future developments in the focus of the nonproliferation pact and shows how this type of reactor can help us develop safer environments and implement the lessons learned from Chernobyl and Fukushima as well as from other less known (but not less important) incidents from our short history of nuclear developments. This type of nuclear facilities is regarded as the current trend for researching new fuels and solve the nuclear waste issue.

This type of facilities provide a better way to manage a working nuclear reactor (both critical or sub-critical) allowing for the development of advanced fuels – fuels based on Thorium – while keeping some of the reactor design in a simple and proven way – water moderator (heavy or normal) in pressurized vessels.

A special case is regarded to nuclear waste management and providing environmental safer nuclear fuels with respect to the nonproliferation treaty in the same time addressing the actual social need for more and safer power produced in an environmental friendly facility.

**Keywords:** Nuclear safety, nuclear power, Accelerator Driven System, Nuclear Fuel, Advanced Nuclear Fuel, ADS, XADS, Energy Amplifier.

### 1. Introduction

Maybe one of the most important developments of the latest years in Nuclear Science is the development of nuclear reactors and other facilities both civil and military. Although current developments are more civil, almost all of the current day technologies are due to military efforts to enrich fuel in order to obtain military grade plutonium. This development lead to more reactors build using the <sup>235</sup>U and <sup>238</sup>U mixtures that provide plutonium as a byproduct for running normal operations (<sup>239</sup>Pu is obtained by <sup>238</sup>U capturing a neutron for predetermined reaction conditions).

Special interest is payed to such infrastructures running in research reactors and nuclear power plants design specifically for this reaction conditions (design include moderator, fuel density and other operational aspects) in order to keep a self-sustaining process that is both easy to maintain and powerful enough to provide the much needed power (in a form that can be easily harvested). Our technologies use thermal heat dissipated in a coolant to run turbines that are actually producing the throughput.

This direction for using Uranium reactors – standard fuels – started with the Manhattan Project that created the instruments used by the end of the World War II in Hiroshima and Nagasaki leading unseen destruction upon those cities. This project was based on the early fathers of nuclear energy (A. Einstein, E. Fermi and N. Bohr) and created the critical nuclear devices known (Fat Man and Little Boy) used by the end of WWII. The full documentation for this project is available at the Harry S. Truman museum [1]

The next step was the cold war leading to fast developments in this sector by the greatest worldwide powers and showed that this system is lacking in regularization so that new institutions needed to appear, institutions like IAEA (1957) as a response to both fears derived from the discovery of the nuclear power promoted by the US President Dwight Eisenhower [2].

This racing developments run by all nuclear parties, lead all efforts towards <sup>239</sup>Pu production systems in detriment of more simpler designs using the so called advanced fuel – Thorium. This race for Plutonium lead in 1968 to the creation of the Treaty for the Non-Proliferation of Nuclear Weapons (NPT) that was enforced in 1970 to all nuclear powers. This treaty was focused on the prevention of nuclear weapons spread and to promote the peaceful use of nuclear power [3].

This reactor design is a critical system, meaning that if control is lost, the reactor may run in state that will damage itself. Such situation was encountered in 1986, when the reactor at Chernobyl Nuclear Power Plant was running out of control and lead to an explosion that thrown nuclear waste all over Europe leading to cancer and broad environmental impact showing the need for safer nuclear facilities [4].

Although safer designs appeared, they are always power limited and are often looked over in the search for better cost/benefit ratio. One such design involves the use of less enriched fuel and the use of Deuterium enriched moderator (for its low cross-section regarding the neutron capture process in favor of scattering processes – this leads to a higher neutron concentration within the containment vessel). This reactors are safer to operate but raise specific issues that are not properly assessed today.

Other designs use highly enriched fuel that can use regular water as a moderator as the neutron concentration is no such important as in the previous case. The disadvantage is that, in case of incident, a high amount of radioactive material reaches the environment.

#### 1.1. Fuel processing

In the case of regular nuclear fuel, the enrichment is defined by the ratio in which <sup>235</sup>-U is present with respect to <sup>238</sup>-U within the given amount of material. Natural Uranium consists of 99.2% <sup>238</sup>-U and 0.72% <sup>235</sup>-U. Low enriched Uranium consists of 3-4% <sup>235</sup>-U while highly enriched fuels consist of 90% <sup>235</sup>-U. Ofcourse there is a depleted uranium containing a high concentration of <sup>238</sup>-U and this material can be used as a neutron deflector or neutron capture.

Uranium enrichment can be performed using a large array of techniques that can separate isotopes (using centrifuges, Atomic Vapor Laser Isotope Separation, Molecular Laser Isotope Separation, Separation of Isotopes by Laser Excitation, aerodynamic or electromagnetic separations or other chemical or plasma separation).

A special breed of fuel is the Reprocessed Uranium (RepU) that is obtained after processing spent fuel and this type of fuel can be used in installations using natural uranium (such CANDU Reactors) [5].

Low Enriched Uranium (LEU) has a concentration of <sup>235</sup>U lower than 20% and are used in common LWR (Light Water Reactors). Under normal circumstances, such reactors use <sup>235</sup>-U concentrations ranging between 12% and 19.75%.

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Highly Enriched Uranium (HEU) has a concentration of 235-U that exceeds 20% and are used for military applications. The devices used at Hiroshima used 64kg of 80% 235-U. Commercial applications of HEU include breeder reactors (fast neutron reactors) or low footprint reactors used on naval vessels. The first prototype was Fermi-1 fast commercial reactor and used a 26.5% HEU. HEU can also be used for medical isotopes production [6,7].

Fission products include long lived actinides that usually need more processing in order to reach the levels required for long-term storage.

Radionuclide like <sup>238</sup>Pu and <sup>239</sup>Pu are long lived and need to be processed before storage because they emit radiation that can impact other materials within the storage facility. Another important radionuclide family is the Cm one and it's dangerous because they are producing neutrons – that can produce new reactions within close materials – and also because of their high toxicity in case that they are ingested.

The simple presence of this type of actinides may lead to the need to improve the radioprotection and the storage design in order to address their specific needs (thicker walls, light materials, cooling) not only while in storage but also for transportation.

Radionuclide	Half-life (year)	time	Activity (*10 <sup>10</sup> Bq/g)	Neutron emission (n*g <sup>-1</sup> *s <sup>-1</sup> )	Thermal power	Ingestion dose factor (*10 <sup>3</sup> Sv*g <sup>-1</sup> )
<sup>237</sup> Np	2.14*10 <sup>6</sup>		2.61*10 <sup>-3</sup>	0	0	2.8*10 <sup>-2</sup>
<sup>238</sup> Pu	87.7		63.4	2511	5.68*10 <sup>-1</sup>	630
<sup>239</sup> Pu	24.39*10 <sup>4</sup>		2.24*10 <sup>-1</sup>	2*10 <sup>-2</sup>	2*10 <sup>-3</sup>	2.6
<sup>240</sup> Pu	6540		8.43*10 <sup>-1</sup>	905.6	7*10 <sup>-3</sup>	9.8
<sup>242</sup> Pu	387*10 <sup>5</sup>		1.41*10 <sup>-2</sup>	1678	0	0.15
<sup>241</sup> Am	432		12.7	1.2	0.115	150
<sup>242</sup> Am	152		36.0	150	0.004	410
<sup>243</sup> Am	7380		0.736	0	0.007	8.8
<sup>242</sup> Cm	0.446		12300	2.87*10 <sup>7</sup>	122	4300
<sup>243</sup> Cm	28.5		170	0	1.685	1300
<sup>244</sup> Cm	18.8		299	5892	2.825	1800
<sup>245</sup> Cm	8530		0.633	5448	0.006	7.6

Table 2: List of radionuclides and their properties[7]

### 1.2. A few words about criticality

One important aspect of modern day reactors is that they are critical installations meaning that there is a constant gain in power that need to be regulated in order to ensure that it can be absorbed by the cooling systems and will not damage itself. This parameter contains the information about the reaction cascade that will take place in the active volume and work out as a cascade of neutrons producing reactions (and power by this – each fission reaction will produce an average of 200MeV of energy that is released within the moderator/coolant. This cascade multiplication can be seen in the following way:

$$M = 1 + k + k^2 + k^3 + \dots + k^n$$

$$\lim_{n \rightarrow \infty} M = \frac{1}{n-1} \ll 1$$

Assuming that all neutron generations have the same behaviour, we can define the average:

$$k_{src} = \frac{M-1}{M} = 1 - \frac{1}{M} < 1$$

One can simply remember that  $k_{eff}$  needs to be near 1. A value greater than 1 means we have an rapid expansion and generation of energy, basically an explosion.

### 1.3. Addressing criticality issues

Nuclear incidents usually lead to an criticality factor of above 1 in case of explosions (like Chernobal) or to a failure of the cooling systems (like Tree Mile Island [citation needed] or Fukushima Daichi [citation needed]).

In the case of cooling failures, special requirements are taken by the international organizations in order to increase the safety by the means of safer cooling and, where possible, use passive cooling processes like convection.

Another solution is to design installations with  $k_{eff}$  in mind in such a way that it will never be able to reach a near 1 value. This can be designed by geometric means, simply put fuels far apart in such a way that less than 2 neutrons reach another fuel

bar within the needed energy range. This design has a flaw meaning that it cannot function without the injections of neutrons from another source.

The simplest solution to the criticality issue, as presented above, is the use of an external neutron source to provide the neutron density necessary for sustaining a reaction within the core. In this case, we can simply state that – the criticality factor  $k_{eff}$  is dependant on the external source :

$$N = N_0 \frac{1}{1 - k_{src}} = N_0 M$$

where  $N_0$  is the neutron flux from the external source that is multiplied in an core environment that provides a multiplication factor of  $k_{src}$ . This kind of system is called a sub-critical system and it is much safer than other reactor types by the means of a power controlled nuclear reaction environment meaning that in the case of loss of power, the system automatically shuts down and there is no need for secondary systems to absorb the neutrons from the reaction core. Another aspect is related to the heat issue, in sub-critical systems there is much less residual heat after the shutdown compared to standard installations.

The ADS design has also the drawback that the fuel needs to be drawn back in case of severe transient conditions (severe, temporar increase in criticality) because, by design, control rods effect is limited (in such a way that it can be neglected in most of the cases) in case of waste burnout.

#### 1.4. Installations in the world

The first nuclear facilities in the world were commissioned in 1950s by the Soviet Union, UK and USA and since then the usage of nuclear power increased until later in 2012 when the concerns from Cernobal accident (1986) correlated with the Fukushima Daichi accident lead to a strong social movement against nuclear power. Later, in 2005, concerns regarding the CO<sub>2</sub> emissions made the society to look back at the nuclear technologies while much improving their safety by means of physical safety and electronic management systems where specific issues needed to be addressed [16].

Nuclear facilities are present all over the world, for the purpose of this work we will analyze only operational facilities.

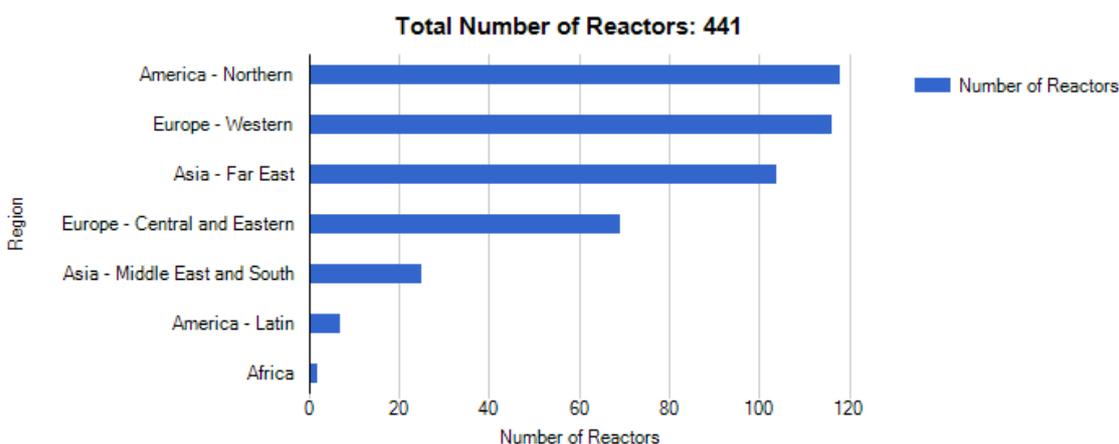


Fig 1: Operational Reactors by region [13]

When looking at their worldly distribution, almost all reactors are in the most advanced countries (USA and Western Europe) while some of the former Soviet Union reactors are placed in the Central and Eastern Europe – most of the graphite moderated).

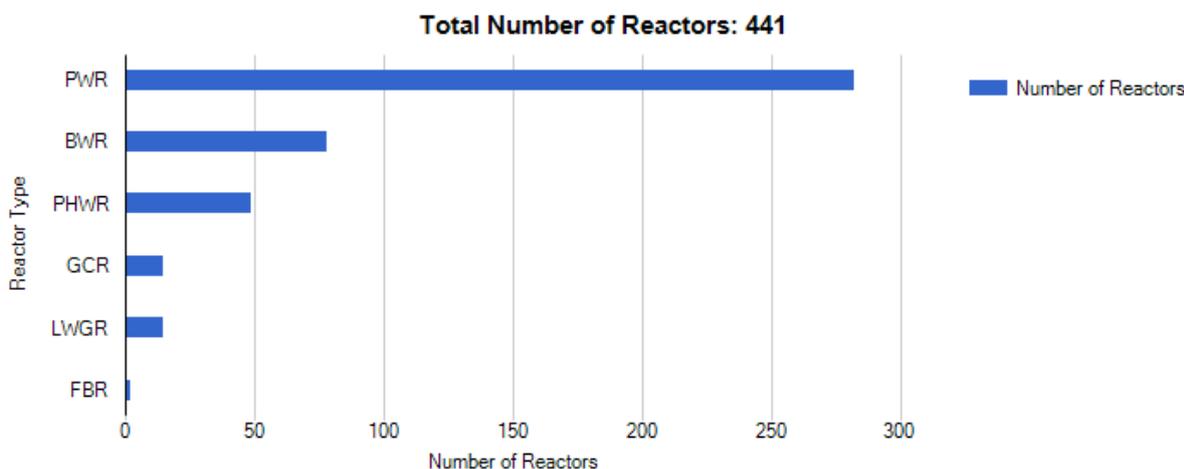


Fig 2: Operational Reactors (Worldwide) [11]

As you can see in Fig. 1, PWR (Pressure Water Reactor) are predominant in the world and they use enriched (LEU and HEU fuel types) as well as they are able to burn  $^{239}\text{Pu}$  in MOX fuel mixture[12]. This reactor type is followed by BWR (also using enriched fuel) and then PHWR (that use natural uranium).

All of this installations are critical facilities, meaning that they do not require an external neutron source in order to operate.

Allthrough nuclear facilities are new, some of them are reaching the end of life and will need to be decommissioned soon. In the figure below you may find the global distribution of nuclear reactor age.

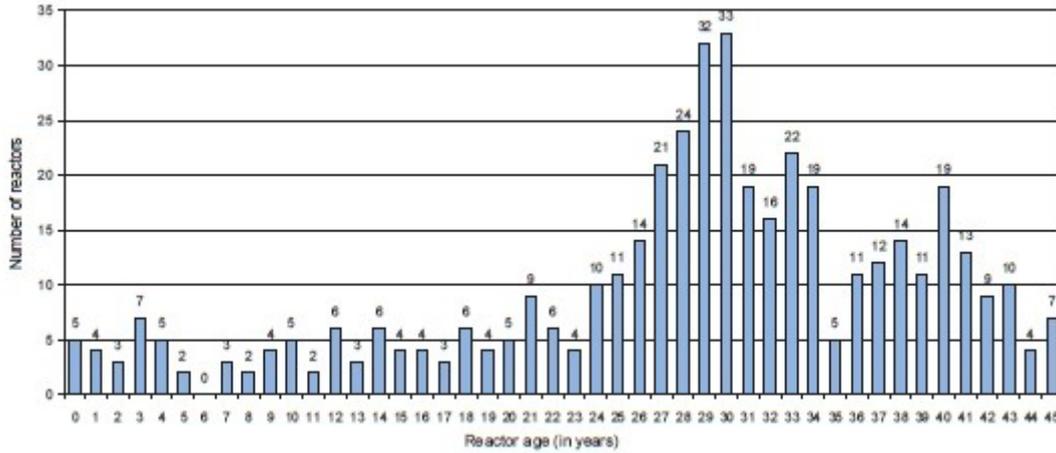


Fig 3: Operational Nuclear Reactors (worldwide) by age [12]

The typical lifespan of a reactor is 50 operation years [12].

## 2. The fuels and technologies

The fuels used in ADS systems for burnout, can consist of minor actinides (MA) and the lack of classical fertile material ( $^{238}\text{U}$ ). Due to current design, most ADS facilities in Europe focus on oxide fuel forms (FUTURE, EURTRANS – created through 5<sup>th</sup> and 6<sup>th</sup> Framework Programme) and new installation focus on matrix materials like MgO and Mo. This new type of matrices require R&D efforts for the assessment of their behavior under ADS irradiation conditions[7]. This leads to a safe approach where, in well established reactor cores only small amounts of MA can be introduced for the burnout (e.g. the HYPER Japan Reactor can transmute up to 283 kg – net weight – of actinides a year [9,10]).

Standard reactor technologies can be classified by the moderator type (light water vs heavy water). LWR – Light Water Reactors – use regular water (distilled) to moderate neutrons. In this class we may find reactor types like PWR – Pressure Water Reactor and BWR – Boiling Water Reactor. Heavy water reactors – PHWR – Pressurized Heavy Water Reactors use D<sub>2</sub>O for the moderator while certain reactor types use solid materials like graphite for the moderator (GCR – Gas Cooled and LWGCR – Light Water Graphite Reactor).

There is another reactor type, FBR – Fast Breeder Reactor – that's traditionally used for HEU production or burnout. This type of reactor use light water and their name is given from the neutron energies distribution inside the reactor vessel.

New, emerging technologies imply the usage of molten metal or salt moderator using sodium or lead as moderator while in liquid form. There is a special case, of MSR – Molten Salt Reactor that uses molten Na (sodium) salts as moderator. This reactor types are much safer in term of leakage but require special conditions to operate.

One can always notice the major incidents having a major impact on public opinion and by such means incidents like the one in Fukushima Daichi lead to a fear regarding such installations even in the middle of continents (see Germany's case in the figure below):

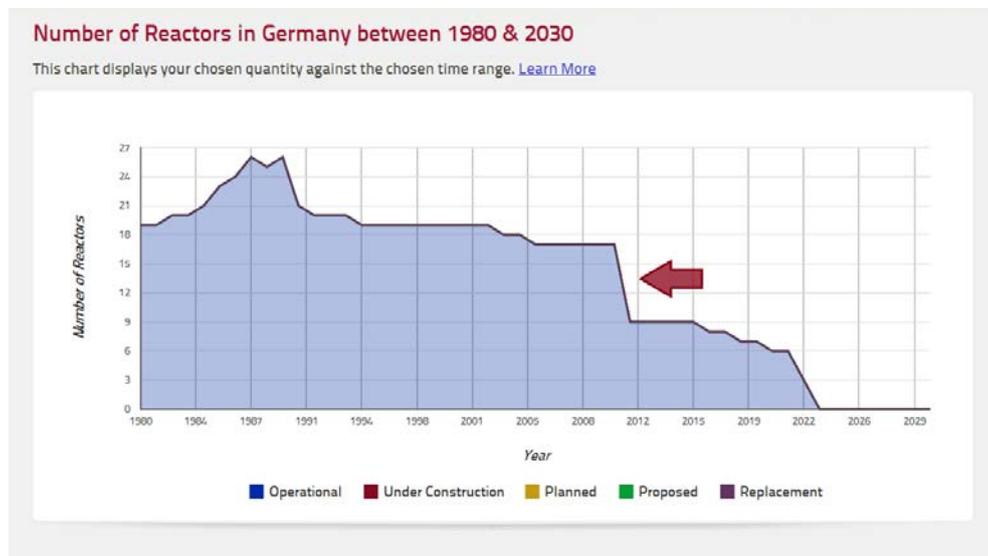


Fig 1: Nuclear Reactors operating in Germany [14]

In the above figure one can notice that the Chernobyl incident had no impact at all as public awareness was not as accurate that in 2012 when Fukushima incident take place.

Within the same report [14], another case was considered focusing this time on China, a fast developing economy where up to 50 new facilities are planned to be active by 2030.

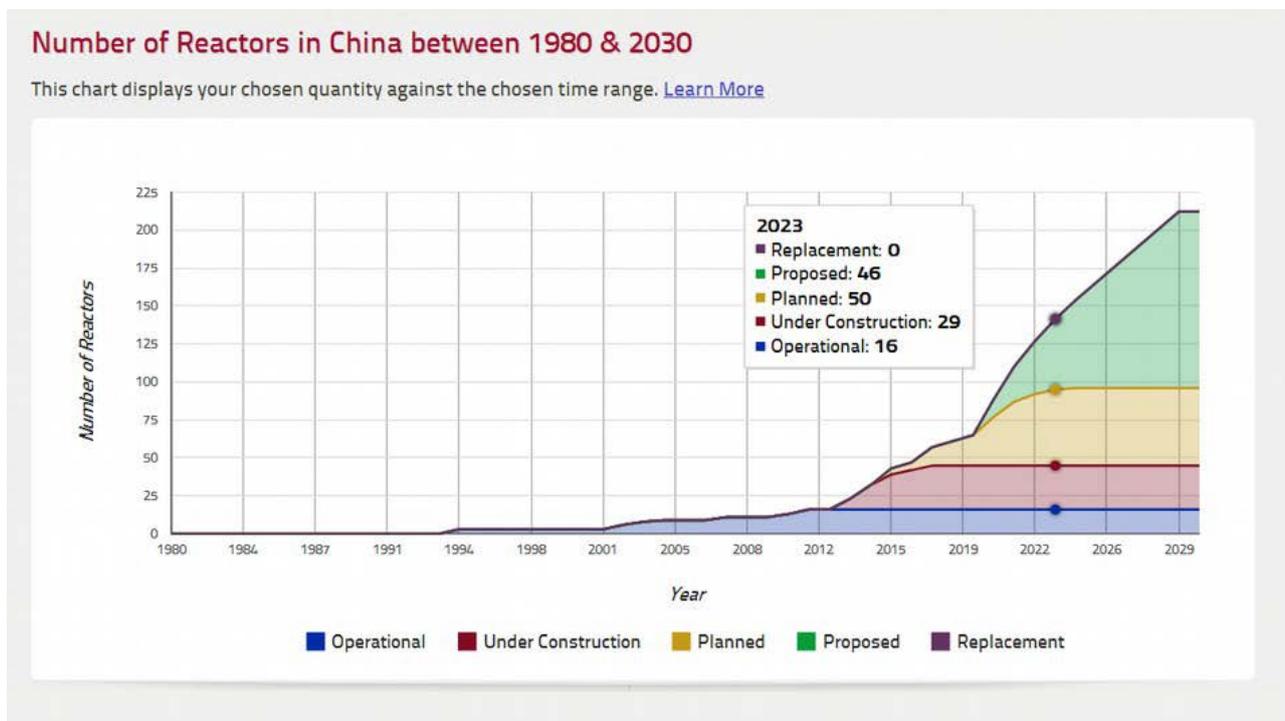


Fig 5: Reactors development in China [14]

This report shows that while countries like Germany decided to ban nuclear power [15], emerging countries have no other way of producing the power needed for both population and industry and focus on nuclear energy even as the 3<sup>rd</sup> generation of reactors (currently operational reactors) are reaching an end and advanced reactors are available.

### 2.1. Regular vs advanced fuel types

The only two materials known at this time to give fission reaction are Uranium that consists of two isotopes, one fissile <sup>235</sup>U and one fertile <sup>238</sup>U in a disproportionate matter (0.7% vs 99.3%). This balance is needed as one isotope produces neutrons while the other give fission products and energy (aprox. 200MeV per fission act ~ 7.65E-12calories at 15°C). This type of fuel requires special facilities in order to separate the Uranium isotopes.

Thorium on the other hand contains only the fertile <sup>232</sup>Th isotope and early developments done in early 1970 imposed the transmutation of <sup>232</sup>Th into the fertile <sup>233</sup>U. This isotope has a much higher neutron yield than <sup>235</sup>U meaning that it is more useful than the regular fissile material used today.

One important aspect of the advanced, thorium material is that it can never reach atomic mass of Pu in order to be able to produce HEU (Weapons Grade Uranium or Plutonium).

Another aspect in favor of the Th cycle is given by its abundance 3-4 times higher than the abundance of Uranium and that it can be chemically separated not isotropically meaning it can be easier refined.

The following aspects are in favor of Th based fuel cycles [16]:

- The extraction can be performed in open pits meaning a lesser radiation exposure for the miners to <sup>222</sup>Rn
- Better fertile than <sup>235</sup>U – The neutron absorption cross section for neutron in <sup>232</sup>Th (7.4 barns) is three times higher than the one for <sup>238</sup>U (2.7 barns).
- Better fissile than <sup>238</sup>U – the neutron multiplication factor is greater than 2 for a larger spectra of thermal neutrons so it yields a better stability than the traditional fuels. The thermal neutron capture cross-section for <sup>232</sup>Th (46 barns) is lower than the one for <sup>235</sup>U or <sup>239</sup>Pu (271 barns) leaving even more neutrons for the fertile nuclei.
- Better chemical stability – ThO<sub>2</sub> – is more stable chemically and physically (in terms of radiation exposure or thermal properties) than UO<sub>2</sub>.
- Tested in fast breeder experiments with ThO<sub>2</sub>, (Th,U)O<sub>2</sub>, ThC<sub>2</sub>, (Th,U)C<sub>2</sub> in High Temperature Gas Cooled Reactor in Germany, USA and UK [17].
- Non-Proliferation fuel – cannot reach Pu masses and its main fission products <sup>212</sup>Bi and <sup>208</sup>Tl have high energy gammas so that they can be easily inventoried when transported.
- Can burn Plutonium in once-through cycle – meaning that (Th,Pu)O<sub>2</sub> is a far better fuel than (U,Pu)O<sub>2</sub> [18]
- Suited for CANDU, ACR and AHWR reactors – CANDU and Advanced Candu reactors are tested against once-through Th cycle by the producer [19] – AHWR is an Indian Candu similar design [20];
- Suited for sub-critical systems in Energy Amplifier mode for both once-through or closed cycle. The waste from such

systems is less dangerous (up to 30 times ) than the waste from regular reactors [21].

- Does not produce MA's like Uranium meaning a lesser cool down time for the spent fuel and lesser radionuclide inventory and halftime of the fission products.[16]

Of-course, where there a benefits, there should be also challenges:

- The melting point of ThO<sub>2</sub> is 3550°C meaning that the temperature for the sintering of such fuel pellets of desired density needs to be above 2000°C
- ThO<sub>2</sub> pellets are chemically passive and they do not dissolve easily in nitric acid requiring the use of aelum reducing mixtures.
- Spent fuel contains a lot of <sup>232</sup>U leading with a pregnant effect of radiation buildup (high gamma rays can be accounted for both <sup>232</sup>U, <sup>212</sup>Bi and <sup>208</sup>Tl). <sup>232</sup>U has a halftime of 73.6 years.
- In the <sup>232</sup>Th burnout processess we obtain <sup>233</sup>Pa with a halftime of 27 days – compared to <sup>239</sup>Np with a halftime of 2.35 days in the case of Uranium. <sup>233</sup>Pa cannot be processed using THOREX (13M HNO<sub>3</sub> + 0.05M HF + 0.1M Al<sub>2</sub>(NO<sub>3</sub>)<sub>3</sub>) and need to be separated (precipitated) before the processing.
- There should be designed a flow to separate U and Pu from (Th,Pu)O<sub>2</sub> mixture after burnout.
- Very little practical experience we have at this time on Th processing.

Thorium fuel cycles can be [16]:

- Open, one-through cycle – avoids the technical difficulties associated with the fuel reprocessing by introducing a central pin of LEU or HEU that is inserted in a fuel segment with Th on the sides, Th remains in the reactor while the conventional fuel can be changed. This type of reactor can burn weapons grade plutonium and reactor grade plutonium.

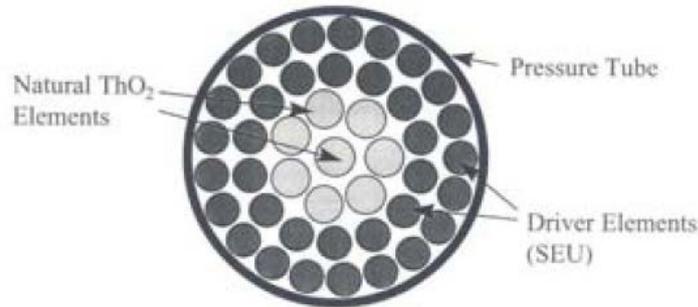


Fig 6: CANEX once-through fuel design [16]

- Closed cycle – includes the reprocessing of the spent fuel with the extraction of <sup>233</sup>U and <sup>232</sup>U and continue the burn using (Th,U)O<sub>2</sub>, (<sup>238</sup>U, <sup>233</sup>U)O<sub>2</sub> fuel mixtures to continue the process.

The nuclear data on this isotopes is presented in the table below:

Nuclear data	<sup>232</sup> Th	<sup>233</sup> U	<sup>235</sup> U	<sup>238</sup> U	<sup>239</sup> Pu	<sup>241</sup> Pu
Thermal neutron Cross-Section [barns]						
Absorbtion $\sigma_A$	4.62	364	405	1.73	1045	1121
Fission $\sigma_F$	0	332	346	0	695	842
$\alpha = \frac{\sigma_A}{\sigma_F}$		0.096	0.171		0.504	0.331
Multiplication $\eta$		2.26	2.08		1.91	2.23
Ephitermal resonance	0	764	275	0	301	
Neutron yield $\nu$		2.48	2.43		2.87	2.97
Delayed Neutron Yield $\beta$		0.0031	0.0069		0.0026	0.0050
Neutron/fission		2.5	2.4			2.9

Table 3: Neutron properties of fissile and fertile fuels [16]

## 2.2. Subcritical systems

Subcritical systems, as presented before are systems design not to reach criticality under no circumstances. Their main application was to safely allow the development of new combinations of nuclear fuel and moderators and usually imply a reactor type array for the fuel / absorber / detector assembly.

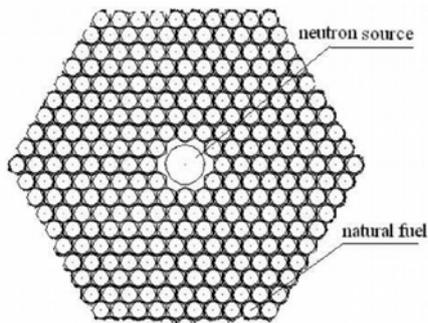


Fig 7: The classical design for a subcritical assembly active area

The design needs an external source for neutrons in order to operate and will not sustain the nuclear reaction in it's absence, it will lose neutrons until the reaction cannot be sustained anymore. The external source of neutrons can be of various types, the below table shows the most common sources used to drive sub-critical systems.

Reaction	Incident particle and energy	Beam currents part/s	Neutron yield n/inc. Part.	Target power	Deposited energy MeV	Neutron emitted n/s
(e, $\gamma$ ) & ( $\gamma$ ,n)	e <sup>-</sup> / 60 MeV	5E15	0.04	0.045	1500	2E14
<sup>2</sup> H(t,n) <sup>4</sup> He	H <sup>3</sup> / 0.3 MeV	6E19	1E-4 – 1E-5	0.3	1E4	1E15
Fission			-1	57	200	2E18
Spallation (non-fissile target)	P / 800 MeV	1E15	14	0.09	30	2E16
Spallation (fissile target)	P / 800 MeV	1E15	30	0.4	55	4E16

Table 4: Typical reactions used in sub-critical assembly systems [7]

While classical systems still use D,T or T,D neutron generators, today technology allowed for smaller LINAC (Linier Accelerator) systems providing protons of energies like 800 MeV. This protons can be used in processes like spallation to produce neutrons inside the reactor vessel. Sometimes, by using fissile material within the target as a neutron multiplier, more neutrons can be obtained from the same source.

Even the sub-critical assembly will act as a neutron multiplier allowing for a much intenser neutron field within the required areas within the containment.

A reference implementation was proposed [22], as the default design for a ADS (Accelerator Driven System) EAP80 XADS by prof. C. Rubbia using an ion beam for spallation. The main purpose of this accelerator driven system is to produce power and burn nuclear waste and to address this issues, the system was design as a fast neutron reactor using Uranium based fuel.

This demonstrative system – based upon previous proposed desings [23] - found several implementation at EU level leading to the ongoing project named HYPER and the sister project GUINEVERE (commisioned in 2010 and coupleped with the accelerator in 2011) at SCK-CEN [24] that will actually operate as the European Transmutation Facility.

The main goal for ADS at this time is to facilitate the burnout of TRU – Trans Uranian Burner) using base designs like the one Prof. Rubbia proposed (XADS) with several experimental setups like EAP80, PSD-XADS, JAEA Experimental ADS or with industrial scale facilities like EFIT and the ADS-800 MW(th).

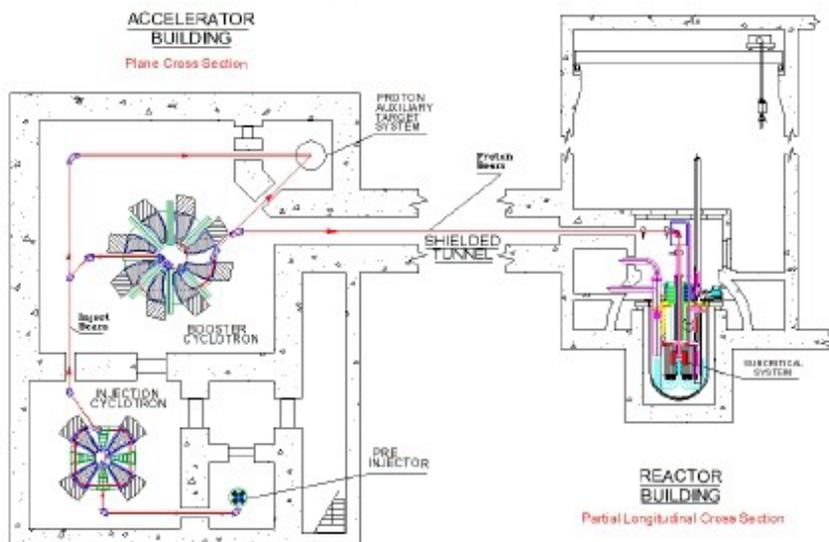


Fig 8: XADS design proposed by prof. C. Rubbia [22]

Several countries run their own national projects on ADS (Belarus running studies at ZPR – Zero Power Reactor; Belgian Federal Government with project MYRRHA) and in 2007, China dedicated a national project on the development of accelerator driven systems using high power proton accelerators.

Another reason for the development of spallation sources as drivers for ADS's is related to the newest developments in the field of accelerator research leading to more powerful beams using a windowed system (the accelerator is decoupled from the target through a window) or windowless systems where the Pb-Bi liquid mixture is used as a proton target in the spallation process and no need for window as the vacuum tube of the accelerator is sealed by the liquid target (in this case special attention needs to be taken in order to prevent tube degradation and splashes from the target when it's hit by the accelerated proton beam [7]).

#### 4. Discussion

After the incidents in Chernobyl and Fukushima Daichi [24], there is a need for a better and safer nuclear systems inside facilities like nuclear reactors. This type of facilities – because of their nature – tend to be unstable in case of loss of control over the contained reaction and often – in case of accident – lead to meltdown and release in the environment for radioactive and toxic nuclei.

One way to lead to safer systems is to improve their safety (like better cooling systems, better fail-over systems or the employment of passive cooling systems that do not require energy) but, even in this case there is a margin of error that allows for certain accident conditions (see the Chernobyl accident where the accident was caused by the loss of control due to the issues at shutdown system or the Three Miles Island incident where – by human error – the cooling system was shut off).

Another issue with our current generation of reactors is that they have a long shutdown period, needing to be cooled months after the shutdown procedure was initiated and this is not always possible (in the Fukushima Daichi accident, the loss of the external power source lead to a cooling system failure that concluded in the actual meltdown of the reactors).

A consistent way to deal with this issues is to have a system that will shutdown automatically in case of power failure and in this case ADS's are ideal because they are unable to sustain the chain reaction and will automatically shutdown.

Prof. Rubbia proposed – based upon previous design [25] - (alongside the XADS fast reactor) the Energy Amplifier – a concept that uses ADS with an external neutron source to amplify the power inserted. This type of amplifiers can be with completely thermalized neutrons using graphite (T-EA), partially thermalized using water moderator (PW-EA) and fast neutron, liquid lead or Pb-Bi cooled (F-EA).

Using advanced fuels (Th) within the ADS comes in a natural manner as it needs a neutron within the capture Cross Section energy levels to interact with the  $^{232}\text{Th}$  nuclei in order to create the fertile  $^{233}\text{U}$  that will be used for the reaction. This type of cycle creates specific design issues as it will produce the short lived but highly fertile nuclei of  $^{233}\text{U}$  with a non-zero probability of sustaining the chain reaction – from which the need to install shutdown bars and other neutron absorbers in case of abnormal running conditions of the ADS.

Moreover,  $^{233}\text{U}$  is highly toxic and can be misused (breaking the non-proliferation treaty) but mixing it with  $^{238}\text{U}$  in equal parts renders it unusable for such purposes.

#### 5. Conclusions

This work presents the state of the art for nuclear reactor technology at the time of writing for this article and discusses the aspects of current and new developments in this field of research.

While keeping in mind actual (generation III) operating reactors we discussed another approaches for nuclear energy and the way it can be safer used to address the ever growing worldwide power demand using ADS (Accelerator Driver Systems) and the case of advanced fuel technologies that provide us with safer means of dealing with fission fragments obtained by burning nuclear fuel.

New developments and technologies in accelerator research lead us to address proton (or ion) accelerator as the incident particle in spallation sources for obtaining neutrons that can be used in ADS to replace standard neutron accelerators based on D-D or D-T reactions providing neutron with energies of 2MeV or 14 MeV depending on the incident particle.

New technologies and advances in high-end technologies applied for a better security and safety allow for the development of new grade, safer nuclear facilities but required extensive planning, work and vision to reach the results necessary for a production environment. As an example, the ADS technology exists since 1940's but still raises challenges for modern scientists.

#### Acknowledgment

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# PREPARATION AND CHARACTERIZATION OF POLYSULFONE (PSU) NANOFIBERS CONTAINING NI NANOPARTICLES BY ELECTROSPINNING METHOD

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## Abstract

In the present study, we investigate the properties of some polysulfone (PSU) nanofibers containing nickel nanoparticles (Ni NPs) as a result of an electrospinning process. Colloidal solution consisting of PSU/Ni NPs was prepared to produce nanofibers embedded with solid NPs by electrospinning process. The resultant nanostructures were studied by SEM and TEM analyses, which confirmed well oriented nanofibers and good dispersion of Ni NPs over them. Saturation magnetization ( $M_s$ ) for S1 (nonPVP/Ni) and S2 (PVP/Ni-1/1) systems are found to be 47.4 and 43.1 emu/g, respectively. Coercivity ( $H_c$ ) value of sample S1 is found to be 226.6 Oe and 123.6 Oe for sample S2. The presence of nanoparticles in system determine the same ferromagnetic properties even after its dispersing in the polymer matrix. However, the magnetic field required to saturate the magnetization is significantly reduced.

**Keywords:** Nickel Nanoparticles; PSU/Ni nanofibers; Morphological characterization; Magnetic properties.

## 1. Introduction

In recent years, polymer nanocomposites are a class of materials with a great importance because of their potential in a wide range of applications. They are part of electrical, optical or magnetic components in sensors, electrical-magnetic shields and electrochemical displays in microelectronic and even in biomedicine [1]. Those composites are expected to have novel properties due to the reduction in particles size and the dispersion of the particles in a matrix that protects them from degradation. Furthermore, the matrix also allows interparticle interactions and controlled distribution, therefore, it is possible to tune the final properties of the composites.

Generally, these nanomaterials composed of two parts organic-inorganic have attracted much attention because they combine the flexibility and processability of organic components and the durability and thermal stability of inorganic components [2, 3]. In specifically, polymer nanofibers incorporating inorganic nanoparticles possess outstanding optical, catalytic, electronic and magnetic properties. Uniform dispersion of nanoscopically sized filler particles produces ultra large interfacial area per volume between the filler and the host polymer. Thus, nanostructure filler into polymer matrix provide opportunities to enhance the properties associated with conventional composite materials. Nickel nanoparticles have attracted much attention because of their use in numerous practical applications, such as magnetic storage materials, sensors, magnetic inks, magnetic resonance image, biotechnology and catalysts [4-7].

Electrospinning technique has been paid a considerable attention due to production fibers having diameter in the range of few microns to nanometer level and for economical aspect [8, 9]. In a typical electrospinning process, electrostatically driven polymer jet is ejected from polymer solution which undergoes bending instability wherein the solvent evaporates and ultrafine stretched fiber are deposited on the grounded collector. Consequently, the nanofibers obtained by this technique give large surface area compared to other nanoparticulate forms.

Numerous physical and chemical methods have been used to produce high-quality nickel nanoparticles, such as metal evaporation-condensation [10], electrochemical methods [11], metal salt reduction [12], ultrasound irradiation [13], ultrasound spray pyrolysis [14], polyol methods [15] and neutral organometallic precursor decomposition [16]. Generally, chemical reduction methods have the advantage of simplicity, precise control of the size and low cost compared to physical methods. In these conditions, we have prepared Ni nanoparticles by chemical reduction methods and the novel PSU/Ni nanocomposites were prepared by encapsulating the Ni nanoparticles in PSU matrix by electrospinning method.

In recent years, a lot of works has been performed on metal oxide nanofibers obtained by electrospinning method using metal precursor solutions and organic polymer, such as poly(vinyl pyrrolidone) (PVP) [17], polyacrylonitrile (PAN) [18], poly(vinyl alcohol) (PVA) [19], poly(vinyl acetate) (PVAc) [20] and polystyrene (PS) [21]. For this study we choose as the organic polymer polysulfone because it has a good chemical and thermal resistance [22].

In the first part of the paper, we present some morphological and magnetic properties of the Ni nanoparticles. In the second part, we present some experimental results concerning preparation by electrospinning method and characterization of PSU/Ni nanofibers. For the studying of PSU/Ni nanocomposites we have chosen Ni nanoparticles from sample Ni/PVP-1/1, because they have a high degree of dispersion and good magnetic properties: saturation magnetization ( $M_s$ )=43.1 emu/g, remanent magnetization ( $M_r$ )=7.5 emu/g and coercivity ( $H_c$ )=123.6 Oe).

## 2. Experiments

### 2.1. Materials

All chemicals were used without any further purification. Ni nanoparticles were prepared using hydrazine hydrate (100%), poly N-vinylpyrrolidone (PVP) (all from Sigma Aldrich) and  $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$  (from Reactival Bucuresti), under similar conditions as in the work [23]. Polysulfone (PSU) granules ( $M_w = 35.000$ ) and dimethylformamide (DMF, 99.9%) were purchased from Sigma Aldrich.

### 2.2. Synthesis of polysulfone – Ni nanoparticles composites

The Ni nanoparticles were prepared by chemical reduction, using a method as it was presented in previous paper [23]. Figure 1 illustrates a schematic representation of the procedure for the one-step synthesis of PSU/Ni nanofiber composites coupled with electrospinning method. Prior to forming electrospun PSU/Ni nanocomposites, we investigated the properties (especially, the

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magnetic properties) of Ni nanoparticles.

Using chemical reduction method in ethylene glycol (EG) solvent we prepare two samples: first sample without PVP (S1) and other with the addition of PVP (S2). We chose to prepare PSU/Ni nanofibers from S2 because they have a high degree of dispersion and good values for magnetic properties (e.g.,  $M_s$ ,  $M_r$ ,  $H_c$ ).

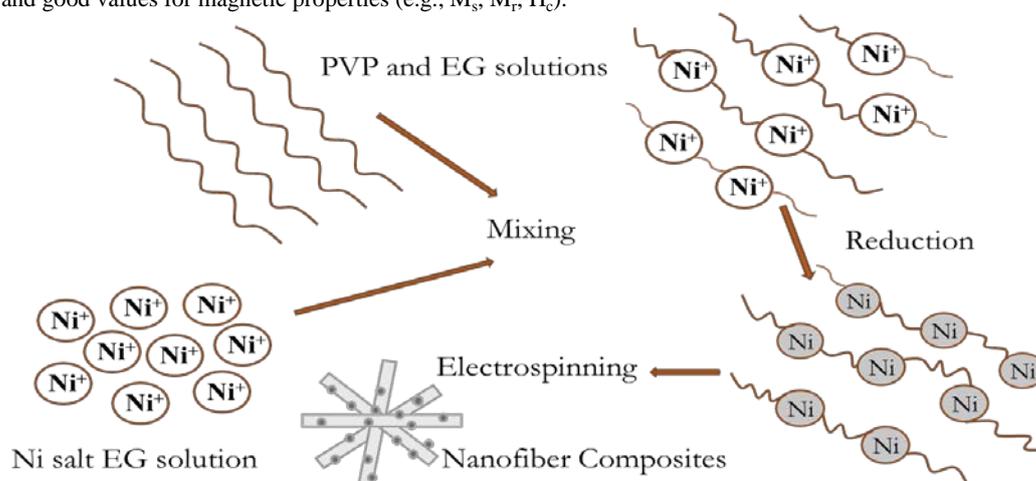


Figure 1. Schematic representation of the one-step of the process for obtaining magnetic Ni nanoparticles - polymer nanofiber composites via electrospinning method.

The electrospinning method was utilized for preparing nanofibers that were about 800-1400 nm in diameter and containing Ni NPs. In order to obtaining these systems (PSU/Ni NPs composites) we have prepared two solutions: 7.5 mg Ni nanoparticles prepared by chemical reduction [23] were well dispersed in 10 mL of N,N-dimethylformamide (DMF, 99.9%) by ultrasonic dispersion (**Solution A**). Another mixture was obtained by mixing 3.5 g PSU ( $M_w = 35.000$ ) into 10 mL N,N-dimethylformamide and was stirred 24 hrs at 50 °C (**Solution B**). Then, 0.4, 0.6 and 0.8 mL from **Solution A** were added in 4 mL **Solution B**, the mixture thus formed immediately was treated with vigorous continued stirring at room temperature. After, being stirred for 1 h, the solution was loaded in a syringe. The electrospinning process lasted for 60 minutes under a voltage of 20 kV. The feeding rate of the suspension in the syringe was controlled as 0.75 mL/h by using a syringe pump and the distance between the tip of the needle and the collector was 15 cm. The electrospun fibers were collected by stainless steel foil for characterization. These conditions for obtaining of nanofiber composites having a diameter range of 800–1400 nm have a good reproducibility. Details of the composition for intermediate systems and final polymer/nanoparticle composites have been summarized in Table 1.

Code samples	Sample	Solutions	Compozition
S <sub>1</sub>	nonPVP/Ni	-	[23]
S <sub>2</sub>	Ni/PVP-1/1	-	[23]
F <sub>9</sub>	PSU/Ni(1)	7.5 mg Ni nanoparticles from S <sub>2</sub> 10 mL DMF	0.4 mL <b>Solution A</b> + 4 mL <b>Solution B</b>
F <sub>10</sub>	PSU/Ni(2)	<b>Solution A</b>	0.6 mL <b>Solution A</b> + 4 mL <b>solution B</b>
F <sub>11</sub>	PSU/Ni(3)	3.5 g PSU ( $M_w = 35.000$ ) 10 mL DMF <b>Solution B</b>	0.8 mL <b>Solution A</b> + 4 mL <b>Solution B</b>

Table 1: General characteristics for preparing Ni nanoparticles and PSU/Ni composites.

In the electrospinning (ES) process, it is decisive to adjust the rheology of the solution used for ES. If the viscosity of ES solution is too low, the collected nanofibers do not retain their fibrous shape but aggregate to form small beads in the midst of fibers [2]. In our ES facility set-up, we found that a viscosity varying between 0.5 ÷ 1.2 Pas yielded the best result [24]. We chose a solution of polysulfone with viscosity of 1.2 and were added in this PSU solution 0.4 mL, 0.6 mL and 0.8 mL Solution A, containing Ni nanoparticles.

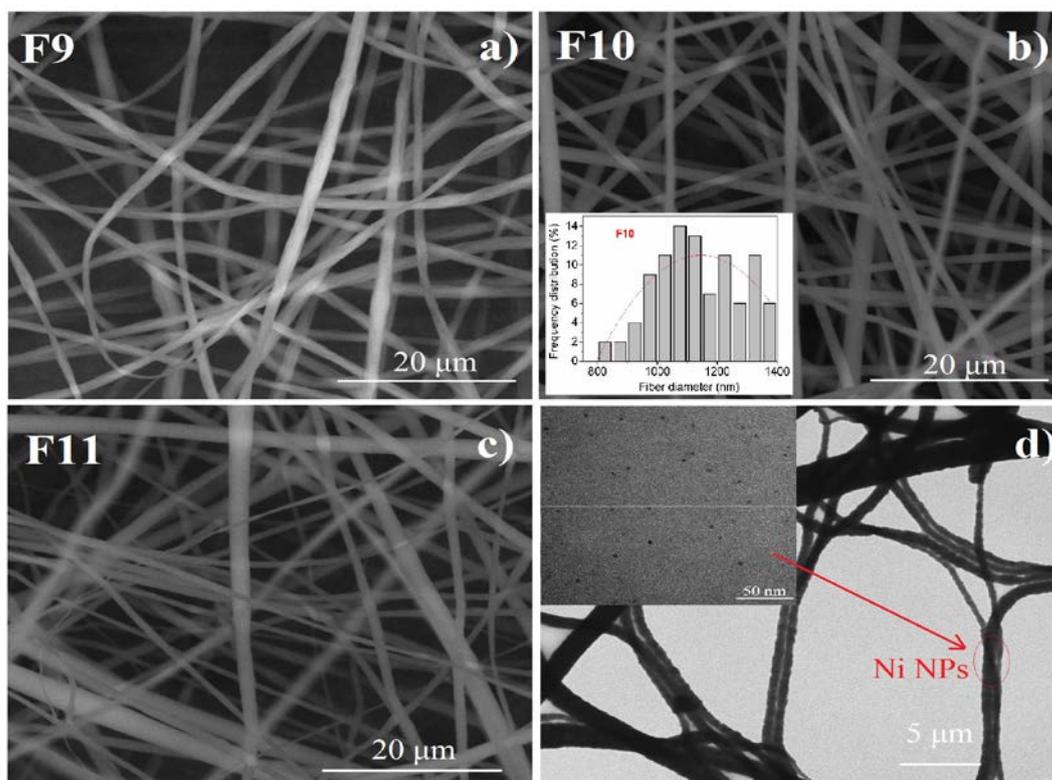
### 2.3. Characterization

Particle size and shape were examined using the Hitachi High-Tech HT7700 Transmission Electron Microscopy (TEM) operating at 120 kV. Samples were prepared by dropping a drop of colloidal sample on a carbon-coated copper grid and let dry for several minutes in air at room temperature. The morphology of the electrospun composites was performed on an environmental scanning electron microscope (ESCM) Quanta 200, operating at an accelerating voltage of 20 kV. The magnetic properties were investigated using a Princeton Measurements Corporation AGM/VSM system MicroMagTM 2900/3900. The magnetization curves were measured at room temperature after applying a maximum magnetic field of 10 kOe. From the magnetization curves, parameters such as the saturation magnetization ( $M_s$ ) and the coercive field ( $H_c$ ) were calculated.

### 3. Results and discussion

#### 3.1. Morphological characterization

PSU/Ni nanocomposite fibers with different Ni nanoparticle loadings were fabricated using electrospinning method. Figure 2 shows the SEM microstructures of PSU/Ni nanocomposite fibers with different Ni nanoparticle introduced in a 30 wt.-% PSU solution (F9, F10, F11). As shown in Figure 2 (b-inset), the obtained nanofibers with diameters ranged from 800 to 1400 nm.



**Figure 2.** SEM micrographs of PSU/Ni nanofibers obtained by electrospinning method for samples F9, F10 and F11; TEM image of sample F10 (Figure 2d-inset).

The obtained nanofibers are smooth and uniform, long and continuous without any branch structures. The magnetic nanoparticles have been homogeneously dispersed in the composites matrix during its formation. TEM image (d) of PSU/Ni elucidated that Ni nanoparticles exist spherically in the PSU matrix of morphological nanofibers. As pictured, it can be clearly seen that Ni NPs are predominately present on the nanofiber surfaces. These Ni NPs, can be seen as darker in color than the main PSU nanofiber. It can be observed that the magnetic nanoparticles are embedded into the polymeric matrix with a random distribution. The average size of the NPs embedded in the polymer is around the size of the NPs before dispersion, which means that nanoparticle size and morphology are not altered during the nanofiber/NPs formation.

#### 3.2. Magnetic characterization

Figure 3 shows the magnetic hysteresis loops of the samples S<sub>1</sub> (nonPVP surfactant) and S<sub>2</sub> (Ni/PVP-1/1). The hysteresis loops for these samples indicate that they have the symmetric hysteresis loop behavior characteristic of ferromagnetic materials. The coercivity values measured at room temperature are 226.6 and 123.6 Oe and the squareness ( $M_r/M_s$ ) are 0.322 and 0.174 for the samples nonPVP/Ni and Ni/PVP-1/1, respectively. Reduction in magnetization is attributed to particle size effect. Decrease in  $M_s$  is due to decrease in particle size, which may also determine to increase in surface area [25]. Due to small particle size surface to volume ratio increases and hence  $M_s$  was reduced for Ni/PVP-1/1.

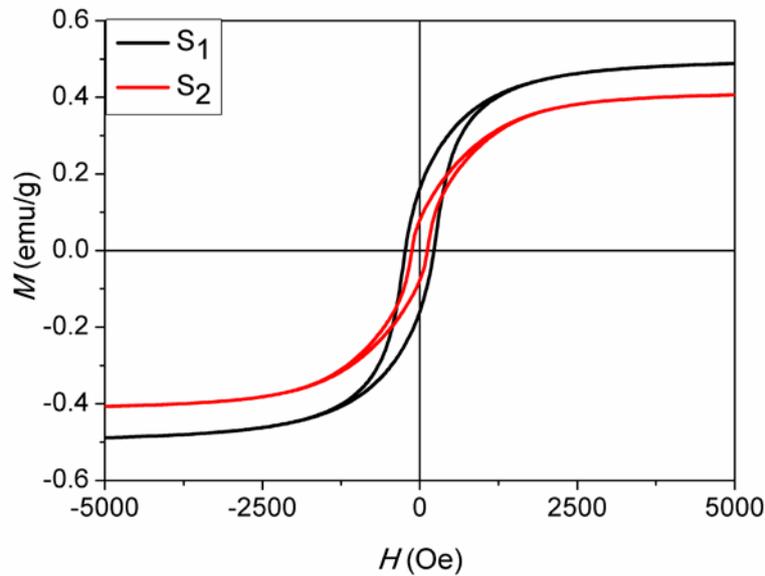


Figure 3. Hysteresis loops for the samples nonPVP-Ni and Ni/PVP-1/1, respectively.

The decrease of  $M_s$  and  $M_r$  values (for sample  $S_2$ ) may be due to crystalline disorder within the surface layers, which might create weakly magnetic interfaces and lead to decrease in the magnetization. Another reason, might attribute to the presence of the protective layer of PVP formed at the particle surface. The electron exchange between the atoms of this polymer and the surface atoms can quench the magnetic moment which might also cause the decrease in the magnetization.

Saturation magnetization of the PSU/Ni nanocomposites depends mainly on the volume fraction of magnetic Ni nanoparticles. However, due to the nonmagnetic PSU coating contribution and its important role in isolating the magnetic Ni nanoparticles, the  $M_s$  of the synthesized PSU/Ni nanocomposite is much lower than that for Ni nanoparticles. In addition, the demagnetic effect of PSU may reduce the  $M_s$  of the PSU/Ni nanocomposites. Therefore, the magnetization of the PSU/Ni nanocomposites was lower than that of the pure Ni nanoparticles.

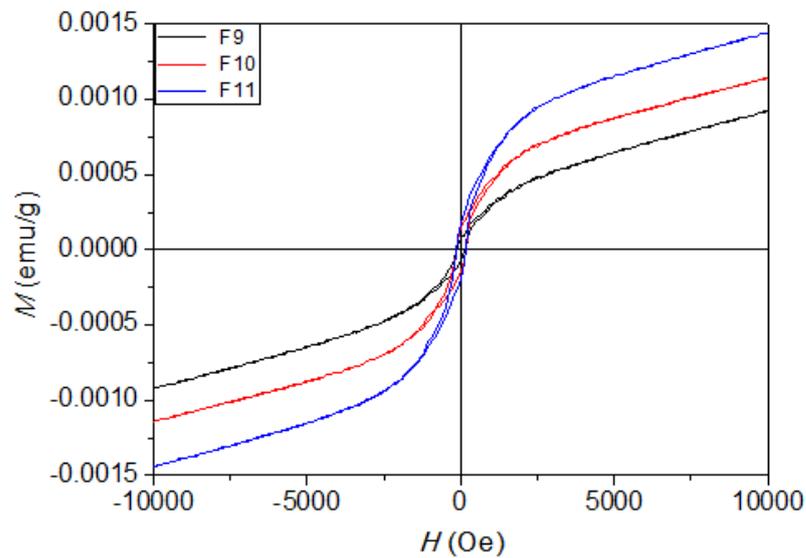


Figure 4. Hysteresis loops for the PSU/Ni nanocomposites

Remanence magnetization ( $M_r$ ) is greater than that for the bulk nickel due to presence of microstructures in the both samples.  $M_s$ ,  $M_r$  and  $H_c$  values were increased for sample nonPVP/Ni (see Table 2).

Codes	$M_s$ (emu/g)	$M_r$ (emu/g)	$H_c$ (Oe)	$M_r/M_s$
Bulk (Ni)	54.4	2.7	100	0.049
S1 (nonPVP/Ni)	47.4	15.3	227	0.322
S2 (Ni/PVP-1/1)	43.1	7.5	124	0.174
F <sub>9</sub>	$0.92 \cdot 10^{-3}$	$71.63 \cdot 10^{-6}$	120	0.077
F <sub>10</sub>	$1.14 \cdot 10^{-3}$	$144.59 \cdot 10^{-6}$	142	0.126
F <sub>11</sub>	$1.44 \cdot 10^{-3}$	$189.53 \cdot 10^{-6}$	145	0.131

Table 2: Comparative values of  $M_s$ ,  $M_r$  and  $H_c$  for studied systems

Also, we obtained the coercivity ( $H_c$ ) values of 124 Oe for NPs and 120 Oe for NPs/PSU, indicating that the nanoparticles did not suffer change in size or shape during the composite formation. For composites  $F_{10}$  and  $F_{11}$ , we have found less higher coercivity ( $H_c$ ) values within the ranges 142 Oe and 144 Oe.

#### 4. Conclusions

The present study illustrates a novel, simple and convenient method for the synthesis of nickel nanoparticles through the reduction of nickel salts in ethylene glycol (EG) and using poly(*N*-vinylpyrrolidone) (PVP) as protective agent. From the TEM observations, the nickel nanoparticles are of average size of 5 - 20 nm. PVP surfactant turns out to be rather effective for the control of the particle sizes, morphology of as-synthesized nanoparticles. Magnetization study reveals ferromagnetic interactions in nickel nanoparticles but close to superparamagnetic state at Ni/PVP-1/1. Saturation magnetization value is less than that of bulk indicating particle size effect.

#### Acknowledgements

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THE MAGNETIC BEHAVIOR OF THIN FINEMET COLD DRAWN MICROWIRES

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**Abstract**

The magnetic and magnetoelastic properties of FINEMET nanocrystalline wires with diameters ranging from 80 μm down to 10 μm has been investigate. The wires with reduced diameter have been prepared by successive cold drawing of an amorphous wire with diameter of 105 μm which was obtained by in-rotating-water spinning. All samples where annealed one hour at temperatures between 300 °C and 600 °C, to relieve the stresses induced during the preparation and to favor the formation of the optimum nanocrystalline structure. The results show potential ways to improve the soft magnetic properties of nanocrystalline microwires, the permeability reaching a maximum  $5.3 \times 10^5$  after annealing at 500°C and the magneto-impedance response being maximum 248%, after annealing at 550°C, with a great importance for future sensor applications based on these novel materials.

**Keywords:** FINEMET; Annealing; Nanocrystalline microwires; Magneto-impedance effect.

**1. Introduction**

Nanocrystalline microwires proved to be excellent candidates as sensitive elements in sensors for the detection/measurement of ultra-low magnetic fields and also used for detecting small displacements, vibrations, and various mechanical deformations [1, 2]. The requirements for such sensitive elements are: low coercivity, high magnetic permeability, large giant magneto-impedance (GMI) response, and a substantial variation of these properties with mechanical deformation [2-4]. Considering the miniaturization of the sensor, the small transverse dimension of a wires sensing element is also important. FINEMET nanocrystalline microwires show the best magnetic softness, with high value of the initial relative permeability ( $\sim 10^5$ ), very low coercivity (<1 A/m) and high saturation polarization (1.2–1.3 T) [5 - 8]. These materials are therefore expected to show large GMI response. Indeed, Knobel et al. [9] reported that the GMI response was about 200% at a frequency of 500 kHz for the wire sample annealed at 600°C for one hour. In another study, Chiriac et al. [10] reported that the GMI response was about 180% at a frequency of 50 MHz for a wire sample annealed at 550°C for one hour.

In this paper we investigate the influence of the diameter reduction and annealing condition on the magnetic and magnetoelastic properties of FINEMET wires with diameters ranging from 80 μm down to 10 μm.

**2. Experimental**

The FINEMET (Fe<sub>73.5</sub>Si<sub>13.5</sub>B<sub>9</sub>Cu<sub>1</sub>Nb<sub>3</sub>) microwires with diameters between 80 μm and 10 μm were prepared by successive cold drawing of an amorphous wire with the initial diameter of 105 μm, which was prepared by in-rotating-water spinning. All samples were annealed in vacuum for 1 hour at temperatures between 300°C and 600°C, to decrease the internal stresses induced during preparation and subsequent cold drawing and to achieve the optimum nanocrystalline structure.

The coercivity,  $H_c$ , and relative magnetic permeability,  $\mu_r$ , were measured in the longitudinal direction using a modified a.c. fluxmetric method in magnetic fields up to 30kA/m, at 50 Hz. The GMI response was recorded using an Agilent 4991A impedance analyzer at frequencies of the ac fluxmetric current between 10 and 250 MHz.

**3. Results and discussion**

Fig. 1 illustrates the dependences of the coercivity,  $H_c$ , on the annealing temperature for wires with various diameters. One observes that coercivity increases greatly from 53 A/m in the case of the as-cast sample with 105 μm in diameter up to 1500 A/m following its cold drawing down to 50 μm. This behavior is mainly due to the superposition of the internal stresses induced during the preparation of the wire by rapid solidification with the stresses induced by the cold drawing process. After annealing, coercivity decreases for all samples (see Fig. 1). Annealing at temperatures between 500 C and 550 C relieves the stresses induced during the preparation and favor the formation of the optimum nanocrystalline structure, specific to FINEMET alloys [10].

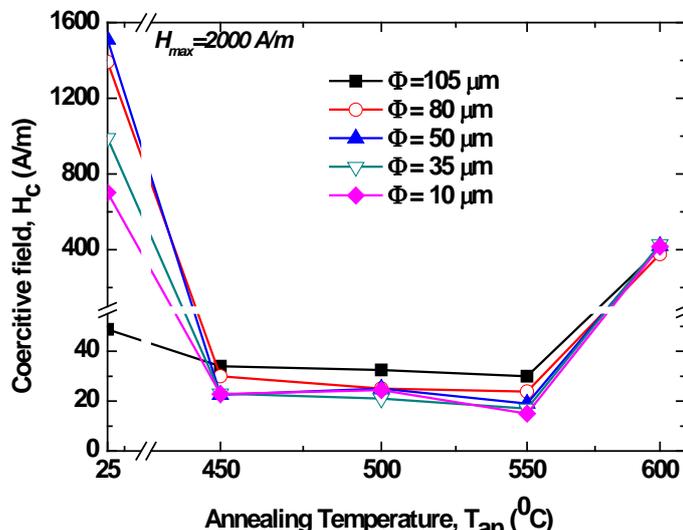


Fig. 1. Coercivity vs. annealing temperature for Fe<sub>73.5</sub>Si<sub>13.5</sub>B<sub>9</sub>Cu<sub>1</sub>Nb<sub>3</sub> cold drawn wires with various diameters (annealing time: 1 hour).

The maximum magnetic permeability,  $\mu_{r,max}$ ,  $5.3 \times 10^5$  (see Fig. 2), was obtained for the wire with the diameter of 35  $\mu\text{m}$  after annealing at 500°C for one hour, at a very small applied field ( $H\mu = 1.2 \text{ A/m}$ ).  $\mu_{r,max}$  was determined from the dependence of the relative permeability on the applied field. The maximum value of the magnetic permeability is obtained after annealing at a lower temperature (500°C) as compared to the minimum coercivity (550°C), due to residual internal stresses which remain from the preparation process, along with those induced during the cooling process, following annealing.

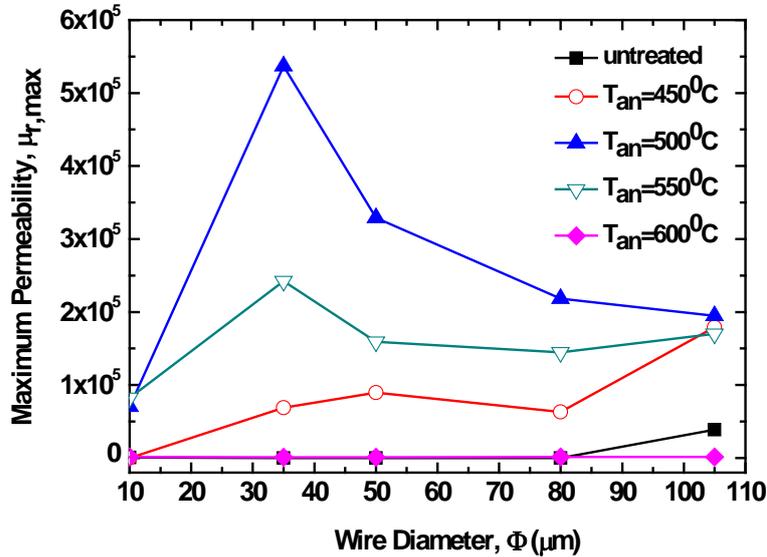
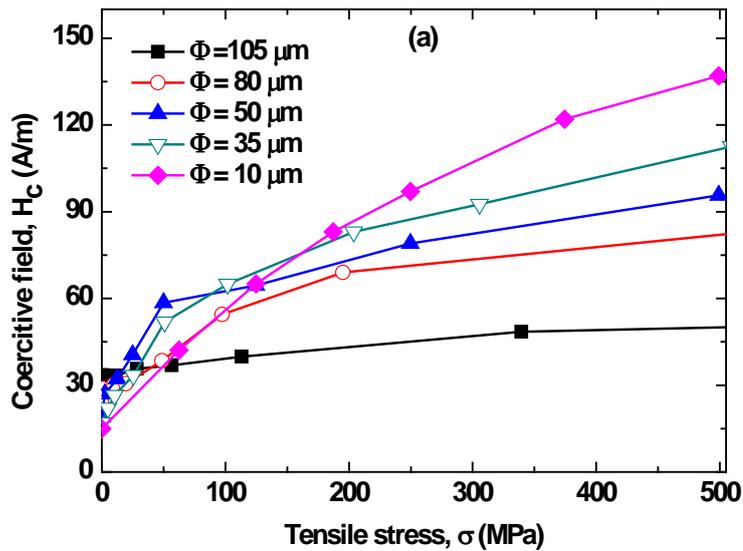


Fig. 2. Maximum value of the relative permeability vs. wire diameter for the  $Fe_{73.5}Si_{13.5}B_9Cu_1Nb_3$  as cast and cold drawn wires annealed for one hour at different temperatures.

The dependence of the coercivity and the maximum magnetic permeability as a function of the axially applied tensile stress is shown in Fig. 3 (a), respectively (b). One observes that coercivity increases for all samples (see Fig. 3 a), in the case of the sample with 10  $\mu\text{m}$  in diameter coercivity increases drastically from 30 A/m up to 137 A/m (500 MPa). The permeability exhibits a sharp decrease for very small applied tensile stress (see Fig. 3 b), wire with the diameter of 35  $\mu\text{m}$  showing a decrease from  $5.3 \times 10^5$  up to  $9 \times 10^4 \text{ A/m}$  (10 MPa). The decrease is more important for thinner wires, for which the initial value is larger. These values of the maximum permeability are obtained at very low magnetic fields (1.2 A/m). The observed behavior is very important for the use of such wires as sensitive elements in sensors for the detection of mechanical deformations.



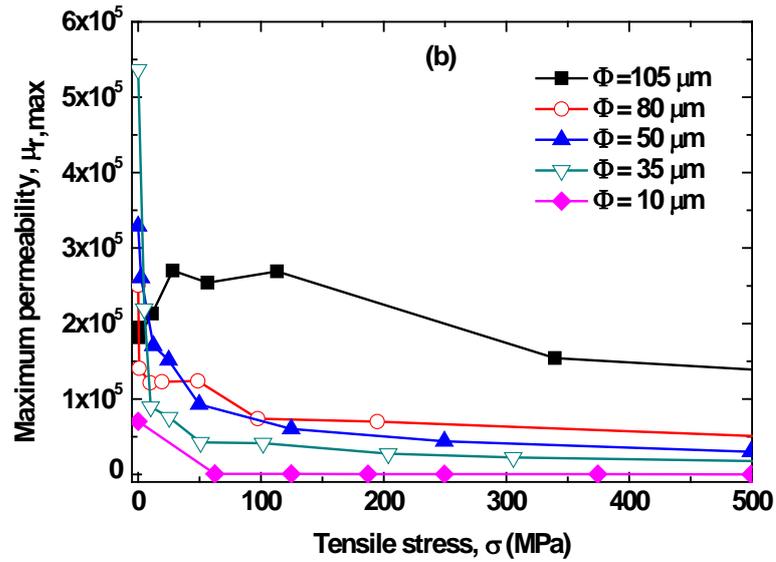


Fig. 3. Coercivity (a) and maximum value of the relative permeability (b) vs. applied tensile stress for  $Fe_{73.5}Si_{13.5}B_9Cu_1Nb_3$  cold drawn wires with various diameters and annealing at 500 °C for one hour.

The dependence of the amplitude of the GMI response on the annealing temperature for  $Fe_{73.5}Si_{13.5}B_9Cu_1Nb_3$  cold drawn wires with various diameters is illustrated in Fig. 4. Maximum amplitude of the relative of the impedance,  $(\Delta Z/Z)_{max}$  was determined from the dependence of the relative magneto-impedance,  $\Delta Z/Z = (Z - Z_{(H_{max})})/Z_{(H_{max})} * 100$ , versus applied magnetic field ( $H_{max} = 5.5 \text{ kA/m}$ ). Annealing at temperatures up to 450°C does not result in a significant increase in GMI response. A substantial increase is observed after annealing at 500°C. The maximum value, which is a considerable one (248%) is obtained for a wire with small diameter at 550°C. Such a specific behavior is the consequence of the formation of the nanocrystalline structure in the cold drawn wires subjected to the optimum annealing conditions [10].

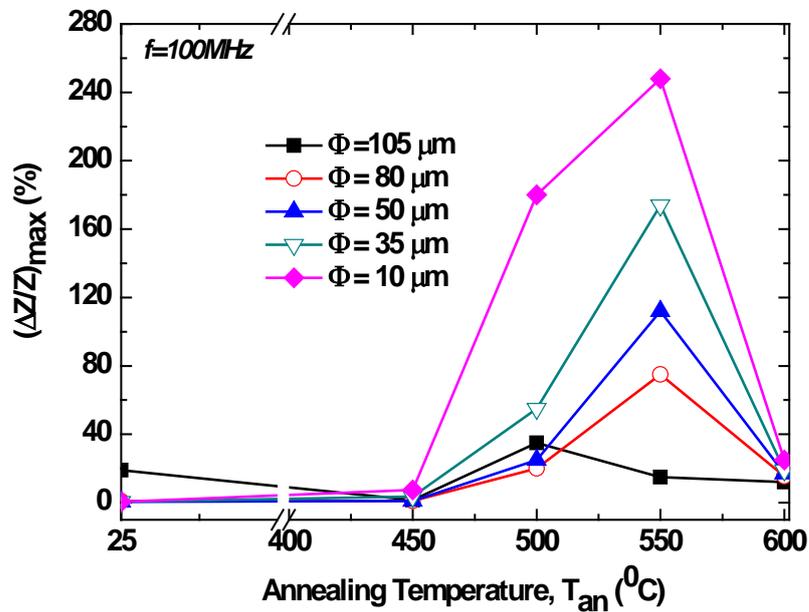


Fig. 4. Amplitude of the relative variation of the impedance,  $(\Delta Z/Z)_{max} = \max[(Z - Z_{H=H_{max}})/Z_{H=H_{max}} * 100]$ , vs. annealing temperature for  $Fe_{73.5}Si_{13.5}B_9Cu_1Nb_3$  cold drawn wires with various diameters (annealing time: 1 hour).

The GMI response is very sensitive to the applied tensile stresses, as shown in Fig. 5. The thinner the wire the larger the decrease of  $\Delta Z/Z$  with the tensile stress. For wires with a diameter of 10  $\mu\text{m}$ , we achieved a decrease in the amplitude response a frequency of 100 MHz from 248% to 16% for applied tensile stress of 125 MPa.

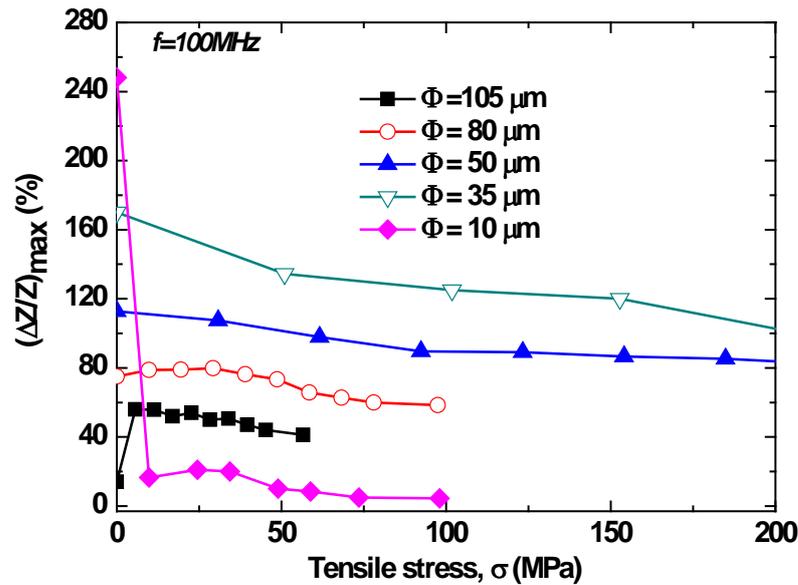


Fig. 5. Amplitude of the relative variation of the impedance,  $(\Delta Z/Z)_{\max} = \max[(Z - Z_{H=\max})/Z_{H=\max} * 100]$ , vs. applied tensile stress for  $Fe_{73.5}Si_{13.5}B_9Cu_1Nb_3$  cold drawn wires with various diameters and annealing at 550 °C for one hour.

#### 4. Conclusions

The influence of the diameter reduction and annealing condition on the magnetic and magnetoelastic properties of FINEMET wires with diameters ranging from 80  $\mu\text{m}$  down to 10  $\mu\text{m}$  has been investigated.

By specific preparation process and suitable annealing conditions, the magnetic properties can be tailored to obtain excellent soft magnetic properties, e.g. very high relative magnetic permeability (up to  $5.3 \times 10^5$ ) and a sensitive GMI response (up to 248%). This magnetic properties are very sensitive to the applied tensile stresses. Hence, these materials can be used for applications in magnetic sensors for the detection of mechanical deformations which require sensing elements with enhanced and optimized response.

#### Acknowledgements

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## TRENDS IN PLASMA PHYSICS AND MEDICAL APPLICATIONS

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### Abstract

Plasma physics and its medical applications is a new field in the domain of Biomaterial Science. It's one of the practical solution that can sustain the health care system. Medicine demands new types of materials used as implants, as tools for diagnostic and treatment or support for drug delivery systems. Up to now the science was not capable to offer a perfect compatible material with the human body.

One of the technique used to fulfil the medical asks is the plasma processing of materials. An increasing interest was devoted towards the atmospheric pressure plasmas use for medical applications. Within Iasi Plasma Advanced Research Center (IPARC), at Faculty of Physics, 'Alexandru Ioan Cuza' University of Iasi, Romania there are constant activities of plasma physics both fundamental and applied research, which are reflected in the large number of scientific publications contributing regularly to this field. Using an atmospheric pressure plasma working in the cylindrical dielectric barrier configuration we investigated the effects of this plasma onto several materials. In this study, we report the results about electrical and optical parameters of plasma effluent at the interface with different types of dielectric barriers. In particular we used dielectric layers of medical interest.

In our experiment helium and argon are used as working gases and several analysis methods for plasma characterization, such as electrical, spectral and mass spectrometry. Emitted light of plasma sources was monitored by time averaged techniques, such as emission spectroscopy and ultra-fast photography. Experimental results revealed a strong influence of the discharge geometry and working gas upon plasma dynamics and active species production both in the plasma volume and at the plasma-surface interface. Furthermore, mass spectrometry technique was applied in order to investigate the active species produced in the plasma sources effluent.

Combining the results retrieved from these diagnosis techniques, new insights on the plasma behaviour and potential application can be revealed. All of these information's about the plasma parameters will be used to develop and imagine new medical applications of atmospheric pressure plasmas.

**Keywords:** atmospheric pressure plasma jet, dielectric barrier discharge, plasma medicine.

### 1. Introduction

Plasma is the forth state of matter as sum of particles (electrons, ions, molecules) and energies (mechanic, kinetic, thermal, electric, and radiant). Though 99% of the universe matter is in a plasma state, in laboratory conditions we have to produce, maintain and imagine many resources in order to sustain it. In natural conditions plasma can be found in stars, the Sun, Aurora Borealis, and ionosphere.

However, one of the most common type of electrical discharge that can be produced in laboratory conditions ar the atmospheric pressure plasmas. During the past years novel experiments using atmospheric pressure plasmas for worldwide material processing (surface modification, cleaning, activation, deposition) [1-7], and even treatment of soft / biological material, such as living cells, tissues and organs [8-16]. All of them create a new field combining plasma science and technology with biology and medicine, known as Plasma Medicine. Regardless of whether the discharge is driven by direct current, alternating current in kHz, radio-frequency, microwave or pulsed DC range, a line of external power supply is required for plasma ignition. In addition, most of the reported plasma devices use various types of noble gases or mixtures of noble gases with a small amount of N<sub>2</sub> / O<sub>2</sub> as the working gas [17-19].

From a technical perspective, this approach requires distinct control on process parameters and plasma properties. Tuning of gas temperature, particle density and composition or electric current flow, is facilitated to some extend by operating electrical parameters and constructive design of the plasma device. Against this circumstances, it is important to understand available mechanisms of interaction by studying the impact of key process parameters on the plasma characteristics by quantitative measurements.

Up to date plasma sources at atmospheric pressure were used in hard surface or soft (biological) direct treatment, or as potential ionization source for mass spectrometry, for polymeric pipe lines treatment, or in direct contact with living tissue [20-28].

### 2. History of plasma physics and medical applications at Iasi Plasma Advanced Research Center

Within Iasi Plasma Advanced Research Center (IPARC), at Faculty of Physics, 'Alexandru Ioan Cuza' University of Iasi, Romania there are constant activities of regarding plasma physics both fundamental and applied research, which are reflected in the large number of scientific publications contributing regularly to this field.

Related to the plasma at atmospheric pressure, in the following we summarize the main topics that have been investigated and developed in IPARC group and what are the main results:

1. Development of atmospheric pressure plasma sources (corona discharges, dielectric barrier discharges) [7, 29-41];
2. Improvement of material surface (plasma surface treatment of polymeric materials) [5, 6, 42-47];
3. Obtaining of plasma polymeric films (plasma polymerization) [48-52]
4. Plasma-material Interface (Plasma medicine) [10, 17 19, 21, 22, 28]

In this framework, we report the results about electrical and optical parameters of several plasma sources at the interface with different types of dielectric barriers. In our experiment helium and argon are used as working gases and several analysis methods for plasma characterization, such as electrical, spectral and mass spectrometry.

### 3. Experimental set-up

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Atmospheric pressure plasma jets (APPJ) are generated in helium and argon, using the principles of dielectric barrier discharge (DBD). Several geometries were studied in order to obtain the suitable plasma parameters for biomedical applications. Quartz tubes of 2 / 4 / 5.6 mm inner diameter, respectively 3 / 6 / 8 mm outer diameter were used for plasma ignition. The experimental geometries (fig.1) are as follows: stainless steel needle high voltage electrode (HV) centred inside the quartz tube and copper ring ground electrode (GR) on the external surface of the dielectric tube (fig.1. a, b). The third configuration consist of a stainless steel hollow electrode (HV) (3 mm exterior, 2 mm interior) centred inside a quartz tube (6 mm out, 4 mm in) and a copper tape electrode (GR) fixed on the external surface of a quartz tube (fig. 1 c). The fourth plasma source used consist of two copper tape electrodes fixed on the external surface of a quartz tube (outer diameter 6 mm, inner diameter 4 mm, fig.1 d). the fifth plasma source has a copper tape electrode (HV) fixed on the external surface of a quartz tube (outer diameter 6 mm, inner diameter 4 mm, fig.1 e) and an external grounded electrode.

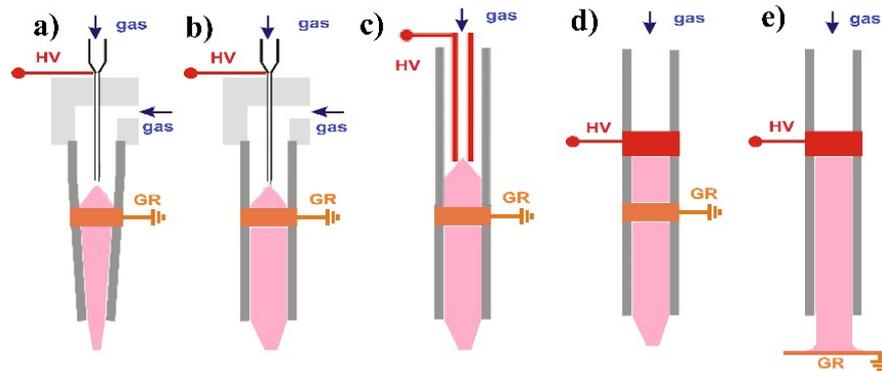


Figure 1. Experimental setup of the plasma sources.

The working gas (He/Ar) flows through the tube with a constant flow rate of 3 L/min, ensuring a laminar flow regime.

High voltage pulses, varying from 4 to 8 kV amplitude, are applied on the power electrode, with 2 kHz repetition frequency, using a function generator (Tabor WW5064) and an amplifier (Trek PD07016). Connecting to a digital oscilloscope (Tektronix TDS 5034B) a voltage probe (Tektronix 6015A) and a current probe (Pearson 6585), voltage and current traces are monitored and stored for further statistical analyses.

Using a Triax 550 spectrometer the optical emission spectra between 200-950 nm was acquired, via an optical fiber.

The last three geometries (plasma sources) presented in figure 1 were selected for further characterization as they exhibit the best operational parameters, suitable for medical applications. These sources will be referred as: Jet1 for fig.1.c, Jet2 for fig.1.d and Jet3 for fig.1.e.

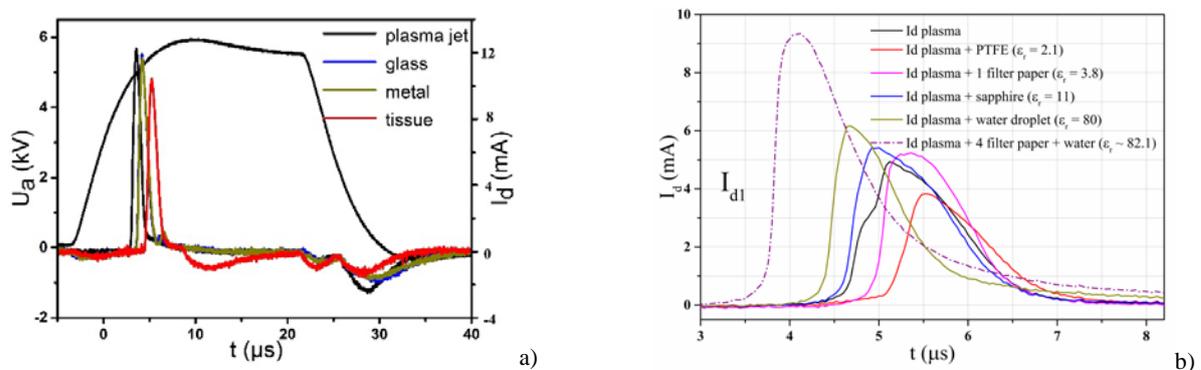
For a better understanding of the plasma jet behaviour we used the fast photography technique. An ICCD system (Hamamatsu C8484-05G camera coupled with an image intensifier) was used to capture up to 30 ns exposure time images of the plasma jet. Behaviour of the helium plasma Jet-1 in open air is reported elsewhere [7-8].

A HPR-60 MBMS mass spectrometer system (Hiden Analytical Ltd) was used for this study, with 2500 amu upper mass range [9]. Mass-to-charge ratio ( $m/z$ ) spectra were collected, stressing the effect of source geometry on plasma active species. For these experimental studies plasma sources were directed to the mass spectrometer extraction orifice.

## 4. Results and discussions

### 4.1. Electrical diagnosis

The electrical signals for the plasma sources, applied voltage ( $U_a$ ) and discharge current intensity ( $I_d$ ), are shown in figure 2. For all plasma sources a double discharge behaviour is observed, in helium and argon, characteristic for monopolar pulsed DBD discharges.



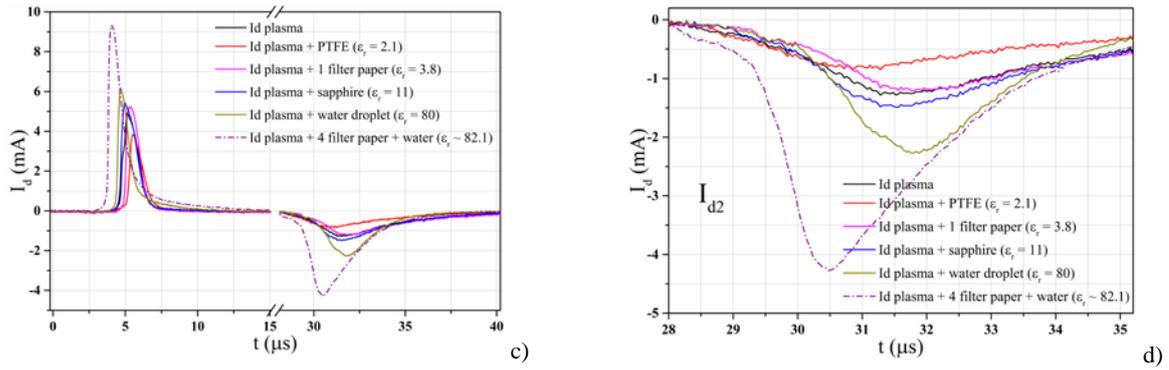


Figure 2. Typical waveforms of the applied voltage and discharge current for studied plasma sources: a) running in surrounding air and directed onto different dielectric barriers b), c), d) and e).

Discharge current varies from 13 mA to 21 mA in He, and from 34 mA to 38 mA in Ar. Total charge (sum of integrated current peaks) varies from 46 nC in Ar to 78 nC in He. The mean pulse energy determined to be of  $\sim 6$  W/s for plasma jet operating in He and  $\sim 3$  W/s for plasma jet operating in Ar. These values are in conformity with those reported in risk assessments articles concerning the use of plasma in medicine [4-5].

#### 4.2. Optical Emission Spectroscopy

Emission spectra of investigated plasma sources contain molecular bands assigned to hydroxyl radicals, neutral nitrogen molecules and nitrogen molecular ion. Atomic lines are assigned to helium and argon atoms, the working gas, and  $O_2$  or  $H_2O$  products of dissociation (figure 3.). Estimated gas temperature, using the rotational temperature of OH radicals, in these experiments was about 290K, in He, and up to 310K, in Ar.

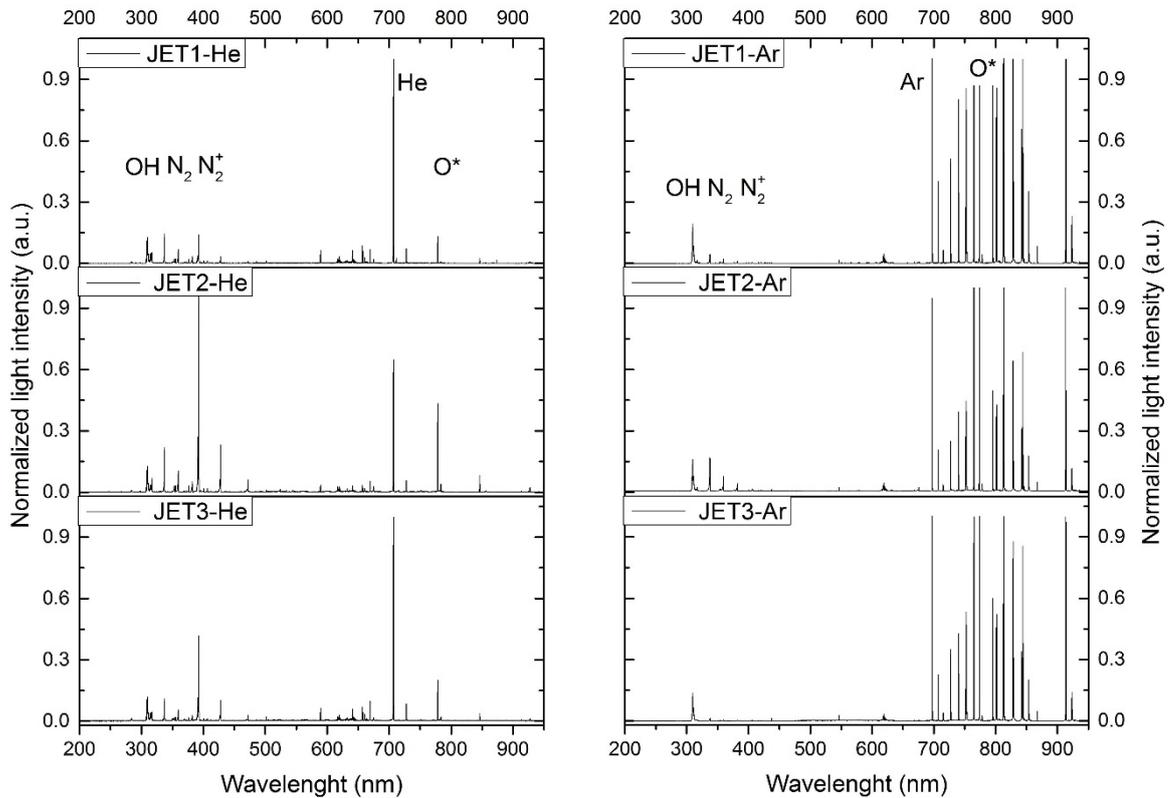


Figure 3. Emission spectrum for studied plasma sources in He and Ar.

The OH radical band is present between 306 – 310 nm. Bands of the nitrogen second positive system are visible between 315 nm and 380 nm, as well as at 399 nm and 405 nm.

The nitrogen molecular ions ( $N_2^+$ ) have bands starting at 391 nm till 470 nm. The second order of diffraction is also observed for these bands.

Helium atomic lines were observed starting at 501 nm till 706 nm and 728 nm.

Argon transitions, much more lines than in helium spectra, were observed starting from 697 nm to 923 nm. Atomic oxygen has lines at 777.4 nm and 844.6 nm.

### 4.3. Ultra-fast photography

Even though the plasma column that expand into air seems continuously for both helium and argon, a different behaviour at ns scale is revealed when using ultra-fast photography technique. ICCD images for the plasma sources operating in He revealed a ‘bullet-like’ behaviour for both discharges (as in figure 4. (a)). When using Ar, plasma expands from the electrode region, through discharge tube and in open air, in a more continuum way (as in figure 4.(b)).

Using ICCD images, plasma mean velocity for **Jet-1** plasma source, in He was found to range between 0.2 to  $30 \cdot 10^4$  m/s, as reported previously in [6-8]. For the second plasma source, **Jet-2** in He (figure 4.(a)), the velocity value was found to range between 0.6 to  $2 \cdot 10^4$  m/s.

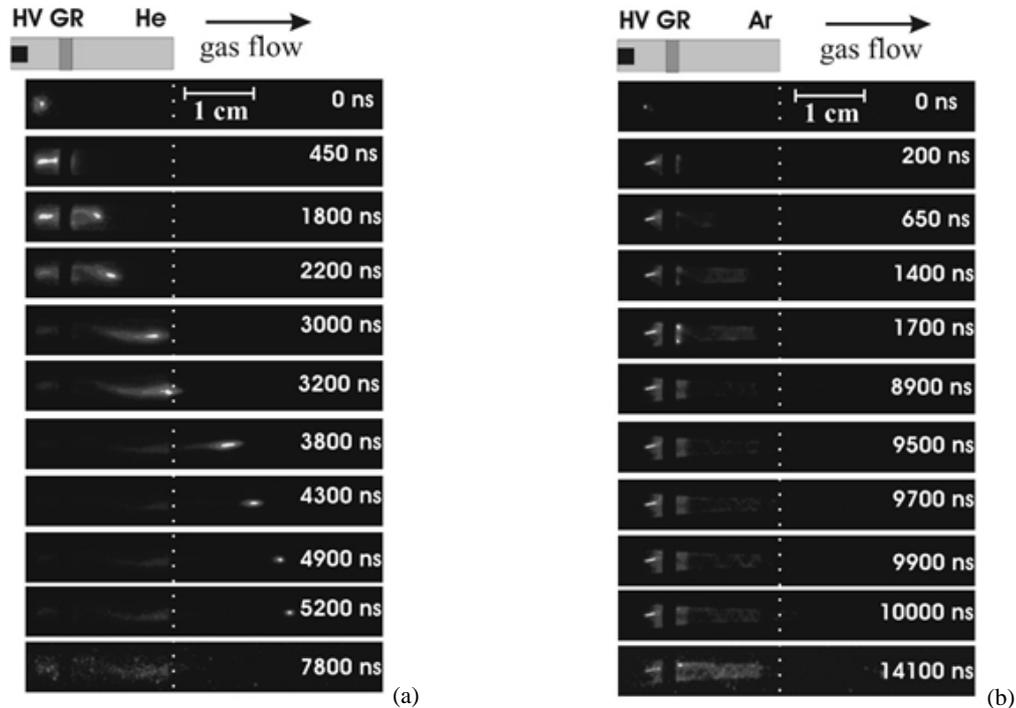


Figure 4. Typical ultra-fast images of Jet-2 in He (a) and Ar (b). ‘0ns’ correspond to current peak rising [28].

In the case of using Ar as working gas, no ‘bullet-like’ structure was observed. Instead a ‘snake-like’ rotating plasma structure, moving along the inner surface of the discharge dielectric tube (as in figure 4.(b)).

Even though, when using Ar, plasma dose not ‘form’ distinct and compact structures (bullets), it remains for a longer time inside discharge tube. Almost 6  $\mu$ s more than in the He case.

### 4.4. Mass spectrometry

In order to have a new approach on the insight on plasma source chemistry mass spectrometry technique was used. Plasma effluent was sampled through spectrometer extraction orifice. In figure 5 are presented the mass spectra of the plasma source operating in He, at atmospheric pressure. Along residual gas analysis technique (RGA in figure 5.a) also secondary ions mass spectrometry analysis technique (Sims in figure 5.b – positive and c – negative ions) were used in order to characterize the plasma source. Due to experimental conditions (atmospheric pressure sampling) along plasma related species (helium or argon) impurities were also observed in the mass spectra ( $N_2$ ,  $N_2^+$ ,  $O_2$ , NO and  $CO_2$ ). Moreover the presence of water clusters was recorded in mass-to-charge ratio spectra both for positive (figure 5.b, e.g.:  $H^+(H_2O)_n$ ) and negative ions (figure 5.c, e.g.:  $OH^-(H_2O)_n$ ,  $NO_2^-(H_2O)_3$ ). Similar results were reported recently for plasma jets by other authors [12, 23-24] highlighting that in atmospheric pressure plasmas the formation of cluster ions is dominant.

As observed in the global emitted light spectra (figure 3), the studied discharges consist of helium and impurities from surrounding air. The presence of reactive species (with oxygen and nitrogen) in plasma volume, with great importance in the field of Plasma Medicine, was proven through mass spectrometry measurement and it sustains the optical emission spectroscopy findings. This good correlation between these complementary techniques support the usage of studied plasma source in subsequent biomedical experiments.

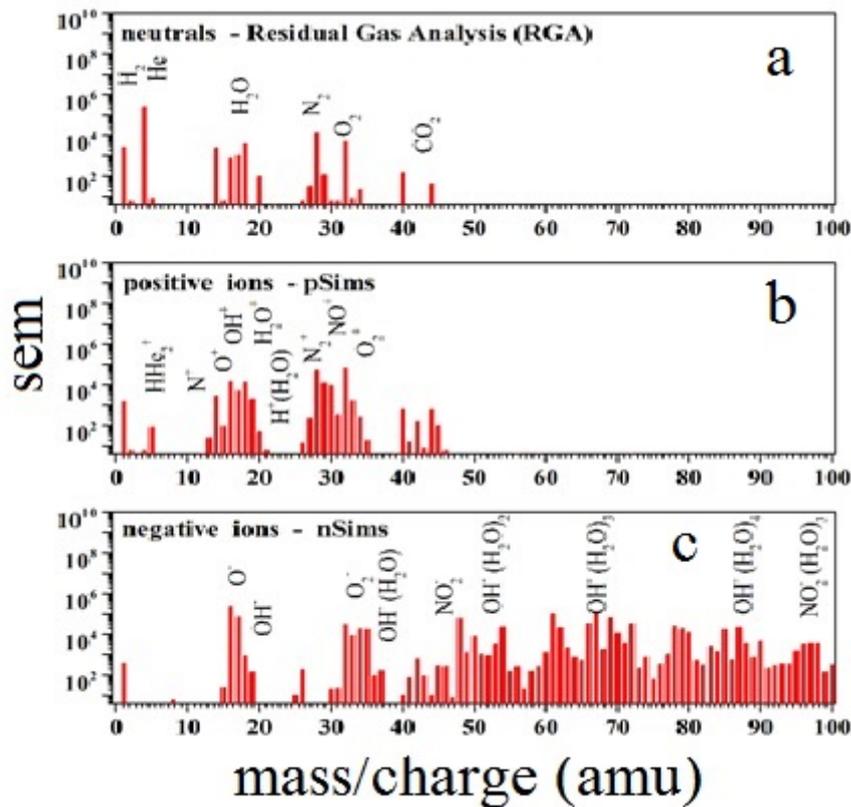


Figure 5. Mass spectra obtained using residual gas (a) and secondary positive (b) and negative ions (c) mass spectrometry for Jet-1 plasma source,  $Q_{He} = 3 \text{ L/min}$ ,  $U_a = 6 \text{ kV}$  [28].

## 5. Conclusions

A short overview on the capabilities for the combined use of electrical, optical, spectroscopic and mass spectrometry diagnostics of atmospheric pressure plasmas was given. The spatio-temporal development of dielectric barrier discharges in helium / argon operated by high voltage square pulses have been studied by means of electrical, optical and spectroscopic methods. These techniques provide the necessary time resolution, are nonintrusive and give insights on the complex plasma morphology and its spatially and temporally resolved development. In certain situations such methods enable the determination of plasma parameters. On the way to more insights and controllable plasma sources such activities must be increased in connection with the application of other diagnostics giving further access to basic plasma parameters. All of these information's about the plasma parameters will be used to develop and imagine new medical applications of atmospheric pressure plasmas.

## Acknowledgements

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# BIOGENIC AMINES EVALUATION USING A MODIFIED SCREEN PRINTED ELECTRODE FOR MEAT FRESHNESS ASSESEMENT

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## Abstract

The present paper investigates the electrochemical behavior of a polyaniline-graphene modified screen printed sensor for qualitative & quantitative evaluation of a biogenic amines (histamine, putresceine, cadaverine), which act as bio-markers for freshness evaluation of meat products. The sensors' sensitive layer was prepared via electrochemical and plasma polymerization methods of the aniline monomer and graphenes, directly on the working electrode of a commercially available SPE-110. The novel composites were characterized by atomic force microscopy (AFM), scanning electron microscopy (SEM), Raman spectroscopy and cyclic voltammetry. The sensor materials exhibited synergic properties (fast response time, low detection limit, chemical stability) while detecting different levels of biogenic amines (as low as 20 ppm for histamine).

**Keywords:** screen-printed electrodes, polymerization, biogenic amines, cyclic voltammetry, meat freshness.

## 1. Introduction

Polyaniline gives stable, conductive, easily synthesized, tunable, versatile films. The polymer has proven excellent for sensing application [1, 2] and, together with graphenes, could render highly conductive composites [3]. Its polymerization is based on a two steps process, initiation and propagation [4]. The initiation process releases in the system positively charged free radicals of aniline, aniline dimers, protons and electrons, which combine with the remaining monomers and with other molecules (dimers, trimers, oligomers) in the propagation phase. Having a simple polymerization chemistry, polyaniline and its derivatives are usually synthesized either by chemical [5,6] or by electrochemical means of deposition and growth [7], in the presence of different supporting electrolytes and nanoparticles. Thanks to their 2D morphology, high conductivity and surface area (2630 m<sup>2</sup>/g) [8], graphenes are at the top of the most researched materials of the last decade. The range of applications varies from supercapacitors, fuel cells [9, 10], solar cells [11], gas sensors [12,13,14] and biosensors and they have been decorated with various metals and polymers [15].

This paper presents the results obtained by electrochemical polymerization and plasma polymerization of aniline in the presence of graphene oxide on a screen printed sensor and its electrochemical response to histamine, a biogenic amine some frequently found in spoiled food.

## 2. Materials and methods

### 2.1. Materials

Aniline hydrochloride was purchased from Sigma Aldrich and freshly distilled before the experiments to remove any polymerized chain. Graphene oxide (aqueous solution) was acquired from Graphene Supermarket and used as received. Histamine dihydrochloride was purchased from Sigma Aldrich and used to prepare fresh solutions of various concentrations. Sulphuric acid, trichloroacetic acid were purchased from Merck. All the solvents were used as received, without further purifications.

### 2.2. Sensor preparation

Two methods of preparation were employed for the fabrication of the sensor:

#### a) Electrochemical polymerization

0.1 M aniline and 880  $\mu$ L GOx solution were dispersed via ultrasonication into 1 M H<sub>2</sub>SO<sub>4</sub> solution for 30 minutes. The mixture was inserted into a typical three-electrode electrochemical cell and the potential was swept between -0.2 – 1.2V for a total of 5 cycles at a scan rate of 10 mV/s. The cyclic voltammetry method employed for the electrochemical polymerization was recorded versus saturated calomel electrode (as reference electrode). The working electrode was a commercially available SPE-110 carbon electrode, onto which the polyaniline + GOx composite was deposited. A spectroscopic graphite rod was used as auxiliary electrode. The SPE-110 electrode modified with the polyaniline-graphene composite via electrochemical deposition will be denoted SPE-EP.

#### b) Plasma polymerization

The mixture prepared above (0.1 M aniline + 880  $\mu$ L GOx solution into 1 M H<sub>2</sub>SO<sub>4</sub> solution) was polymerized using a home-made plasma device. 1 mL mixture was inserted into a syringe and sprayed (with Ar as carrier gas) into a low-pressurized chamber (7.8x10<sup>-2</sup> mbar), where two electrodes resided into a Ar gas atmosphere. The SPE-110 electrode was deposited on the anode of the installation and 10 mA current with 1.3 kV potential drop was applied between the electrodes, forming plasma. After 1 minute, the potential was dropped and the modified SPE-110 electrode was washed and dried. The SPE-110 electrode modified with the polyaniline-graphene composite via plasma polymerization will be denoted SPE-PP.

### Plasma polymerization device

The plasma polymerization system is composed of a plasma reactor with internal electrodes, using both alternative current and continuous current. The configuration for the synthesis of polymers via c.c. is presented in Fig.1 and shows the reaction chamber (a), a fixed cylindrical cathode (b), a mobile anode (c), the sample holder (d), the system for monomer spraying (e), the vacuum pump and the c.c. source.

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Fig.1. The plasma polymerization system for polymer synthesis.

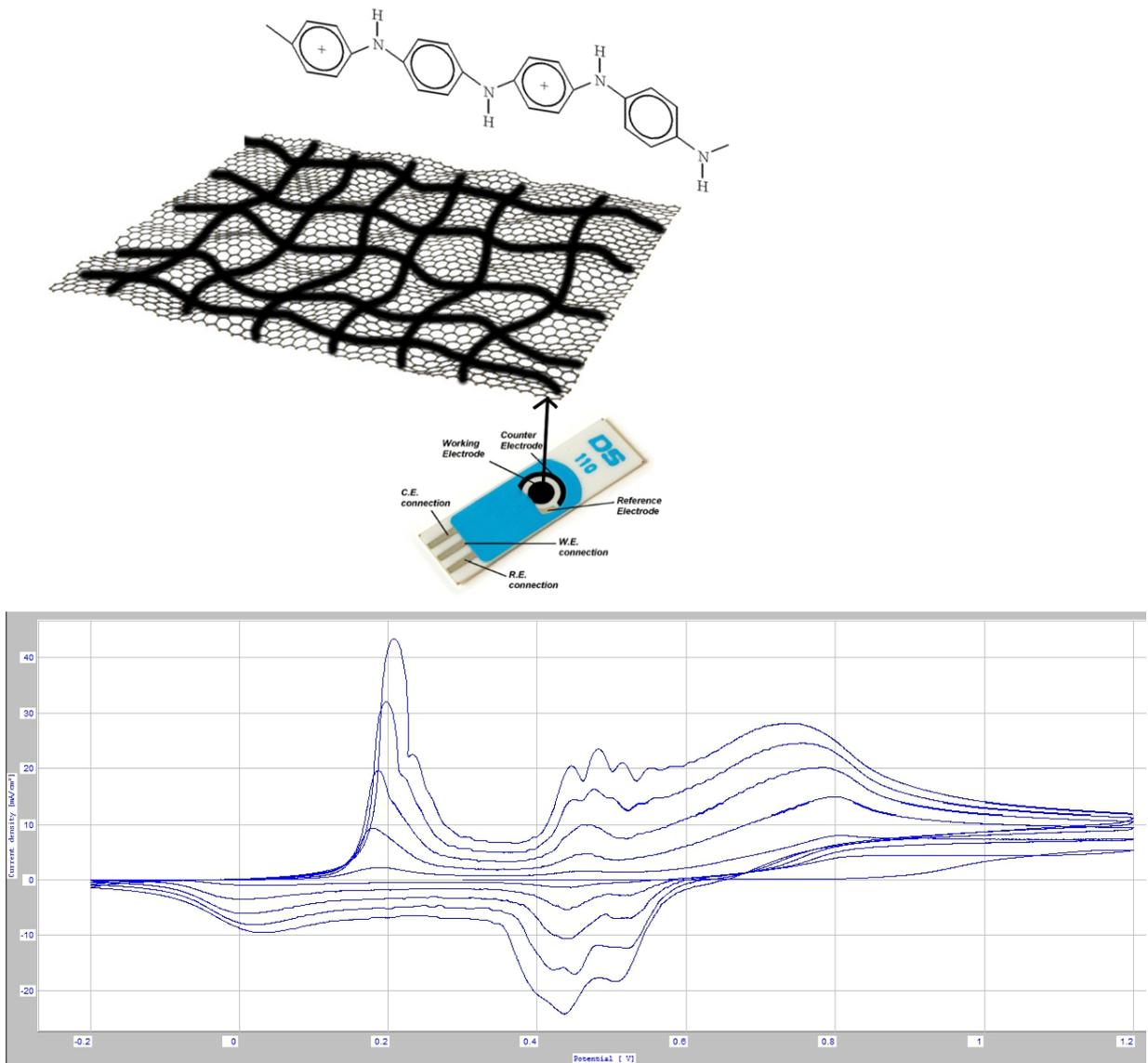
### 2.3. Characterization methods

Raman spectra were recorded by Jasco NRS 3100 with dual laser beams, 532 nm and 785 nm. AFM micrographs were registered with a Integrated Platform SPM-NTegra model Prima in semi-contact mode (3x3  $\mu\text{m}$ ), height profile and phase contrast. Scanning electron microscopy was recorded with a FESEM VP, CARL ZEISS, with a resolution of 0.8 nm at 30 kV and 2.5 nm at 30 kV in VP mode. Cyclic voltammetry were performed with a Voltlab 40 system (Radiometer Analytical) adapted for Screen printed electrodes (SPE-110 - Dropsens – Fig 1). The oxidation potential was recorded within the range (-0.5 - 1) V. For each experiment 50  $\mu\text{l}$  solution was dropped on SPE to cover in a thin film WE, AUX and reference electrode.

## 3. Results and discussion

### 3.1. Electropolymerization of the polyaniline-graphene composite

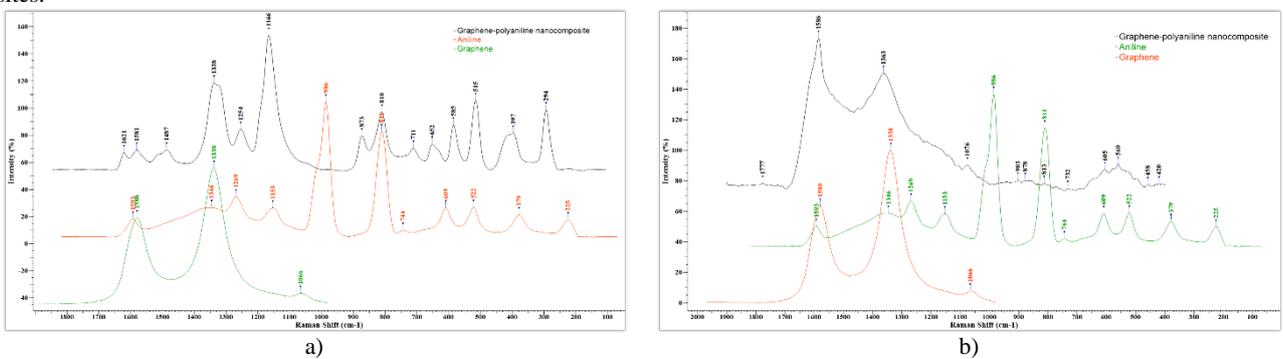
Fig.2. shows the typical cyclic voltammograms obtained during electropolymerization and deposition of polyaniline and graphene oxide onto the supporting SPE-110. The CVs indicate a reversible process, with intense oxidation and reduction peaks, corresponding to polymer chain formation. The plot indicate that the area under both the oxidation and reduction part of the CV increases with the number of cycles which leads to an increase of the total charge density of the process. The double-charged layer is thin at the beginning of the voltammetric process, but increases with the number of cycles. The total number of cycles allowed for the electrochemical polymerization of aniline and graphene on the working electrode is 5, above this number of cycles a simple mass transport of reactants is observed: graphene and polyaniline are simply deposited onto the carbonic support of the sensor and are easily removed by washing with distilled water.



**Fig.2. Electrochemical polymerization of the polyaniline-graphene composite onto SPE-110.**

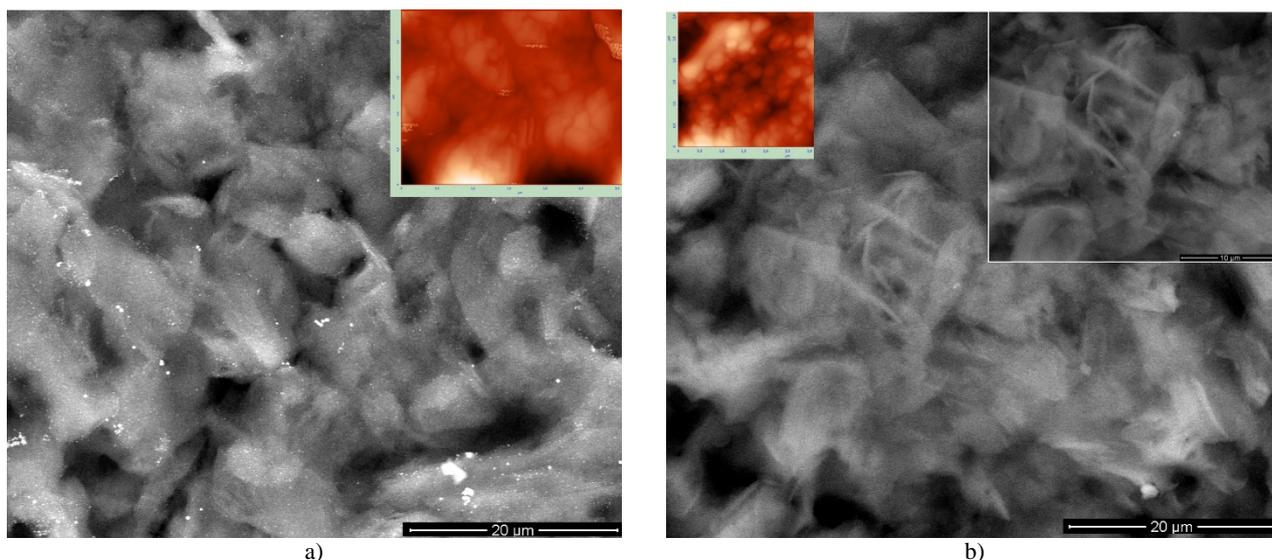
### 3.2. Raman spectroscopy

Fig.3. presents the Raman spectra for the polyaniline-graphene composite fabricated via the two methods: electropolymerization and plasma polymerization. The spectra shows that for the electropolymerization process, polyaniline completely envelops the graphenic sheets, resulting in a compact and dense composite, with low porosity. For the plasma polymerization process, the graphene sheets are “cleaner” and the polymer is loosely spread on the surface, inducing a porous material, with high surface area and large reaction sites.



**Fig.3. Raman spectra for polyaniline-graphene composite, fabricated via: a) electropolymerization and b) plasma polymerization.**

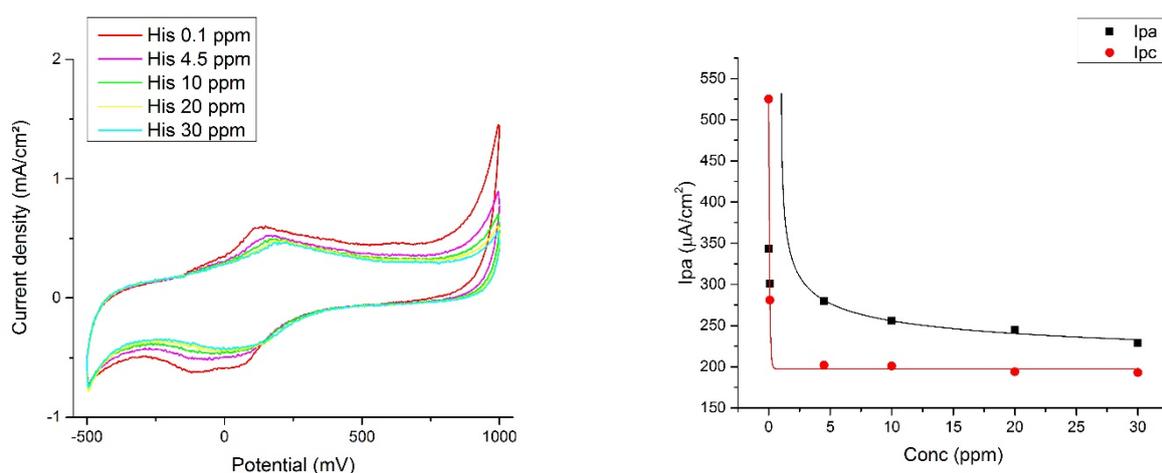
### 3.3. SEM and AFM topography



**Fig.4. SEM and AFM (inset) images of polyaniline-graphene composite obtained via a) electropolymerization and b) plasma polymerization**

SEM and AFM micrographs sustain the results obtained by Raman spectroscopy. The surface of the composite fabricated via electropolymerization is dense and compacted, while the surface of the composite material obtained via plasma polymerization is formed by folding of the graphenic sheets. The AFM image in Fig.4b inset, shows the globular structure of the polymer on the surface of graphene sheets; for electropolymerization, the AFM indicates long sheets closely packed together.

### 3.4. Histamine detection via cyclic voltammetry



**Fig.5. Cyclic voltammetry of the histamine, in different concentrations, observed for the polyaniline-graphene composite fabricated via plasma polymerization.**

The screen printed sensor (SPE-EP) fabricated via electropolymerization of polyaniline and graphene exhibited low electrochemical behavior, due to a compact structure, which inactivated the reaction sites and produced no notable peaks in the voltammograms. The cyclic voltammetry for the composite fabricated via plasma polymerization (SPE-PP) obtained for different solutions of histamine are presented in Fig.5. The supporting electrolyte was a solution of 0.02M TCA, into which histamine was dissolved. For the TCA solution, the CV indicated a high double charged layer, with oxidation and reduction peaks, suggesting a reversible process. For histamine solution, the double-charged layer and the oxidation and reduction peaks decreased as the concentration increased. The

graph of current intensity vs concentration indicated different mathematical laws for the oxidation process and the reduction process. For the anodic peaks, the process is described by a logarithmic law:

$$y = -58.62 \ln(0.0055 \ln(x))$$

, which gives a  $R^2 = 0.959$  for the results obtained by our cyclic voltammetry measurements.

For the cathodic peaks, the process is described by an exponential law:

$$y = 197.5 + 327.5(1.16 \cdot 10^{-6})^x$$

, which gives a  $R^2 = 0.9987$  for our plotted results.

#### 4. Conclusions

Histamine can be detected by a screen printed sensor fabricated from polyaniline – graphene composite. The method of polymerization has a strong influence on the reactivity of the reaction sites: for the SPE-PP sensor, the cyclic voltammetry indicated a good correlation between the concentration of histamine and the intensity of the current observed for the anodic and cathodic peaks: the intensity dropped as the concentration increased, due to a saturation phenomenon of the catalytic sites. The SPE-EP sensor indicated no notable electrochemical behavior due to a dense structure of the polymeric composite. In conclusion, the SPE-PP sensor can be used for meat freshness evaluation.

#### Acknowledgements

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## THE EVOLUTION IN TIME OF ENERGY CONVERSION SYSTEMS OF WIND AND SOLAR

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### Abstract

*In the past about 20 years, both at global level and at the level of the Member States of the European Union was becoming more serious objective finding reliable solutions in order to bring about significant reductions in emission of greenhouse gases that are the main problem of global warming.*

*After a lot of studies conducted over the years, it has come to the conclusion that one of the main causes of the emission of greenhouse gases is the production of electricity from conventional sources.*

*Considering this aspect in 1992 at the Earth Summit in Rio de Janeiro was signed by 154 States, Convention-frame of the United Nations regarding climate change, (UNFCCC).*

*This Convention has as main objective to reduce significantly the emission of greenhouse gases by finding new solutions for the production of electricity from renewable energy sources.*

*It is well known that wind energy, solar energy, wave energy and tidal energy are inexhaustible, environmentally friendly sources of energy production, but the high costs of achieving power. Besides this aspect, these sources and other disadvantages such as their respective distribution random large dimensions and the difficulty of handling and location devices used for converting these energy sources into electricity.*

*In order to achieve the main objective for the reduction of emission of greenhouse gases is seeking effective solutions for the use of energy from renewable sources for the purpose of electricity production. These solutions must ensure power supply both heavily populated and industrialized areas and isolated areas.*

*The development of new solutions for the use of renewable energy sources must be ensured a balance between the production of electricity from conventional sources and renewable sources to be avoided a supra national power system load.*

*Also before positions of such devices in certain areas, should be carried out a study on the energy potential but also the amount of local electricity needed.*

*The present paper proposes carrying out a study on the present situation of wind and solar energy potential at the level of our country but also the evolution over time of the conversion technologies of wind and solar energy and proposing effective and feasible solutions.*

**Keywords:** *wind energy, solar energy, conversion technologies.*

### Introduction

Renewable energy, also called alternative energy is the energy obtained from sources that are able to "recover", such as the Sun (solar), wind (wind energy), rivers (photovoltaic), hot springs (geothermal energy), tides (tidal power) and biomass. [1].

At the beginning of the 21st century, the global electricity supply was assured, about 80%, of fossil fuels (coal, petroleum, natural gas). Fossil fuels are a source which are an exhaustible and burning them produces a series of negative consequences on the environment.

Power plants that use fossil fuels emit air pollutants, such as sulphur dioxide, particulate matter, nitrogen oxides, and toxic chemicals (heavy metals: mercury, chromium, and arsenic). In addition to these are added and those mobile sources represented by vehicles transporting fossil fuels in order to supply power plants, vehicles, which in turn emit nitrogen oxides, carbon monoxide and particulate matter.

Population exposure to these pollutants can cause heart disease, asthma and other health problems. In addition, emissions from the burning of fossil fuels are responsible for acid rain, which led to the acidification of many lakes and damages relating to aquatic fauna. Moreover, the burning of fossil fuels releases carbon dioxide (CO<sub>2</sub>) which is one of the main greenhouse gas responsible for global warming.

In contrast, renewable energy sources, since the beginning of the 21st century, they represented about 20% of energy consumption worldwide. About 15% of the world's total electricity came from hydroelectric plants produce large, while other types of renewable energy (wind, solar, geothermal) are now about 3.4% of total electricity production.

Production of electricity from renewable sources has increased significantly since the 1990s, when they began to develop more technologies for the production of electricity from renewable sources.

In the period 1990-2007 more than 60 countries have adopted the political objectives on the growth of electricity production from renewable sources. At the level of the European Union (EU) in 2005 was registered a production of electricity from renewable sources of about 6.38% and, in 2007, EU Member States have adopted a series of objectives that allow for the growth of this offering and figures that by 2020 the production of electricity from renewable sources to attain a rate of about 20%.

Of renewable energies used in the production of electricity, are most commonly used in wind power and solar energy.

For the two types of renewable energies (wind and solar) have been developed different types of wind turbines and photovoltaic panels. Unfortunately, these devices have a low average efficiency (generally less than 15%). Of the total of wind and solar energy in a specific area, only 2-5% can be converted into electricity that means that current technologies are not very effective.

Wind turbines presents the disadvantage that they can collect only wind power related to a low wind speeds, typically 4-15 m/s and with relatively low efficiency. The turbines are very large (diameter blades up to 200 m), hard to carry and pollutes the environment, noise, generates data for projectiles due to centrifugal forces tearing the blades, kill the birds in flight by hitting their blades in the movement of rotation perpendicular to the direction of air currents.[2]

knowing these inconveniences, it is absolutely necessary to find solutions and new car technologies which decrease significantly the current problems.

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## 2. Wind energy potential

### 2.1 Wind energy potential of the European Union

Wind energy is the source of power most updated. If suitable measures will be taken in Hispanic growth in electricity production from wind power, it will represent the key to meet the 2020 objective concerning renewable energies in Europe, combating climate change, enhancing energy security and creating new jobs.

The European Wind Energy Association proposes that in the year 2020, the EU installed capacity from wind power to 230 GW. This would generate the following appearance:

- Production of electricity from wind energy, at EU level, depending on the application, will be 14-17%;
- Significant decrease in annual quantity of CO2 emitted into the atmosphere;
- Reducing the cost of generating electricity.

Installed capacity from wind power at EU level, has increased steadily over the past 13 years to 2GW in 2000 to 11 GW in 2013, a percentage annual growth of over 10%. [3]

Currently EU installed capacity from wind power, can be reached at an annual average wind speed at an electrical potential of 257 TWh, sufficient to cover the total electricity consumption in the EU.

Total EU electricity consumption	Onshore wind energy production	Offshore wind energy production	Share of EU consumption met by onshore wind	Share of EU consumption met by offshore wind	Share of EU consumption met by wind
3,280 TWh	233 TWh	24 TWh	7.1%	0.7%	7.8%

**Fig.1 WIND ENERGY SHARE OF EU ELECTRICITY CONSUMPTION, source EWEA**

Mentioning that, wind energy penetration levels are calculated using average capacity factors onshore and offshore and Eurostat electricity consumption figures (2011). Consequently, Fig.1 indicates approximate share of consumption met by the installed wind energy capacity at end 2013. The figure does not represent real wind energy production over a calendar year.

### 2.2 Wind energy potential of Romania

At the level of Romania were identified five distinct areas with wind energy potential, taking into account environmental conditions, elevation surveying conditions and a average of over 50 meters.

On the basis of the evaluation and interpretation of results that, in Romania, the potential of wind energy is the most favorably on the Marea Neagra, in mountain areas and in the area of Dobrogea Plateau. [4]

Wind power in Romania has reached in 2014 in a 2954 MW installed capacity of 14 MW installed capacity in 2009. Romania has the biggest potential wind farm in South-East of 14000 MW.[5,6]

A study of Erste Bank Romania show that Dobruja counties of Constanța and Tulcea with is ranked the second place in Europe as well as the location of wind parks, due to its potential wind farm.[7]

## 3. Solar energy potential

### 3.1. Solar energy potential of the European Union

In 2012, photovoltaic systems with a total capacity of 17.2 gigawatt (GW) were connected to the network in Europe, less than in 2011, when GW 22.4 were installed. In terms of total installed capacity, according to 2012-report his EPIA, Europe still leads the way, with more than 70 GW of capacity, or 69% in the world, producing 85 TWh of electricity annually. This volume is enough energy to power supply needs of more than 20 million households.

Over the next 10 years, the european solar thermal will increase, on average, at a rate of 15% per year according to the National action plans for renewable energy solar thermal capacity in the EU will be 102 GW in 2020 (while 14 GW in 2006). [8]

### 3.2. Solar energy potential of Romania

Romania is located in an area with good solar potential, with 210 days of sunshine per year and an annual solar flux between 1000 kWh / m<sup>2</sup> / year and 1300kWh/mp/an. Of this quantity just 600-800 kWh / sq m / year are useful the technical standpoint. The potential of solar energy reflected in recent years in increasing investment in solar power: Solar power in Romania in 2007 had a production capacity of 0.30 MW, increasing in 2011 to 2.9 MW and 5 MW reached in 2012 (fig.2) [9].

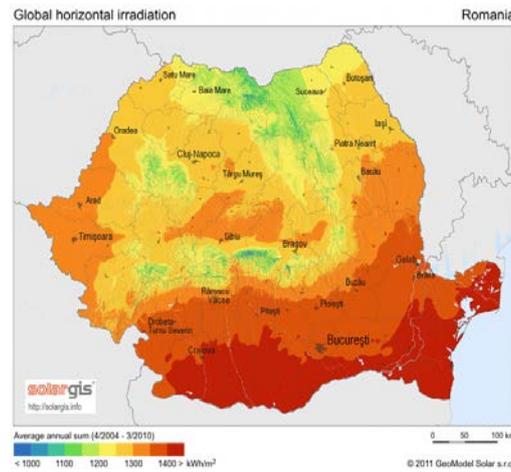


Fig. 2. The solar energy potential in Romania

**4. Systems of electrical production terminated from renewable sources (wind and solar)**

Current solutions for exploiting wind power and solar power requires specific investments large, have low efficiency and generates a series of problems on electric power systems due to the random character thereof, which cannot be correlated with system load curve.

It is known that at the present time be two major types of wind turbines: vertical shaft wind turbines and wind turbine with horizontal shaft.



Turby

WindSide



Ropatec



Energy Ball



WindWall

Fig.3 – Vertical shaft wind turbines classics

Fig.4 – Horizontal shaft wind turbines new

Wind turbines set out in figures 3 and 4 presents a number of drawbacks and for this reason have been proposed new types of wind turbines able to cut existing disadvantages.

New types of wind turbines are proposed:

**SERB terrace wind turbine (Building integrated wind turbine)**

Terrace wind turbines are installed on the buildings’ terrace or eardrums buildings’ roof. The stator of urban terrace wind turbines focuses and directs the air currents only on the active part of the rotor’s pallets. These turbines have shapes and dimensions that fit into the urban architecture – can be of any shape the beneficiary/owner wants.



Fig. 6 terrace wind turbine

**SERB cornice wind turbine**

Cornice wind-turbines are installed at the perimeter of a buildings’ terrace. Cornice wind turbines can fully capture energy of ascending wind current generated by solar radiation (chimney effect) and super pressure on the facades as well as the energy of the horizontal air currents on the top sides of a building.

The losses of thermal energy on the inside of the building are recovered through chimney effect by the cornice wind turbine.

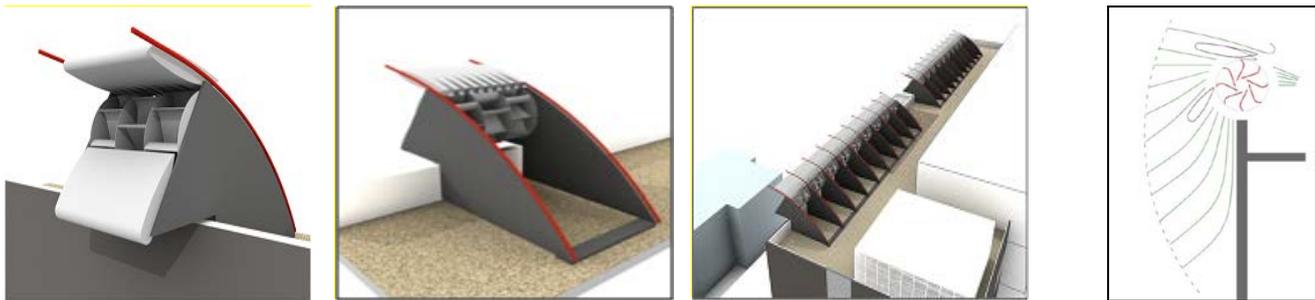


Fig. 7 SERB cornice wind turbine

### SERB ridge wind turbine

Ridge wind turbines are installed on the roof ridge. They efficiently collect air currents' energy from one direction, except for the air currents along the roof ridge. In order to collect the air currents from that direction it is recommended to be installed one terrace wind turbines on the roof's edge (eardrums roof) .

In order to collect wind's energy from the entire surface of the roof it can be realized channels to install sloping photovoltaic panels which also have the purpose of redirecting air currents towards the ridge turbine. [10,11,12]

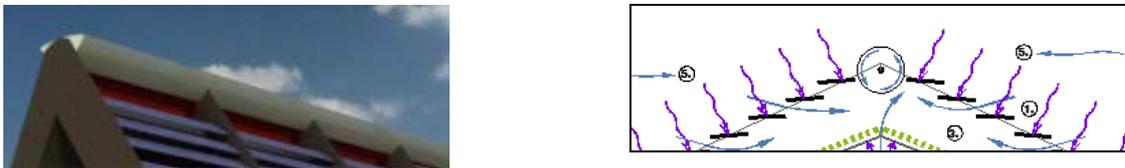


Fig. 8 SERB ridge wind turbine install on existing building with tank for storage energy

### Conclusions

Studies are seen as at the level of poete Romania there is a wind and solar energy potential, large enough that it can be produced a quantity of electrical energy able to cover a significant percentage of the total electricity consumed. For this to be effective and durable solutions adopted so that there is an imbalance in the level of the National Energy System.

As all EU Member States and Romania must adopt a strategy energy based on renewable energy sources contributing thus to reduce the emission of greenhouse gases and electrical power supply in areas difficult to access but with a potential wind and solar energy.

Currently critical issues existing in the production of electricity from renewable sources can be eliminated in two ways:

- the development of intervention power plants based on the classical resources. In this case, reducing pollution and greenhouse gases is smaller and larger investments are needed;
- the development of renewable energy plants to efficiently collect renewable energy. In this case, reduce pollution, especially greenhouse gas emissions is significant. It improves safety as new central power systems can participate effectively to regulate the load curve and as an intervention central.

The new wind turbines have a high development potential for the following reasons:

- it remove nearly all the disadvantages of classical wind turbines;
- they have a modular structure with components whose dimensions and light weight allow easy handling without specialized equipment and can be fitted including on existing buildings;
- they do not have exterior rotating parts, are silent and do not present any danger to birds.

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## “LIQUID WOOD” AS A SUSTAINABLE MATERIAL

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### Abstract

Enormous efforts have been sustained in the last years by the social and environmental organizations, academics, businesses markets, governments and researchers that tried to develop and improve ecological technologies and “green” materials which involve directly their recyclability, biocompatibility and biodegradability. This tremendously need has appeared simultaneously with the global problems in terms of economy and environment. Closely linked is the massive use of non-renewable materials as petroleum-based products, stored as solid municipal waste leading this way to global warming, poor air quality, health problems and to considerable decrease of fossil resources which are more than limited at this point.

A team of German researchers was take into consideration all above mentioned and success to design, develop and market a bio-based high quality material, named Arboform - „Liquid wood“, which is consistent with the „eco“ chemistry and engineering. The main challenges in order to convert and to obtain Arboform thermoplastic material, 100% from renewable resources was the durability, sustainability, compatibility and the affordability of this on.

A-LW is a wood based polymer compound made of lignin (ca. 30%), cellulose (ca. 60%), and the remaining part (ca. 10%) are natural additives that function as plasticizers, dyes, antioxidants, fillers, etc. It can be found and purchased in granular form that can be processed by injection molding, extrusion, calendaring, deep drawing or pressing using the same technological equipments as for any other synthetic polymer. The only changes which have to be made regards the setting of process parameters appropriate to a renewable material.

Another very important aspect is represented by the mechanical, physical, thermal, electrical, etc. properties of the material which are not only comparable but even better than many plastics. Arboform material can successful replace ordinary plastics from many fields of activity like automotive industry, civil engineering, electronics, commodities industry, precision mechanics, ornamental products and others, strengthening this way the global sustainability.

**Keywords:** Arboform, sustainability, biodegradability, life cycle, alternative.

### 1. Introduction

In daily life we interact with a large number of products which are made of plastic. The constantly growing annual output of more than 100 million tons of global petrochemical plastics production from crude oil delivers carbonaceous compounds to the surface which, after their useful life as plastics materials, will be disposed as municipal waste in waste incinerators, from where they are emitted, in the form of carbon dioxide (CO<sub>2</sub>), into the atmosphere, [1]. The resulting accumulation of CO<sub>2</sub> in the earth's atmosphere is thought to be among the causes of the global greenhouse effect.

The main objectives of scientific researchers from this area of activity is to obtain new composite materials from natural resources (annual renewable resources); the materials and component parts of the product required to be provided with the plastic material properties verified against the standard feature test procedures; to be used standard processing technologies and equipment adjusted by small modifications; renewable materials used to obtain high-quality thermoplastics reinforced with natural fibres for various applications; decrease energy consumption by processing at low temperature, [1, 2].

This growing interest in green ecology and ecological sustainability has also contributed to directing attention to biomass and particularly to lignocelluloses stock as a promising, renewable, and extended resource for biopolymers, [3]. Lignocellulose biomass comprises three main biopolymers: cellulose, hemicelluloses and lignin, Figure 1.

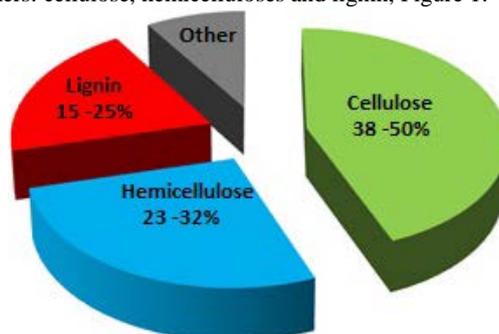


Fig. 1. Simplified structure of wood

New thermoplastic materials are made exclusively from renewable resources based on lignin, a natural polymer which is formed by photosynthesis and makes up about 25 % of the substance of every tree and every wood plant. Lignin is formed by photosynthesis, provides strength and adequate structure to the cell walls, controls the fluid flow rate, and protects from biochemical stress by enzymatic degradation of other components, [3]. Each year, large quantities of lignin are available from numerous pulping processes such as paper and bio-refinery industries. The extraction of lignin from lignocellulose biomass represents the key point to its large use for industrial applications.

### 2. Arboform-„Liquid Wood” material

Arboform – “Liquid wood” (lat.: arbor - tree) has been developed, produced and market few years ago, in 1998, by Fraunhofer Institute for Chemical Technology together and Tecnar GmbH (a spin-off the institute), Germany. The bio composite thermoplastic material is produced by mixing specific types of lignin with natural fibers (flax, hemp, sisal or other fibrous plants) and

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organic additives (plasticizers, pigments, processing agents, etc.) [2, 4]. Arboform is a high-quality thermoplastic material made exclusively from renewable resources available in three product variants according to the corresponding quantities of mixed components: LV3 Nature, F45 Nature and LV5 Nature, [4]. The bellow table, Table 1, indicates the possible composition alternatives, [2].

The variations of Arboform composition in what concerns both quality and quantity allow adjustments of strength, rigidity, dimensional stability with varying temperatures and other material properties in order to comply with specific product requirements, [5]. Researchers have identified no changes of the material mechanical properties, i.e. behaviour in fire and durability, as the material is renewable, [6].

Matrix		
Lignin	30%	60%
Fibre reinforcement (loose fibres)		
hemp (e.g. H1)	10%	60%
flex (e.g. F4)	10%	60%
Additives		
Processing Aids (PrAi)	0%	10%
Impact modifier	0%	20%
flame retardants	0%	15%

Table 1. The possibilities of composition variations for Arboform, [2]

Arboform degrades (Figure 2) just like wood, into water, humus, and carbon dioxide, therefore making it more eco-friendly than the fume-emitting burning of plastics, [7]. Because lignin is a by-product of the paper making industry, Arboform production does not require additional cutting down of trees.

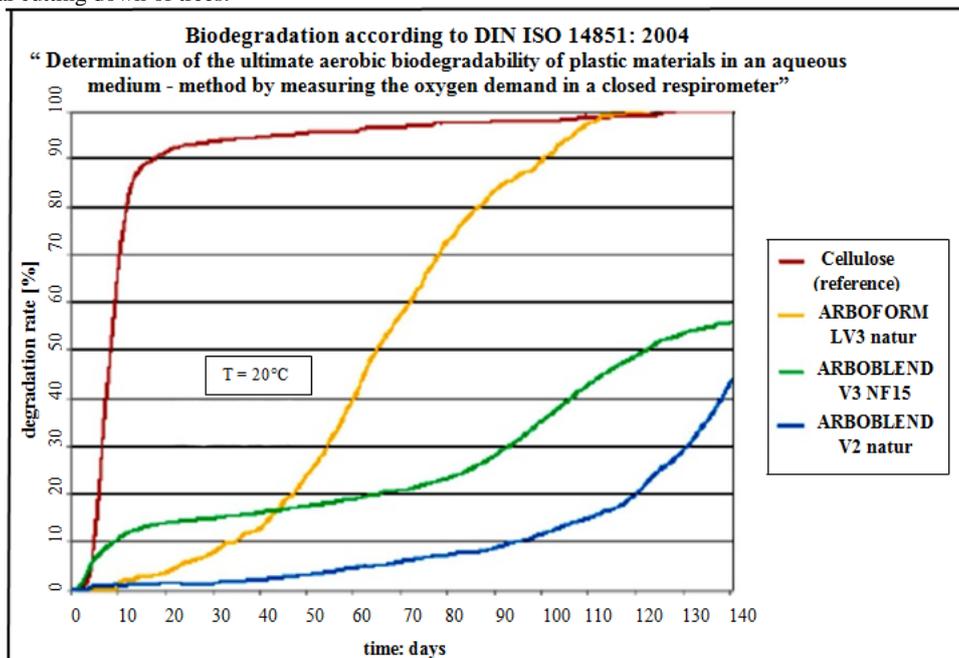


Fig. 2. Biodegradation of "liquid wood", [8]

Being made one hundred percent from renewable resources, an Arboform product, just like wood-based products, can be disposed by incineration at the end of its useful life. Therefore, the incineration of the product will emit into the atmosphere just the same amount of CO<sub>2</sub> that the plant previously took from the atmosphere while it was growing. So this is a closed CO<sub>2</sub> cycle without any accumulation of CO<sub>2</sub> in atmosphere and, hence, no more adding to the greenhouse effect, [9].

From scientific and technologic point of view, the importance of "liquid wood" is on its positive biodegradability effects on the environment, in many cases it can successfully replace plastics which are in the most part non-biodegradable, containing carcinogens, air pollution and directly responsible for the global diminishing of fossil resources. It should be noted that in terms of technology can be used the same machine tools as in case of plastics, requiring no changes or improvements.

From an economic perspective, the material can be reused up to 10 times without losing its physical and mechanical properties, leading to substantial savings. Also, the melting/ injection temperature of these biocomposite material is maximum 180°C compared to plastics that have an average melting/ injection temperature of 240°C leading this way to a significant reduction in electricity consumption. The only drawbacks to be considered for liquid wood could be the weight, much higher than of the ordinary plastics, and the production costs, almost double that of the most common plastic, polypropylene. The Arboform material is delivered by its manufacturer as pellets (granules), 25 kg bags at a price of 5 euro/kg, [4].

The use of this material does not affect existing industrial infrastructure and lack of toxic chemicals in part this material decreases significantly reduce the possibility of specific illnesses.

"Liquid wood" products obtained, regardless of the embodiment – injection moulding (the most used procedure) or other technologies (extrusion, calendaring, blow moulding, deep drawing or pressing into moulded parts, semi-finished products, sheets, films or profiles), is a new direction in the field of materials used in industry.

Some comparisons between the mechanical properties of Arboform and plastic materials can be observed in the below figure and table (Figure 3, Table 2), [10]. Figure 3 exhibits tensile strength vs. modulus of elasticity in tension for the 3 types of "liquid wood" (Arboform, Arboblend, Arbofill), as well as for few common plastic materials.

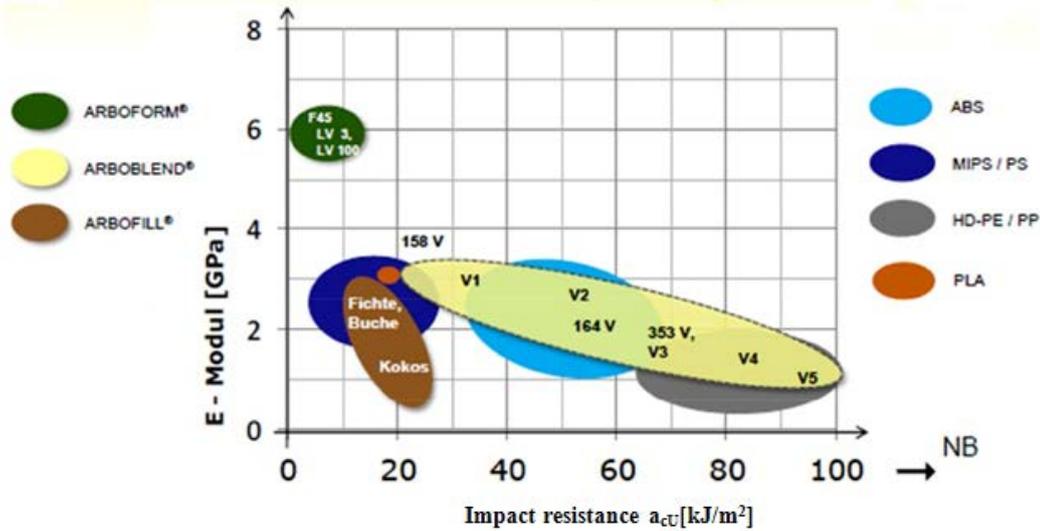


Fig. 3. "Liquid wood" vs. conventional plastic, [10]

	Bulk plastics			Technical grade plastics		
	PE (LD, HD, LLD)	PP (unreinft.)	PS	ARBOFORM®	PA 66 (unreinft.)	Wood (beech, across)
Ultimate stress, [N/mm <sup>2</sup> ]	8 - 30	30 - 40	45 - 65	<b>15 - 20</b>	65	7
Tensile modulus, [N/mm <sup>2</sup> ]	50 - 500	600 - 1700	1200 - 3300	<b>2000 - 6000</b>	2000	1500
Ultimate elongation [%]	100 - 900	bis 800	3 - 4	<b>0,3 - 0,8</b>	200	-
Impact resistance [kJ/m <sup>2</sup> ]	o. Br.	20	13 - 20	<b>2 - 5</b>	o. Br.	-
Vicat/B softening point, [°C]	40 - 65	110 - 130	78 - 99	<b>80 - 95</b>	200	-
Lin. expansion coefficient, [1/K]	170 - 200*10 <sup>-6</sup>	100 - 200*10 <sup>-6</sup>	70*10 <sup>-6</sup>	<b>18 - 50*10<sup>-6</sup></b>	80*10 <sup>-6</sup>	45*10 <sup>-6</sup>

Table 2. Arboform vs. plastics mechanical properties, [4]

Due to the special properties, Arboform has been extensively used in many fields of activity. Thus this material is used in the automotive industry to make interior parts (fine veneers, battery holder), civil engineering (flooring, slabs, hand railing), electronics (mobile case and cover, loudspeaker board), commodities industries (knives, glasses), precision mechanics (watch cases, technical parts), furniture industry (chairs), manufacture of musical instruments (flute, harmonica), jewelry (jewelry box), toys (baby-pacifier, nativity figurine), gardening products (garden furniture, garden implements), and other general interest products (shoe platform, lamps, hangers, funerary urns, small-sized coffins) [2, 8, 11].

### 3. The aesthetic of the Arboform sustainable product

Considering the many facets of sustainability and purpose of the Arboform product aesthetics, the relations between the two can be drawn according to different points of view. At first glance, the design of the product could indirectly influence the sustainability through its effects on users. These effects can be studied from five different perspectives, attraction, satisfaction, behavior, attitude and culture.

First, the aesthetics of the product should attract customers before and during the purchase. Secondly, it must satisfy the users after purchase and during use. This condition helps the user to have a good relationship with the product, is a psychological factor of the product life. Thirdly, the aesthetics of the product may emotionally affect the user's behavior and its interaction with the product. Fourthly the aesthetics of the products could affect the imagination of users, taste, attitudes toward the product and its brand, the environment, the market and values.

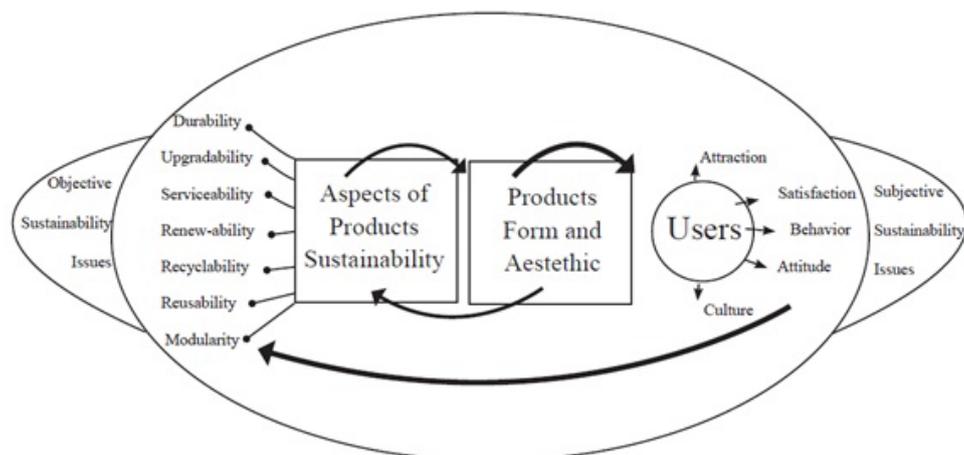


Fig. 4. Model of interaction between aesthetics and sustainability of product, [11]

Finally, the aesthetics of the products not only reflects the lifestyle and cultural values of the company issued by the socio-economic system but also can gradually give the sense of a new lifestyle, real socio-cultural values, and the whole philosophy of sustainability. The aesthetics of the Arboform - “Liquid Wood” product and product sustainability seem to have an inter relationship. A model of this interaction is shown in Figure 4.

#### 4. Conclusions

The principal benefit of Arboform material is its biodegradability and its mechanical, thermal, chemical, electrical, structural properties which make us to assume that in the coming years will gradually replace plastics in almost all the areas in which it is used, ranging from consumer products industry, electronics industry, automotive industry to the aeronautic industry.

Considering the main results of researchers the following plastic materials could be replaced: PE (polyethylene), PVDF (Poly Vinylidene Fluoride), PCTFE (Ethylene Copolymer) PA 12 (polyamide); PE-HD (High Density Polyethylene); ABS (Acrylonitrile-butadiene-styrene); PVDF (Poly Vinylidene Fluoride), ECTFE (Ethylene Copolymer); POM (Acetal Homopolymer) etc. Also it is important to point out that the Arboform can be reinforced with different natural fibers leading to the injection process improvement and increase of properties.

#### Acknowledgements

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## GENETIC DIVERSITY OF *VIPERA URSINII MOLDAVICA*

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### Abstract

During the last decade vipers have gained a lot of interest from a phylogenetic point of view, since many ecologic assays showed the high risk of extinction for many viper species. *Vipera ursinii* includes several subspecies, spread on the entire European continent, but following a certain altitude pattern. Among these, *Vipera ursinii moldavica* represents an endemic subspecies, which has been closely monitored since 2000. On the background of the morpho-ecological studies carried out so far on *Vipera ursinii moldavica*, the purpose of the present study is to analyse the genetic variability in- and between 6 populations of *Vipera ursinii moldavica*, on Romanian territory.

Scales collected from several individuals of each population were subjected to DNA extraction, PCR and Sanger sequencing. The DNA target was a 594 base pairs nucleotide sequence, of the mitochondrial cytochrome b gene. The statistical analysis were performed in order to calculate the haplotypes frequency in the analysed populations, to identify eventual presence of haplogroups, to estimate the divergence in- and between *Vipera ursinii moldavica*'s populations and their genetic admixture.

The mitochondrial data revealed a high number of haplotypes, clustered into three haplogroups and unequally shared by the 6 analysed populations. Some of them were very homogenous, while others exhibited a pronounced genetic variability.

Given the status of *Vipera ursinii moldavica* as critically endangered, the high genetic diversity represent an important factor in the viability and conservation of this subspecies.

**Keywords:** *endangered, genetic diversity, Vipera ursinii moldavica.*

### 1. Introduction

The excessive exploitation of the natural resources, the pollution, different human activities, alongside the natural hazards lead to the loss of natural habitats, enhancing the pressure over the native populations (Primack, 2002). Although on a short term most of the species are apparently threatened by exogenous factors, a deeper analysis reveals the fact that genetics plays a very important role, both on the short and long term, and cannot miss from the conservation strategies. The viability of the species which survive to the imminent demographic or environmental threats depends highly on the species genetic variability and its interaction with the environmental factors (Gilpin and Soule, 1986; Partridge and Bruford, 1994). Within the last decades scientists focused more on the conservation biology and the natural biodiversity, through the means of molecular phylogeny, a connection tool between systematics, genetics, ecology and development.

According to different scientists, the danger of extinction should focus more on the genetically different populations' extinction, and less on the species disappearance. The populational genetic structure could have deep consequences over the colonisation capacity of a species, its development and subsequent immigration of its individuals (Parsons, 1983). The existence of more genetically different populations within a species also reduces the species extinction risk on a long term and indirectly prevents from high expenses which are needed for desperate measures in the conservation program of different species with one or two populations counting only few individuals (Huges et al, 1997).

Within the last decades many species of snakes underwent the risk of extinction but, unlike other vertebrates - mammals or birds- only few phylogeographic studies have been carried out so far on snakes. Vipers are among the few ones subjected to phylogeographic analysis. Some examples are *Vipera ammodytes*, *Vipera aspis*, *Vipera berus* and *Vipera ursinii*.

*Vipera ursinii moldavica*, which can be found only in the eastern part of Romania and in Republic of Moldova. If, until 2000, only one population of *Vipera ursinii moldavica* had been identified in Moldavia, Romania, later field studies revealed a few more populations, from the north-east to the south-east Romania, including the ones from the Danube Delta. The low density of these vipers and the small number of populations gave *Vipera ursinii moldavica* the status of critically endangered species. This is a strong reason to evaluate the genetic variability within and between the populations of *moldavica* subspecies. A higher level of genetic variability can represent an important tool in the conservation management of this subspecies, by manipulating the gene flow between populations (Edgar and Bird, 2006).

### 2. Material and methods

#### 2.1. Tissue samples

For the estimation of the inter- and intra- population genetic variability of the *Vipera ursinii moldavica*, six different populations from Eastern Romania were investigated: Sfântu Gheorghe (20 individuals), Perisor (3 individuals), Letea Forest (11 individuals), Cîrteii (6 individuals), Valea lui David (6 individuals) and Dealul lui Dumnezeu (7 individuals). The sampled tissue consisted in scales collected from both male and female individuals and was stored in ethanol, 96%, at a temperature of 4°C, until DNA extraction.

#### 2.2. Total DNA extraction and PCR

The total DNA was isolated and purified using DNA IQ™ System (Promega Corporation, Madison, WI, USA). This protocol used small resin beads to bind the DNA molecules, due to their electric negative charge.

The PCR was carried out in order to amplify the second half of the mitochondrial cytochrome b gene, a fragment of 594 bp length. For that, a specific pair of primers was used: L 15162 and H 15914 (Ursenbacher et al., 2006). The cycling protocol started with a 5 minutes denaturation step at 94°C, followed by 35 cycles of denaturation at 94°C for 30 seconds, annealing at 50°C for 30 seconds and one minute elongation at 72°C. The last step was a 10 minutes elongation at 72°C.

At the end of the cycling protocol, the PCR products were visualized through the agarose gel electrophoresis.

#### 2.3. DNA sequencing

The sequencing reaction took place in 0,2 ml tubes, containing 8µl Master-mix, provided by Quick Start CEQ™ 8000 Genetic Analysis System kit, 2µl primer 1,6 µM, the calculated quantity of DNA solution and the difference up to 20 µl of nuclease

free water. A standard cycling protocol for PCR reaction was used, comprising 30 cycles of denaturation for 20 seconds at 96 °C, annealing for 20 seconds at 50 °C and elongation for 4 minutes at 60 °C.

The PCR products containing the ddNTPs, incorporated through the sequencing PCR, were then purified, in order to eliminate the redundant nucleotides and un-attached primers, using the magnetic plate and the resin from the Agencourt CleanSEQ (Beckman Coulter International SA, Nyon, Switzerland) kit, iso-propanol solution 73% and stop solution.

The nucleotide sequences of the PCR products were identified by the dye-terminator method, using the CEQ 8000 Genetic Analysis System (Beckman Coulter International SA, Nyon, Switzerland).

#### 2.4. Sequences analysis

For the subsequent use of the DNA sequences, the chromatograms were first corrected with the CEQ8000 software from Beckman Coulter and Geneious (Biomatters Ltd). The consensus sequences were obtained by overlapping the forward and reverse strands generated by the primers pair for each sample and exported in *.fasta* format.

The sequence were aligned using the Clustal W (Thompson et al., 1994) algorithm in MEGA 6 software (Tamura et al., 2013).

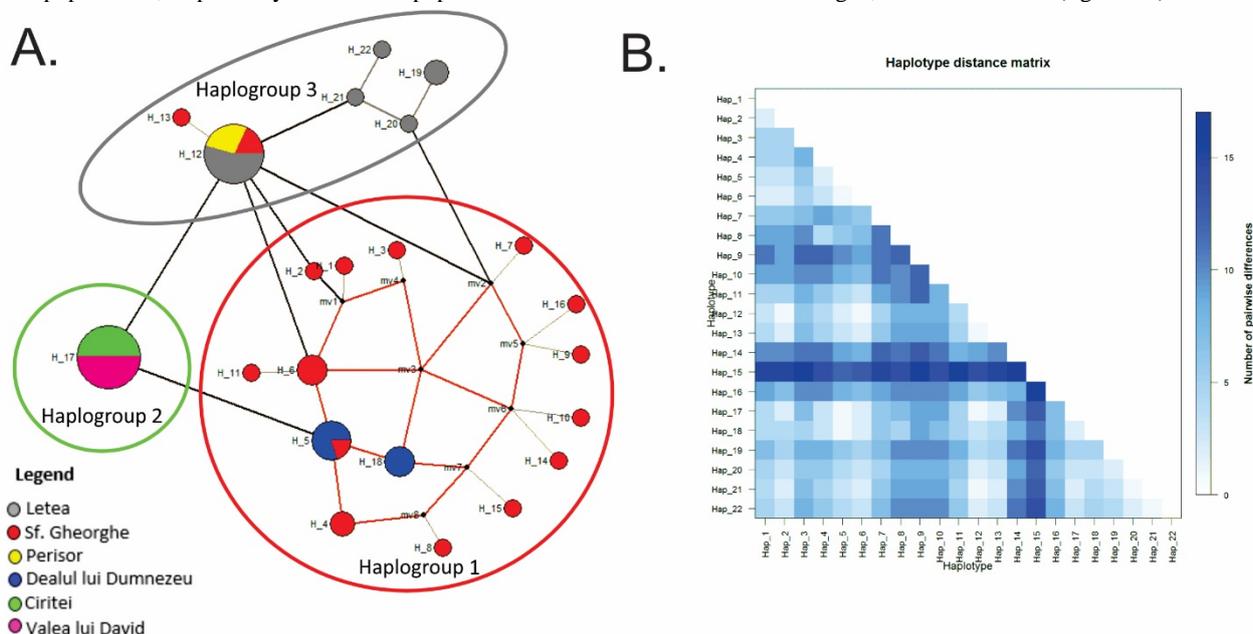
The data was further analyzed in order to identify the number of haplotypes, their frequency in each of the five populations, the pairwise differences between them and the haplogroups they belong to, using the DNA-SP 5 (Librado and Rozas, 2009), Arlequin 3.5 (Excoffier et al., 2010) and Network software. Then, the genetic distance in and between the analyzed populations was estimated, using again the Arlequin 3.5 (Excoffier et al., 2010). In the end, the genetic population structure and gene flow were identified using Structure v.2.3.4 (Pritchard et al., 2000; Falush et al., 2003, 2007; Hubisz et al., 2009) software.

### 3. Results and discussion

The analysis of the 53 partial *cyt b* sequences of *Vipera ursinii moldavica* revealed 22 haplotypes, with a relative frequency between 5 to 15% in Sf. Gheorghe population and 100% in Valea lui David, Ciritei and Perisor populations.

Many of the identified haplotypes were shared between the six populations. The population with the highest variability and the biggest number of haplotypes is Sf. Gheorghe, comprising a total of 16 haplotypes. On the second place on the variability level is Letea population, with a total of 5 haplotypes, one of them shared with the Sf. Gheorghe population and another one shared with the Perisor population. Dealul lui Dumnezeu population includes only two haplotypes, out of which one can be also found in the Sf. Gheorghe population.

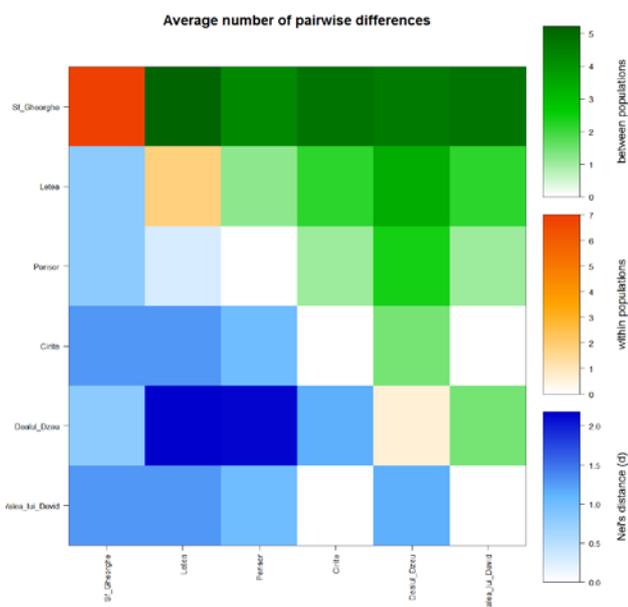
Haplotypes’ distance has a relatively small value, between 1 and 13 if we exclude haplotype 15; if we include it, the value ranges between 1 and 17 (figure 1B). This small distance between haplotypes indicates an allele number diversification from 3 cores (haplotypes hap5, hap12, and hap17) which clustered all haplotypes in haplogroups (figure 1A). Thus, based on the origin and the evolution of the identified haplotypes we described 3 haplogroups built around the 3 cores from where the diversification process began. Haplogroup 1 is the most variate, comprising haplotypes with big genetic distances. This one is shared between Sf. Gheorghe and Dealul lui Dumnezeu populations. The other two haplogroups, haplogroup 2 and 3, are shared between Ciritei and Valea lui David populations, respectively between the populations from Danube Delta – Sf. Gheorghe, Letea and Perisor (figure 1A).



**Figure 1. Haplogroups and the genetic distance between haplotypes. A) Haplotype distance matrix based on *cyt b* gene analysis. B) Haplotype network and haplogroups delimitation based on *cyt b* gene analysis. Haplotypes are coloured according to their relative frequency in population**

The Arlequin data gave a more detailed view upon the genetic diversity of the 53 *Vipera ursinii moldavica* individuals through the statistical parameters. The mean genetic diversity showed a significant distance between Sf. Gheorghe population and all the others. Still, Nei’s distance (Nei, 1972), which estimates a more accurate diversity degree between populations, describes a high difference between Dealul lui Dumnezeu population and the other two populations from the Danube Delta: Letea and Perișor ( $d \approx 2$  different nucleotides – figure 2). For the remaining populations the difference is low, with values between 0.00 (Valea lui David - Ciritei) and 1.28 different nucleotides (Sf. Gheorghe - Valea lui David).

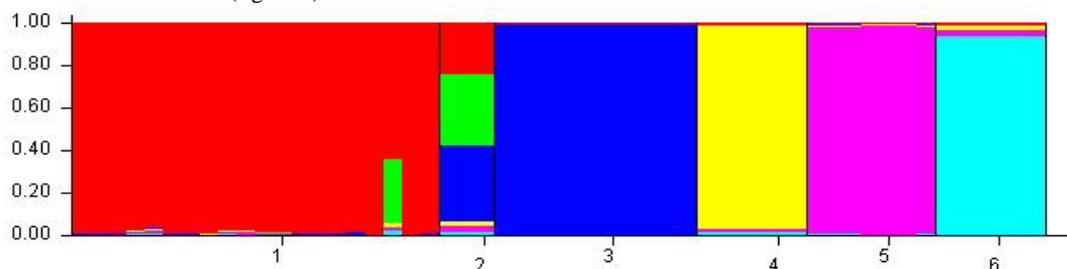
A high diversity is also seen within the populations Sf. Gheorghe and Letea (7.02, respectively 1.81 different nucleotides), as previously emphasised by the number of haplotypes from these two populations.



**Figure 2. Mean distance matrix, within populations (main diagonal-orange), mean distance between populations (above main diagonal-green) and Nei's distance (under main diagonal-blue) observed analyzing *cyt b* gene**

Both population structure and gene flow were identified using *cyt b* gene and Structure 2.3.4 (Pritchard et al., 2000; Falush et al., 2003, 2007; Hubisz et al., 2009) software based on the two models: No Admixture for population structure and admixture for gene flow. Ancestral structure of populations according to No Admixture model, in which the populations are predefined by geographic location, analyses the probability that a sample belongs to a predefined population and the immigrants proportion from another population (individuals with a genetic structure that is specific for another predefined population).

In our study this structure is generally compact, most of the populations having their own genetic structure, the immigrants proportion is very low, only one individual from Sf. Gheorghe population (1) having 40% genetic material specific for Perisor population (2). The exception is Perisor population (2) which doesn't have entirely its own genetic structure and its composed form genetic structures that are specific for Sf. Gheorghe population (1) with a proportion of 24% and Letea population (3) with 35.8% beside its own element of 33.5% (figure 3).



**Figure 3. Ancestral population structure of *Vipera ursinii moldavica* subspecies using Structure (Pritchard et al., 2000) calculated with No Admixture model of predefined populations by geographical region. Each vertical line represents an individual, populations are delimited by black lines. 1-Sf. Gheorghe; 2-Perisor; 3-Letea; 4-Ciritei; 5-Dealul lui Dumnezeu; 6-Valea lui David**

Gene flow quantification was done using the admixture model without a geographic assumption. The real number of mobile genetic units among the six analysed populations was chosen using the posterior probability estimation by Evanno method (Evanno et al. 2005) for K between 2 and 6 (for each K, 5 simulations were done) on Structure Harvester platform (Earl and von Holdt, 2011). Therefore, delta K values (Table 1) indicate a number of 4 genetic clusters with a distribution mainly in Sf. Gheorghe, Letea, Perisor and Dealul lui Dumnezeu populations.

K	Reps	Mean LnP(K)	Stdev LnP(K)	Ln'(K)	Ln''(K)	Delta K
3	5	-310.000000	1.721918	—	—	—
4	5	-308.360000	1.112654	1.640000	31.700000	28.490426
5	5	-338.420000	66.570466	-30.060000	58.780000	0.882974
6	5	-309.700000	1.372953	28.720000	—	—

**Table 5. Mean posterior probability and  $\Delta K$  values for the real number of individual clusters identification using Structure Harvester**

As we can see in the figure 4, in all six populations the predominant genetic structure is the one of Sf. Gheorghe (1) population, which presents the highest level of genetic diversity and appears to be the closest to the ancestral population. However, Sf. Gheorghe population also shows a high degree of admixture with all the other populations. Thus, the higher number of individuals and its geographic location, relatively close to the other five populations, as well as its genetic admixture, make the Sf Gheorghe population a source for the rest of the *Vipera ursinii moldavica* populations analysed in this study.

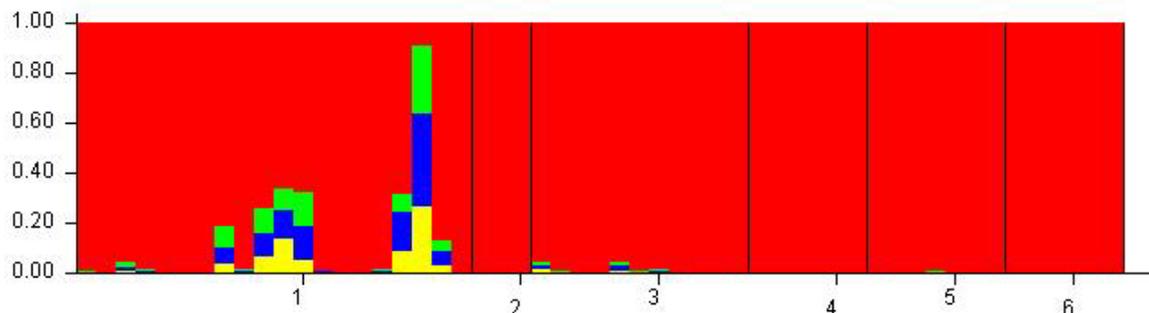


Figure 4. Population structure and gene flow for *Vipera ursinii moldavica* subspecies using Structure for  $K = 4$ , calculated by admixture model. Each vertical line represents an individual, populations are delimited by black lines.  
1-Sf. Gheorgh; 2-Perisor; 3-Letea; 4-Ciritei; 5-Dealul lui Dumnezeu; 6-Valea lui David

#### 4. Conclusions

The analysis of the molecular mitochondrial marker, the cytochrome b gene, revealed a low genetic diversity for *Vipera ursinii moldavica*, with a significant variation between the studied populations. A total number of 22 haplotypes were identified and the highest genetic diversity was recorded for the Danube Delta populations.

The genetic structure of the analyzed populations is generally a compact one, and specific for each population. One exception is the Perisor population, which gathers genetic elements from the other Danube Delta populations.

The gene flow quantification and the distribution of genetic clusters among the analysed populations described a main genetic structure in the Sf. Gheorgh population, which also presented the highest level of diversity, the highest admixture degree, and probably, having the genetic structure most similar to the ancestral population of *Vipera ursinii moldavica*.

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## THE EFFECTIVENESS OF THE COMBINATION OF RENEWABLE ENERGY SOURCES IN ELECTRICITY GENERATION

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### Abstract

Renewable energy sources currently represent alternative for producing electricity, according to European directives and current developments. These sources used since ancient times, offers a huge potential and at the same time challenge for the scientific community to develop effective solutions so as to minimize their costs and the impact on the environment and especially the human factor.

Recent years have focused specifically on developing conversion systems, wind and solar energy into electricity, taking into account the following criteria: applicability, electricity consumption, the location and potential of renewable energy sources (wind and solar).

Based on these criteria were developed vertical axis wind turbines with horizontal shaft in order to convert wind energy into electricity, solar cells and photovoltaic panels capable of capturing solar energy and transform it into electricity.

The global distribution of solar radiation and the wind is uneven so there are some drawbacks concerning the production of electricity from wind and solar sources.

A solution to streamline the production of electricity from wind and solar sources is the creation of hybrid schemes. These hybrid systems can be placed especially in areas with lower wind and solar potential so that such a system can capture both solar and wind energy.

The development of these systems can be performed and to their urban location where wind potential is lower mainly due to obstacles and turbulence occurring frequently in these areas.

This paper is a review of converting hybrid wind and solar power on the market today that highlights the advantages and disadvantages of the use of such systems.

**Keywords:** renewable energy, hybrid systems, potential energy.

### Introduction

Generation of wind and solar energy is random, on short-term, determining instability problems for the power system. These problems lead to power cuts or to the stopping of conventional (thermal and hydro) power generating units. Low efficiency, under these operating conditions, has caused the enhancement of the environment pollution and the wear of the electricity generating equipment from the conventional power plants. Thus, the operating costs have increased. Besides these, there is also the fact that the large power transfers from the solar or wind farms determine system losses and technical issues related to the development of the high-voltage transmission line system. This is why, the necessity to find effective and reliable solutions, for the renewable energy storage and energy reuse, came out worldwide. [1].

Because both solar radiation and wind speed are not distributed evenly across the surface of the Earth, using the two individual sources of renewable energy in electricity generation may be less effective.

In the aspect of urban areas, collecting and storing wind and solar is very difficult using conventional conversion systems of wind and solar energy.

In urban areas the wind and solar potential is lower due to obstacles represented by very high buildings but also because of the most frequently appearance of turbulents winds.

In order to discount these inconveniences occurring in urban areas, the solution could be the hybrid systems to collect both solar power and wind power to produce electricity.

These hybrid systems should be sized as small, not produce loud noises and has a pleasant design, so that it does not affect the Visual design of the buildings.

### 1. Current situation

Existing wind turbines can not efficiently exploit the wind energy from urban areas because of the particularities of the wind potetial.

Wind energy in urban areas has two particularities which make it difficult to stop the current operation with the wind turbines. These are: low annual average speed and turbulence that is generated by the roughness of the buildings.

Changes of direction and wind velocity variation makes transferring the energy currents of air in the turbine rotor to be small. For this reason, new types of turbines within a hybrid system must have small rotor moment of inertia and able to take energy from as many directions.

Vertical axis wind turbines are less sensitive to wind direction variation while horizontal shaft wind turbines have higher efficiency.

Both types of turbines used today for converting wind energy in urban areas have the following disadvantages:

- Low average efficiency 10%-15%;
- -Low life expectancy, the most modern are designed to work towards 120,000 hours 20 years which is the minimum lifetime of classical power plants;
- The investment per installed kW can have values between 2400-9100 EUR kW while for wind turbines on-shore EUR kW 1000 and 2000 EUR kW for off-shore and for photovoltaic is approximately 6200 EUR kW;

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- -Production of electricity at the average wind speed of 5.5 m/sec, can vary between 150-400 kW/h/m<sup>2</sup>/ year while large wind turbines produce between 800-1200 kW/h/m<sup>2</sup>/ year.

Wind turbines used in urban areas are still in the development phase and it is desirable for them to achieve the efficiency of wind turbines. These types of wind turbine generates electricity that can be consumed directly in the generation which means the production of electricity is effectively used although its price is 3-5 times higher than in large turbines but comparable to the energy produced by photovoltaic panels.

## 2. Motivation of using hybrid solar -wind systems in urban areas

A short list of motivations for installing wind turbines in urbann is the following:

- Reduction of CO<sub>2</sub>;
- Green power generation;
- Fulfilment of requirements for the conservation of energy resources (fossil fuels);
- Elimination of energy losts in transportationfrom from large producers to consumers;
- Stimulating attitudinal change in awareness of the individual production of electricity;
- Reducing the independence from distribution companies.

Use existing technological solutions and equipment for converting wind power and solar power into electricity in urban areas presents many limitations both because of their peculiarities and due to the limited performance of the equipment.

Current photovoltaic cells have low efficiency and can be used with good results only where the intensity is above a certain threshold.

As a rule, during those periods there is no need for high consumption of electricity and it should be acquired for use in periods in which we require maximum energy consumption which, as a rule, is carried out in the evening peak load curve after sundown when, with current technology, it cannot produce electricity from solar energy.

Also during the winter or cold areas of the globe in solar radiation is small and the current photovoltaic panels do not have good efficiency.

In order to obtain useful minimum powers in urban areas it is necessary to install a large number of photovoltaic panels. This is not possible in urban areas as there exists on the available surfaces on which to carry out the fitting of panels. As a rule, photovoltaic panels mounted on the areas of construction and architecture changes in many cases this is not accepted by society. [2,3]

In order to reduce the negative aspects concerning the collection and storage of wind and solar energy in urban areas is proposed mounting on existing buildings or new buildings, light installations that can collect in parallel or sequential solar or wind energy related to these building.

## 3. The proposed solution

The solution lies in the establishment of a central wind capacity solaro-large storage of renewable energy, energy in the form of pressure and heat. The power plant can be created in any location in urban areas and has 3 bodies (fig. 1). It can serve up to 2,000 families and can provide up to 100% energy demand for electricity, heating, cooling, hot water tank from renewable sources.

The new power plant consists of a main central unit with the ability to effectively collect solar energy and wind power to the site, including urban areas, to store and to use upon request. The central unit is a concrete building consists of three bodies: the main cylindrical body, cylindrical body secondary B (on the underside) and auxiliary tower c.

Wind energy is collected with the new wind turbines that are installed in the on the top of the main body A.

Solar energy is collected directly by thermal and photovoltaic panels and indirect air currents generated by the effect of the chimney and the greenhouse effect. Energy storage is done in a buffer battery for low power consumption and in the form of compressed air and hot water for high energy consumption. The stored energy can be used upon request when needed, like electricity or heat. Pressure energy is transformed into electricity through the discharge of compressed air in specialized equipment at the first stage and in new types of turbines in the second stage.

The thermal energy can be used for heating or electricity production by producing draught the chimney (outside the semi-autonomous bodies open channels A and B), this energy is transformed into electricity through wind turbinrlor. Central unit can be connected to the secondary units depending on the potential for renewable energy in the vicinity of the plant.[4÷7]

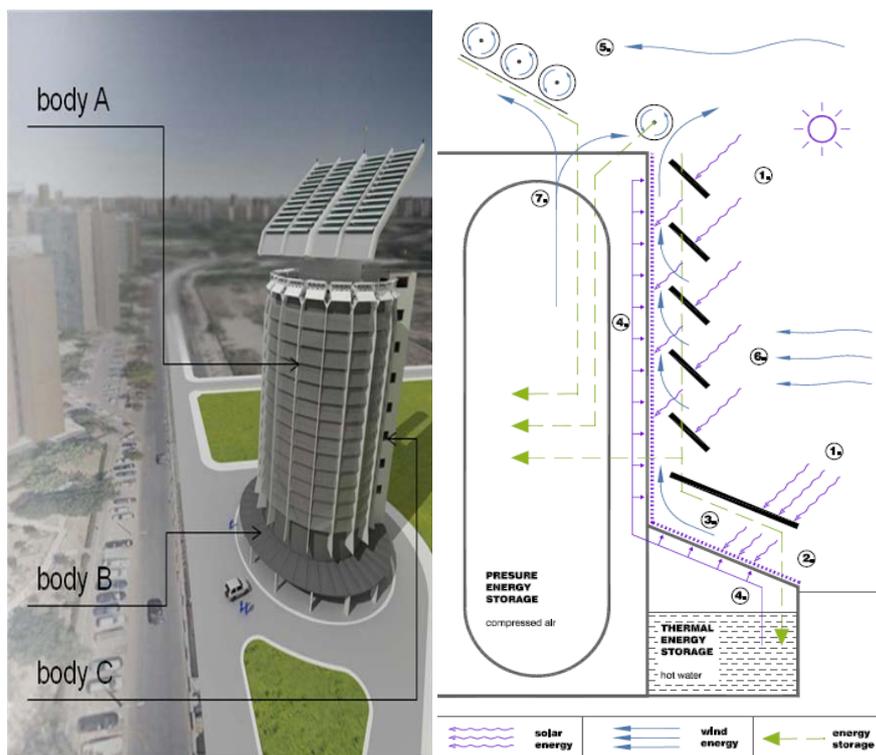


Fig.1 Modular Solar Wind Power Plant

1. Photovoltaic panels produce electricity
2. Thermal panels at the base of semi-opened channels collect solar heat
3. Sun creates chimney effect inside channels which generate electricity through wind turbines
4. Hot water heats channels producing chimney effect
5. Wind flow acts the canopy and cornice wind turbine to produce electricity
6. Wind flow on the facade is redirected to the cornice wind turbine to produce electricity
7. Compressed air is discharged on the wind turbines to produce electricity

### Conclusions

Current solutions for exploiting renewable energy in urban areas presents a number of drawbacks that do not allow its efficient operation. Besides the difficulties related to the parameters of the potential of renewable energy and its tendency to randomly, in urban areas, the problem appears related to the absence of the traditional urban architecture, through the installation of equipment for renewable energy.

In order to solve current problems related to the exploitation of renewable energy, it was proposed a solution that practically elimină disadvantages of current solutions.

Wind turbines that are part of the SERB plant, work effectively including wind speeds and if the existence of a high degree of turbulence, have no moving parts rotating on the outside do not generate noise, vibration and projectiles at high speeds of wind.

For removal of aletor-based character of renewables is proposing the development of plants that can collect effectively sequentially or in parallel solar and wind who randomly cracer and complementary development of systems of local storage of energy in the form of energy of pressure and heat. Production of electricity from the energy stored is made with the same plants that are natural energy colectează.

By applying new solutions can be energy independent housing or rehabilitate existing ones with minimal investment. Also the solution proposed is a variant of solving the energy crisis and to reduce pollution by the fact that she can apply in any area including low energy potential, producing energy (electric and thermal) needed a House.

### Acknowledgements

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## RAPD-GENOTYPING OF SWEET CHERRY (*PRUNUS AVIUM* L.) CULTIVARS

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### Abstract

Sweet cherry (*Prunus avium* L.), the highly cultivated form of wild cherry, is valued for its fruits and wood and is used for ornamental purposes. Due to its extensive use, various cultivars have been created by horticultural practices through cross-pollination and grafting. The sheer number of cultivars require a reliable and objective approach of cultivar identification and management, in addition to morphological classification. One of such approaches is the use of genetic fingerprinting techniques and one of the most popular is Random Amplified Polymorphic DNA (RAPD). In this study we used RAPD fingerprinting to establish the genetic relationships between 17 sweet cherry cultivars, out of which 10 are Romanian and 7 are introduced. The analysis of molecular variance (AMOVA) found that 97.38% of the variation occurs within the groups and 2.62% of the variation occurs between the Romanian and introduced groups. Phylogenetic reconstruction grouped the cultivars into four clusters and cultivar ‘Cerna’ was the most distant.

**Keywords:** RAPD, fingerprinting, *Prunus avium*.

### 1. Introduction

Sweet cherry, a member of the Rosaceae family, is a widely spread cultivated tree of economic and ornamental value with numerous cultivars being established. The traditional way of cultivar identification based on morphologic or agronomic characteristics encounters difficulties when it comes to distinguishing genotypes on their external morphology alone. Also, these phenotypic characters could be influenced by environmental factors and the growth stage of the plant (Casas et al., 1999). Precise cultivar identification is important in protecting the legal rights of breeders and proper identification is needed to ensure that the product is sufficiently genetically pure (Lisek et al., 2006). Several molecular techniques that do not require previous knowledge of cultivar DNA sequence have been employed in distinguishing between cherry cultivars, such as AFLP (amplified fragment length polymorphism) by Zhou et al. (2002), Struss et al. (2003) and Stanys et al. (2012); RFLP (restriction-fragment length polymorphism) by Mohanty et al. (2001) and Panda et al. (2003); RAPD by Shimada et al., (1999) and Lisek et al., (2006).

RAPD (Williams et al., 1990) is a version of PCR (polymerase chain reaction) in which primers are chosen arbitrarily to amplify random fragments of the genome (usually no longer than 3 kb) and the primer annealing conditions are less stringent. RAPD can be used to amplify any type of DNA, from bacteria (Saldana et al., 2003), to fungi (Feng et al., 2009), to plants (Arif et al., 2010) to animals (Koh et al., 1998). The versatile nature and relative ease of this method makes it a time-saving and cost effective way of species/cultivar identification.

In this study we used RAPD fingerprinting to distinguish between 17 sweet cherry cultivars created in Romania or introduced, with the objectives of establishing the genetic relationships between them and see if there is any difference between the Romanian and introduced cultivars and to test several RAPD primers.

### 2. Material and methods

#### 2.1. DNA isolation and amplification

Fresh leaf material was sampled from 17 sweet cherry cultivars grown at the Pomiculture Research – Development Station (Stațiunea de Cercetare – Dezvoltare pentru Pomicultură) Iași and the Pomiculture Research – Development Institute (Institutul de Cercetare – Dezvoltare pentru Pomicultură) Pitești. Plant material was stored at -80°C prior to DNA extraction, which was carried out following a modified version of the CTAB method used by Doyle and Doyle (1990). The frozen tissue (40 to 50 mg) was finely ground and then loaded into the Maxwell<sup>®</sup> 16 automated DNA Purification System (Promega, Madison WI, USA). The eluted DNA was subjected to further isolation steps by mixing it with CTAB lysis buffer (2% w/v CTAB, 1.4M NaCl, 2mM EDTA, 100mM Tris HCl pH 8, 1% w/v polyvinylpyrrolidone and 0.2% v/v β-mercaptoethanol). The total isolated DNA was eluted in Tris-EDTA buffer and spectrophotometrically quantified. DNA amplification was carried out in a 25 μl volume using GoTaq<sup>®</sup> Green Master Mix (Promega). Fifteen decamer primers (Eurogentech, Liege, Belgium) were used for the amplification (Table 1). RAPD was performed in a Px2 thermocycler (Thermo Electron Corporation, Waltham MA, USA) according to the following conditions: an initial denaturation step at 95°C for 3 minutes followed by 40 cycles of DNA denaturation at 95°C for 30 seconds, primer annealing at 36°C for 30 seconds and extension at 72°C for 1 minute. A final extension step was performed at 72°C for 10 minutes. After the RAPD finished, the PCR products were electrophoretically separated on a 1.5% w/v agarose gel stained with ethidium bromide, visualized under UV light and recorded on a High Performance Ultraviolet Transilluminator (Upland CA, USA).

#### 2.2. Data analysis

Based on the RAPD pattern, each band was scored as either present (1) or absent (0) in PyElph 1.4 (Pavel and Vasile, 2012). The binary matrix was entered into FreeTree (Hampl et al., 2001) to generate the Jaccard index-based distance matrix and the Neighbor-joining (Saitou and Nei, 1987) dendrogram (with 1000 bootstrap repetitions) which was later edited in FigTree 1.4.2. The sweet cherry cultivars were divided into two groups (Romanian – which were developed in Romanian pomiculture research stations - and introduced) and an analysis of molecular variance (AMOVA) was carried out on the two groups in FAMD 1.31 (Fingerprint Analysis with Missing Data – Schlüter and Harris, 2006).

### 3. Results

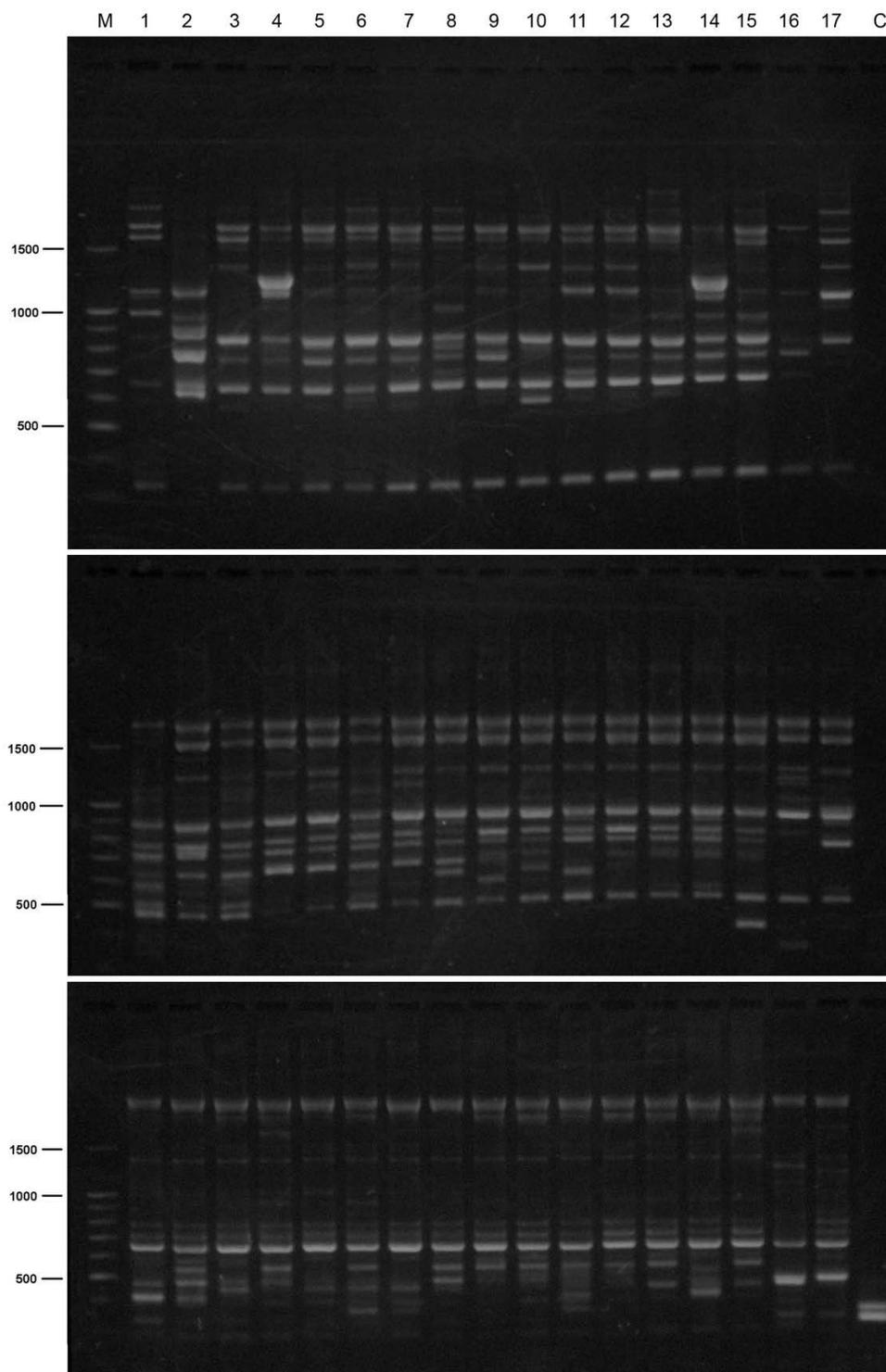
\* Corresponding author email: stefan.andrei@gmail.com.

Seventeen sweet cherry cultivars were used in this study and fifteen RAPD primers were tested. The primers were able to discriminate between the cultivars and to resolve the phylogenetic relationships among them. The primers produced multiple amplified DNA fragments, ranging from approximately 350 bp to 2000 bp in length (Figure 1) and each primer generated different numbers of bands (Table 1). A total of 155 loci were scored.

Primer	Sequence	Number of bands produced			
		Min	Max	Average	Total bands
OPC-02	GTGAGGCGTC	1	7	5.24	89
OPD-16	AGGGCGTAAG	2	6	3.82	65
OPC-15	GACGGATCAG	4	9	6.82	116
OPC-06	GAACGGACTC	0	6	4.29	73
OPC-04	CCGCATCTAC	0	7	5.29	90
OPB-12	CCTTGACGCA	7	8	7.41	126
OPB-10	CTGCTGGGAC	6	9	7.53	128
OPB-05	TGCGCCCTC	6	8	6.88	117
OPB-03	CATCCCCCTG	7	9	7.94	135
OPB-02	TGATCCCTGG	3	7	5.53	94
OPA-15	TTCCGAACCC	3	5	4.29	73
OPA-14	TCTGTGCTGG	3	5	4	68
OPA-06	GGTCCCTGAC	2	9	6.24	106
OPA-02	TGCCGAGCTG	8	12	9.41	160
OPA-18	AGGTGACCGT	6	9	7	119

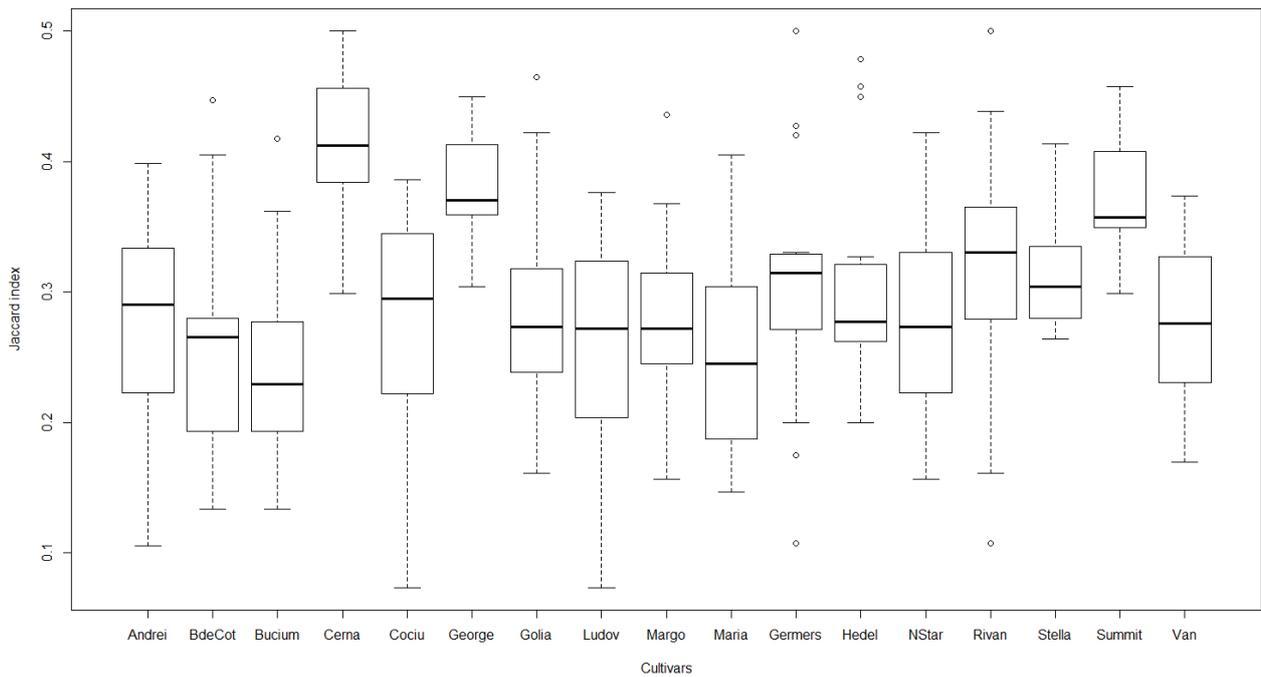
**Table 6. Primer names and sequences used for this study. The minimum, maximum and average number of bands per cultivar as well as the total number of bands are shown**

The primer OPA-02 generated the highest number of bands with a total of 160 and the primer OPD-16 produced the lowest amount of bands, with a total of 65. Figure 1 shows the banding pattern for three primers used in this study.



**Figure 19.** RAPD pattern for primers OPA-06 (top), OPB-03 (middle) and OPC-15 (bottom). Lane M contains the 100bp DNA ladder. Lane 1 - 'George', lane 2 - 'Stella', lane 3 - 'Andrei', lane 4 - 'Hedelfinger', lane 5 - 'Ludovic', lane 6 - 'Maria', lane 7 - 'Cociu', lane 8 - 'Van', lane 9 - 'Bucium', lane 10 - 'Rivan', lane 11 - 'Germersdorf', lane 12 - 'Golia', lane 13 - 'Boambe de Cotnari', lane 14 - 'NewStar', lane 15 - 'Margo', lane 16 - 'Cerna', lane 17 - 'Summit'. Lane C- stands for no-template control

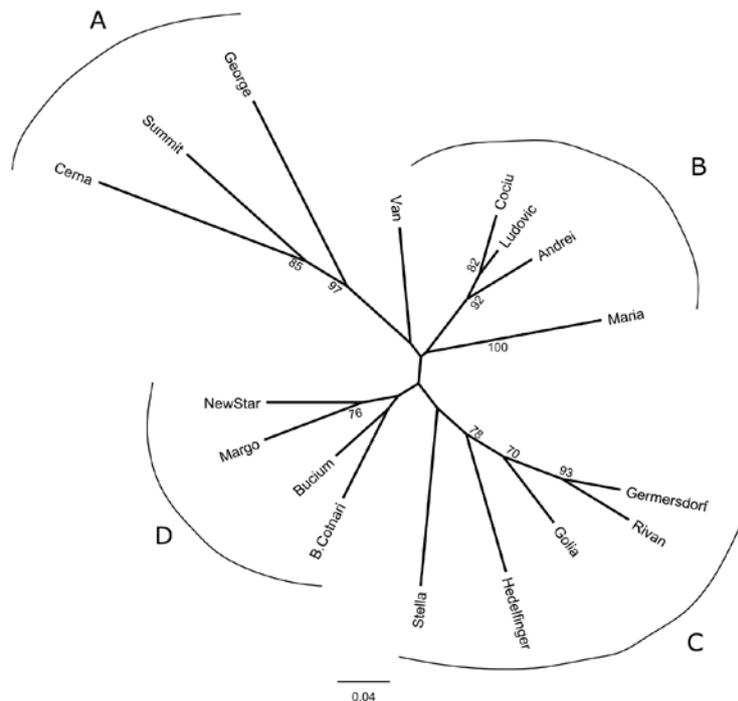
Based on the binary matrix, a Jaccard index similarity matrix was constructed, which was used to generate the dendrogram (Figure 3). The Jaccard index ranged from 0.073 (between cultivars 'Cociu' and 'Ludovic') to 0.5 (between cultivars 'Cerna' and 'Germersdorf'). The variation of the Jaccard index is shown in Figure 2.



**Figure 20. Jaccard index variation for each cultivar**

For AMOVA (analysis of molecular variance) and subsequent analysis, the cultivars were divided into two groups: Romanian and introduced. The mean band presences in the Romanian data group was 91.8 and 91.57 for the introduced data group. The number of polymorphic bands was 91 and 82, respectively. AMOVA found that 97.38% of the variation occurs within the groups and 2.62% of the variation occurs between the groups. PhiST had a value of 0.026.

Based on the phylogenetic relationships between cultivars and the Jaccard index values, the cultivars grouped together into 4 clusters (Figure 3).



**Figure 21. Dendrogram**

Bootstrap values of the nodes are

#### 4. Discussion

The primers yic... amplification product for... var 'Boambe de Cotnari'. The number of primers (15) and cultivars (17) used in this study was close to the number of primers (23) and cultivars (18) used by Gerlach and Stösser (1998). Lisek et al. (2006) used six primers which were able to distinguish between nineteen sweet cherry cultivars.

The Jaccard index ranges from 0 (full similarity between samples) to 1 (no similarity between samples). The variation of the Jaccard index, represented by boxplots (Figure 2) shows the (dis)similarity between the cultivars by comparing each cultivar to every other one. Cultivar 'Cerna' shows the highest median (0.412) and the highest value (0.5) when compared to cultivars 'Germesdorf'

and ‘Rivan’. This highest value is also seen as the outliers for cultivars ‘Germesdorf’ and ‘Rivan’. Cultivar ‘Cerna’ can be considered the most distant cultivar in the data set, the closest cultivar to it being ‘Summit’ with which it shares a Jaccard index of 0.299. The lowest Jaccard index values are 0.105 between cultivars ‘Ludovic’ and ‘Andrei’ and 0.073 between cultivars ‘Ludovic’ and ‘Cociu’. Their similarity is also seen in cluster B (Figure 3).

The cultivars grouped together into 4 ‘loose’ clusters (A, B, C and D – Figure 3), with no apparent clustering pattern, meaning that clusters contained both Romanian and introduced cultivars. Cluster A is probably the most diverse, containing cultivars from the two research stations in Romania (‘George’ and ‘Cerna’) and one introduced cultivar (‘Summit’); these three cultivars having the highest median Jaccard index (Figure 2).

This ‘homogenous’ distribution of the cultivars into non-specific clusters is also confirmed by the AMOVA results which partitions only 2.62% of the genetic variation between the two groups showing that there is no dissimilarity between the Romanian and introduced cultivars, which is also confirmed by the low PhiST value (0.026). This genetic diversity (or lack thereof) could be the result of horticultural practices and exchange of plant material between research stations. Another reason why the degree of DNA polymorphism in the sweet cherry is so low would be the small size of its genome (Arumuganathan and Earle, 1991)

Casas et al. (1999) used RAPD to distinguish between *Prunus* rootstocks and found that their clustering was in accordance with the classification based on morphological traits. It also supported the supposed origin of some rootstocks and confirmed a case of possible misclassification. Cai et al. (2006) used RAPD to study the genetic variation in cherry germplasm and found that the topology of the generated phylogenetic tree was generally in agreement with taxonomic classification and that there were one or more cultivar-specific RAPD markers in cherry species and cultivars.

### Acknowledgments

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## UPDATED DISTRIBUTION OF THE ENDEMIC SCORPION SPECIES *EUSCORPIUS CARPATHICUS* (SCORPIONES: EUSCORPIIDAE) IN ROMANIA

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### Abstract

In the current paper we present the updated distribution of the endemic scorpion species *Euscorpium carpathicus* in Romania. Distribution data for Carpathian Scorpion was obtained from literature records in the form of locality names (Calinescu 1956; Bunescu 1959; Fet et al. 2002; Fet & Soleglad 2002) and confirmed by our own field expeditions during 2015 in Romania.

**Keywords:** Carpathian Scorpion, Distribution, Romania.

*Escorpium* is a European genus of scorpions which comprises at least 15 species (Fet & Soleglad 2002; Fet et al. 2003; Vignoli et al. 2005). Many of the currently accepted species are former subspecies of *Euscorpium carpathicus* (Linnaeus) recently elevated to species status (Fet & Soleglad 2002). *E. carpathicus* (the Carpathian Scorpion) is the first described species of *Euscorpium*. Until recently, *E. carpathicus* was considered an extremely polymorphic species, widespread across Europe and Asia Minor (Fet & Soleglad 2002; Fet et al. 2003; Vignoli et al. 2005). However, molecular data clearly showed that most of the subspecies can in fact be elevated to species level and that *E. carpathicus* is endemic in the Southern Carpathian Mountains - Romania (Fet et al. 2002; Fet & Soleglad 2002).

In the present study, we conducted an updated overview on the distribution of *E. carpathicus* based on previously published and newly collected data and created a detailed distribution map.

Distribution data for Carpathian Scorpion was obtained from literature records in the form of locality names (Calinescu 1956; Bunescu 1959; Fet et al. 2002; Fet & Soleglad 2002) and confirmed by our own field expeditions during 2015 in Romania. Our final dataset comprised 33 spatially unique occurrence records (Figure 1). Of the compiled records, 25% were literature records and 75% are new or confirmed records. Occurrence database and maps were compiled using ArcGIS 9.3 (ESRI 2011).

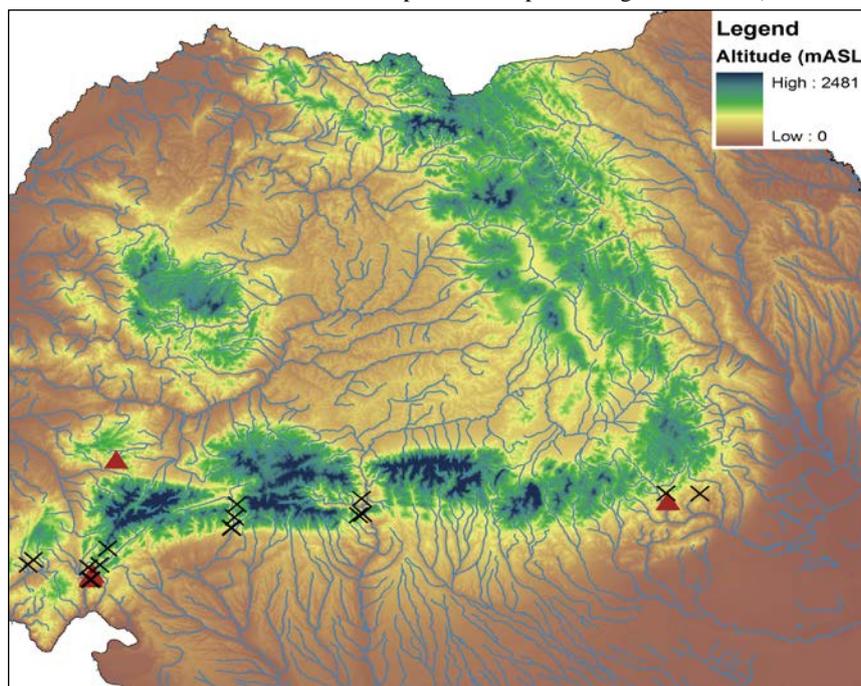


Fig. 1. Current distribution *E. carpathicus* in Romania: Red triangles show sites with known *E. carpathicus* literature records and black crosses show sites with records found during our surveys.

### Acknowledgments

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**RELATIONSHIP BETWEEN POLLUTION AND FLUCTUANT ASYMMETRY IN SOME FABACEAE SPECIES**

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**Abstract**

In this paper the developmental instability (DI), measured as fluctuating asymmetry (FA) of some Fabaceae species (*Lorus corniculatus*, *Trifolium pratense* and *T. repens*) growing in polluted and unpolluted sites was followed. This parameter was estimated and compared between three populations of each investigated species, two from areas with different pollution gradients and one from a clean area; leaf width (LW and RW, which is the distance from the midrib to the right and left margins) was measured from 30 leaves of individuals from each area and the rapport LW\RW was considered for FA determinations. Results obtained using both FA indices were the same: higher asymmetry levels were observed in unpolluted area than in pollutes sites. These data indicating that plants living in the stressful habitats are more symmetrically and consequently these three cosmopolite species could be use as an ‘index of habitat quality.’

**Keywords:** fluctuant asymmetry, leaf, morphology, Lotus, Trifolium.

**1. Introduction**

Developmental stability measures are potential tools in monitoring environmental stress in plants (Tracy et al, 1995). It is based on the organism’s ability to minimize random perturbations during development and is often used as a measurement of the effects of environmental perturbations on organisms (Graham et all, 1993, Moller and Swaddle, 1997).

Fluctuating asymmetry is expected to increase with increasing stress (Palmer and Strobeck, 1986, McKenzie and Clarke, 1988, Leary and Allendorf, 1989). In the field investigations (regarding different types of stress) the results are quite opposite.

The degree of fluctuating asymmetry of a trait could depend on its functional importance, because a stabilized development should be more strongly selected in the characters performing critical functions for an organism, in which FA might be detrimental, than in those characters functionally less important (Palmer and Strobeck, 1986).

Hódar (2002) suggest that plants living in the more stressful sites are more symmetrical, the more symmetrical plants respond less to yearly variations in drought stress, and the response to yearly variations in drought depend on the climatic conditions in which a tree is living. Habitat quality refers to the ability of the environment to provide conditions appropriate for individual and population persistence (Krausman, 1999). The quality of population habitat is, therefore, expected to negatively relate to environmental perturbations (Velikovik and Perisic, 2006). However, the main drawback of the use of FA as a diagnostic tool is the difficulty in discriminating the genetic from the environmental components producing FA in the field (Rettig et al., 1997).

Parsons (1992) has mentioned that relatively severe stress is needed to increase FA under field conditions. Increasing asymmetry tends, therefore, to occur in stressed marginal habitats. Genetic perturbations implying genomic stress include certain specific genes, directional selection, inbreeding, and chromosome balance alterations.

**2. Materials and methods**

The vegetal material consists in whole plants of *Lotus corniculatus*, *T. pratense* and *T. repens* collected from National Park Ceahlau and this adjacent area. The control sample (M) was collected from the protected area of the park and the variants from, rail station Tasca (V1) and near the main road of the zone (V2).

For each site, 10 plants were collected. We considered only 4 leaves from the central part of each plant. These morphometric traits were measured with a digital caliper (0.01 mm accuracy). To estimate the error of measurements, each measurement of the left (L) and right (R) sides for each leaf were performed twice during two independent sessions. Also, all measurements were performed by the same person.

The stationary conditions (regarding air pollutants presents in the area was obtained from Neamt Environmental Protection Agency (tables 1, 2).

Pollutant type / Collection point	Dust suspensions (mg/m <sup>3</sup> )	NO2 (µg/m <sup>3</sup> )	SO2 (µg/m <sup>3</sup> )
Control (protected area) (M)	0,021	7,651	4,719
Rail station Tasca (V1)	0,121	17,152	5,164
Main road (V2)	0,281	20,974	6,833

**Table 1. Pollutants concentrations in the investigated areas**

Pollutant type / Collection point	Pb	Cd	Zn	Cr	Cu	Co
Control ((M)	45,31	0,214	210,05	4,05	27,02	3,59
Rail station Tasca (V1)	104,11	0,798	887,06	21,31	122,90	20,85
Main road (V2)	138,30	2,817	1673,72	78,84	193,07	41,91

**Table 2. Pollutants concentrations in the investigated areas**

**3. Results and discussions**

The results of the measurement of different morphological parameters from investigated species are presented in tables 3-5.

The same type of variation presents the leaflet from all investigated species (larger dimensions in witness plants and a strong decrease in the V1, V2 and V3 samples). The dimensional differences are more evident in *Lotus corniculatus* leaflets (1,45x1,12 cm in control site versus 0,78x0,28 cm in V3 polluted area). The rapport between left and right side of the leaflet, showing the asymmetry of the leaflet have higher values in plants from control area (M) for *Lotus corniculatus* and *Trifolium pratense*. In *L. corniculatus* leaflets, the rapport between left side/right side of the leaflets was higher in control area 1,035 than in polluted areas (V1, V2 and V3). The same situation was observed in case of *T. pratense* (0,890 in control area versus 0,966, 1,013 and 1,003 in V1, V2 and V3 sites. This means that the symmetry degree is more evident in the polluted sites. In the case of *Trifolium repens*, the most symmetrical plants were founded in V1 and control areas (1 respectively 1,022); the asymmetry degree increase in V2 and V3 (polluted areas) (0,968 respectively 0,969).

Morphological parameter (cm)	M	V1	V2	V3
Leaflet length (mean)	1,45	0,75	0,67	0,78
Leaflet width (mean)	1,12	0,39	0,23	0,28
Leaflet left side	0,56	0,195	0,115	0,143
Leaflet right side	0,58	0,193	0,117	0,144
Rapport between left side/right side	1,035	0,989	1,017	1,006

**Table 3. Results of the measurement of different morphological parameters of *Lotus corniculatus* vegetative aerial organs (from different polluted sites and CNP)**

Morphological parameter (cm)	M	V1	V2	V3
Leaflet length (mean)	2.85	2.58	2.24	2.53
Leaflet width (mean)	1.72	1.39	1.23	1.28
Leaflet left side	0.810	0.683	0.619	0.641
Leaflet right side	0.910	0.707	0.611	0.639
Rapport between left side/right side	0.890	0.966	1,013	1,003

**Table 4. Results of the measurement of different morphological parameters of *Trifolium pratense* leaflets (from different polluted sites and CNP)**

Morphological parameter (cm)	M	V1	V2	V3
Leaflet length (mean)	1.43	1.33	1.1	1.15
Leaflet width (mean)	0.89	0.76	0.63	0.65
Leaflet left side	0.45	0.38	0.31	0.32
Leaflet right side	0.44	0.38	0.32	0.33
Rapport between left side/right side	1.022	1	0.968	0.969

**Table 5. Results of the measurement of different morphological parameters of *Trifolium repens* leaflets (from different polluted sites and CNP)**

Leaf symmetry has been shown to be positively associated with environmental stress such as pollution load (Moller and Swaddle (1997) suggested that adverse environmental conditions may affect the evolutionary process at different levels. The possibility of local adaptation of plants to stressful conditions might suggest the use of fluctuating asymmetry as a good diagnostic character to assess stress tolerance. In principle, genetic or environmental influences may disrupt side-to-side communication, and thus potential compensatory allocations, making it difficult for structures to preserve symmetry or recover from stress (Freeman et al., 2003). Our results (different values of FA in different species from the same genus – *Trifolium*) suggest the need for particular studies for each analyzed species; this is because each species responds differently to environmental conditions.

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# TRENDS IN MANAGEMENT OF RENEWABLE ENERGY SOURCES BASED ON ARTIFICIAL INTELLIGENCE TECHNIQUES

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## Abstract

*The increasingly significance of renewable energy sources in the power generation leads to the need of adopting new approaches in the power management systems area. On the one hand it should be considered the new dynamic of the energy flows in the power system and on the other hand the permanently changes of this dynamic. This leads to the necessity of adopting flexible solutions that can adapt to the various situations that can appear. Currently a suitable solution to solve these issues is provided by the artificial intelligence techniques.*

*The paper analyses the role of the artificial intelligence in solving specific problems of energy systems based on renewable energy sources such as the availability of primary resources, the energy production forecast from the renewable energy sources, the energy consumption forecast in the power system, the power system stability and control, etc. The paper suggests and analyzes several solutions based on neural networks such as MLP and Elman to realize modules for integrated management solutions in power systems with renewable energy sources. The addressed issue is of particular importance as it enables to ensure the continuation of essential features of power systems but also by analyzing and researching solutions that can operate with specific dates from the renewable energy systems.*

*The comparative analysis identifies the proposed criteria for the selection of the optimal variants for estimation in systems based on renewable energy. In order to identify the mentioned solutions datasets with different parameters from the past few years are analyzed and with software implementations based on neural networks the forecasting capability of electricity parameters, robustness and sensitivity to perturbations of the proposed solutions are performed.*

*For the proposed solutions the possibility of parameters evolution dynamic modeling is analyzed, which represent a specific property of the solutions based on neural networks. The performed researches show that the analyzed solutions can be used successfully in management of renewable energy systems and represents a new research direction on obtaining improved results.*

*The problem of forecasting in energy systems based on renewable energy may therefore have a solution by using neural networks, however, it can be seen that, unlike other business processes where these techniques can be used successfully, in this case the dynamics of the involved parameters is much more complex which is why thorough research of solutions, the design and implementation are more complex in the case of the neural networks.*

**Keywords:** *renewable energy; artificial intelligence.*

## 1. Introduction

One of the energy forms mostly used nowadays is the electricity. This form of energy is only accessible to certain conditions, opposed to forms of primary energy otherwise known as energies provided by nature. The transformation of such primary energy forms leads to electricity.

Conversion of primary energy forms was oriented in the last decades to Renewable Energy Sources (RES) and their practical implementation in the form of distributed generation (DG). Both GD and RES are considered to be very important to improve the power supply security by reducing dependence on fossil fuels to be imported, and to reduce the emissions of greenhouse gases.

Currently, the decreasing dependence on imported fossil fuels represents a particular interest given by the dramatic increases of oil and natural gas prices. On the other hand, the DG refers to the local production of electricity and, in the case of cogeneration systems to the heat needed for the heating of industrial processes, of various spaces, etc.

The main advantages of RES based systems are:

- practically, zero contribution to the generation of greenhouse effect gas because fossil fuels are not involved;
- insensitivity to the price of oil;
- additional benefits related to energy production (the increase of security supply, the load reduction during peak hours, the avoid of overloading in conventional power plants, the reduction of network losses) and to the network connection with the national power grid (redeployment costs for distribution network infrastructure, support for the energy quality improvement, network and grid reliability increasing).

However, the following disadvantages should be considered:

- high initial investments;
- specific requests at the installation site (problems with the environmental impact);
- unpredictability of the delivered energy (this implies a higher cost for insurance and maintenance of energy balance by implying other types of generation units);
- costs for connecting, measuring and balancing (between 10% and 30% of total investment cost);
- influences on the electrical network performances.

The sum of these advantages and disadvantages of systems based on RES requires energy management systems that can ensure the power quality and increase the economic efficiency associated with the production and distribution of electricity.

## 2. Management of energy systems with DG based on RES

The energy management systems purpose is to cover the consumer energy needs both economically and in terms of safety energy supply. The ongoing trend of these systems evolution is to reduce the total costs of providing the power supply, which leads to distinct and iterative stages approach, regarding the two components that are involved in the energy balance of a consumer, namely:

- 1) forecasting the energy consumption, the maximum values of these consumptions and the form of the load curves;
- 2) power supply optimization.

To optimize the power system supply the optimization criterion and the system restrictions have to be considered. In a traditional approach, the optimization criterion is the total updated minimum cost of the power supply system criteria, which is the most comprehensive and economically justified. The system restrictions are generally generated by the technical and technological aspects, investment volume, fuels structure for energy production and not least, of acceptable impact on the environment [1].

In evaluating measures and solutions of management and energy management systems is necessary to:

- 1) evaluate the consumer and the consumer systems as a whole;
- 2) avoid solutions that cannot be implemented or are difficult to achieve;
- 3) precisely know the factors that have the higher influence on energy consumption;
- 4) consider the possibility of executing multiple operations in the same time;
- 5) act on the causes leading to higher loss of energy and less on lost energy recovery;
- 6) evaluate the costs and the payback solutions by destination and importance;
- 7) depending on each type of application, at the project basis should be considered a study that determines the recommendations, management energy system configuration, the main aspects to be considered in the project, thus ensuring the project continuity, avoiding system duplication, shortening the project phases and reducing costs;
- 8) consider the specific features of all control strategies that include:
  - a rapid transfer between all manual-automatic operating modes;
  - automation usage;
  - alarm and detection of data transmission errors;
  - operators limited access to prevent inappropriate commands;
  - predefine actions in the case of losses during the measurement process;
  - provide interlock systems to ensure a safer operation;

Current requirements in decision-making and managerial control are optimally oriented to the availability of energy and power flows control while ensuring power quality, operating costs and minimum maintenance. Therefore it is necessary to develop and adapt to the existing systems interconnected platforms at operational and informational levels. The technologies provided by microelectronics and information technology industry allow these developments but the integration of these achievements at the power systems level to gather information from the lowest relevant indivisible component that can operate as a source or as receiver represent a real challenge.

Starting from these considerations the designing and the implementing of management systems that allow intelligent local individual or interconnected power systems, based on classical or on new energy sources are required.

### **3. Energy Systems Management with Artificial Intelligence (AI)**

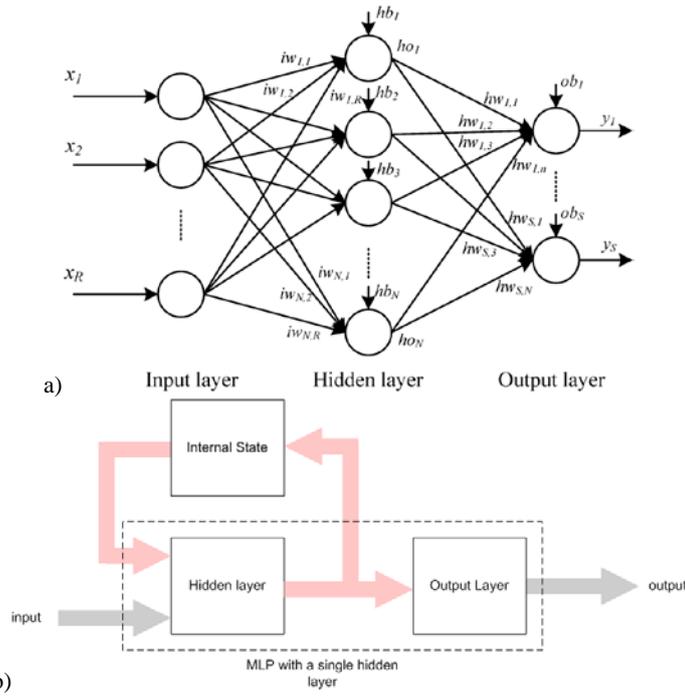
The energy systems based on RES and DG require the implementation of an intelligent energy management to ensure and to permanently cover the energy demand of the consumer, by the security of supply point of view and in an economically and ecologically manner. The main functions of such system are:

- monitoring and control of the main electrical and non-electrical parameters;
- energy supply quality control;
- renewable energy production dispatching.

Intelligent energy management systems are focused on three main components of the energy systems: production, consumption and energy storage. These management systems should ensure a technical and economical optimum, based on estimated demand and consumption forecasts, while taking account of the emergence of unexpected energy consumption or unavailability of some primary energy sources.

A very important aspect of the management system is the influence of factors that can interfere with operation of generation and electricity consumption from renewable energy sources such as primary energy source variation or consumption modification. Such analysis is judiciously required to indicate and monitor the system component placements for a proper command and control in system "sensitive points" in order to ensure a proper management.

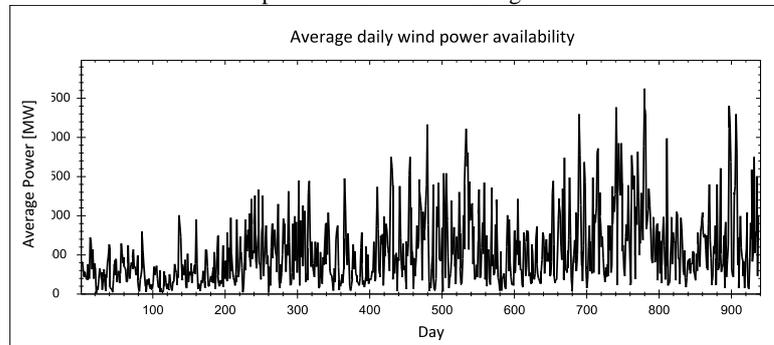
The paper analyzes the possibility of using MLP neural networks and Elman neural networks to predict the wind energy production in Romania. The general structures of MLP and Elman neural networks are presented in Fig. 1.



**Fig. 1 (a) General architecture of the (a) MLP neural network[2] and (b) Elman neural network[3]**

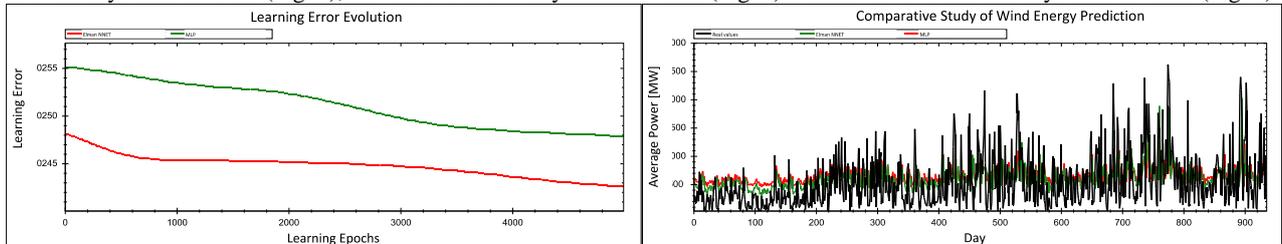
The wind energy production was analyzed in comparison for different specifications of Elman and MLP neural networks on a C# implementation with .NET Framework. The number of neurons, data window, learning rate, number of learning epochs, speed of learning and error learning represented the testing parameters for the two neural networks.

The preparation of wind energy production data series represented the first step of the two neural networks results comparison (Fig. 2). Some parts of the data series were used in the second step to train the neural networks and the remaining data were used to test the performances of the trained neural networks. The best behavior of the neural networks was determined by using the error learning indicator after the neural network training phase and the result comparison. As a testing parameter for the neural networks the speed of learning contributed to an accurate prediction of the following data series.



**Fig. 2. Average daily power availability from wind in Romania [4]**

In order to evaluate the performance of the two chosen neural network architecture different configuration were tested in the following scenarios: 15 neurons with 4 days data window (Fig. 3), 15 neurons with 20 days data window (Fig. 4), 15 neurons with 30 days data window (Fig. 5), 30 neurons with 4 days data window (Fig. 6) and 30 neurons with 20 days data window (Fig. 7).



**Fig. 3. Learning error and comparative study of wind energy production using MLP and Elman neural networks (15 neurons, 4 data window)**

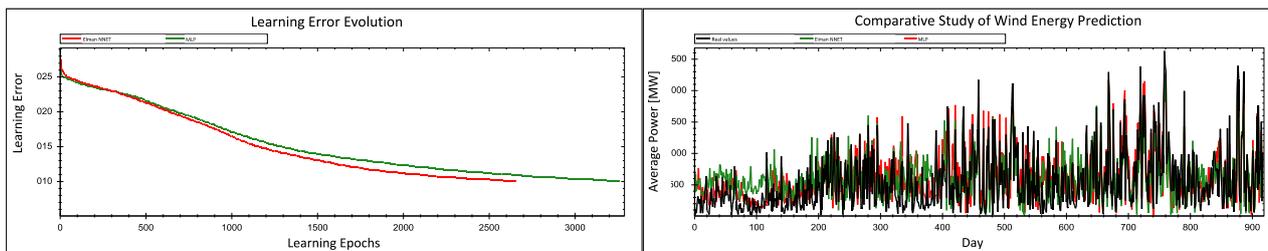


Fig. 4. Learning error and comparative study of wind energy production using MLP and Elman neural networks (15 neurons, 20 data window)

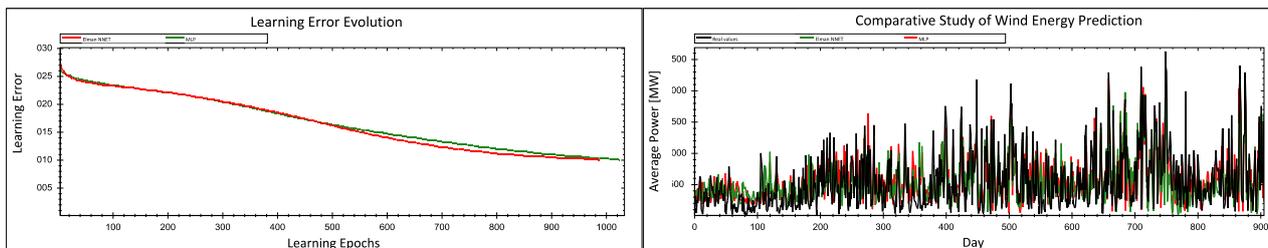


Fig. 5. Learning error and comparative study of wind energy production using MLP and Elman neural networks (15 neurons, 30 data window)

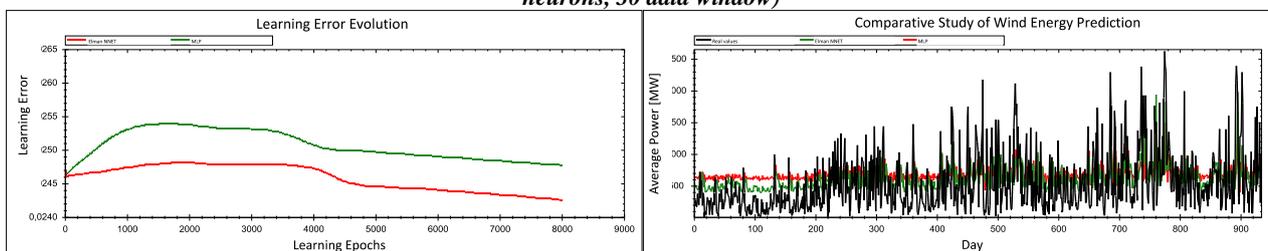


Fig. 6. Learning error and comparative study of wind energy production using MLP and Elman neural networks (30 neurons, 4 data window)

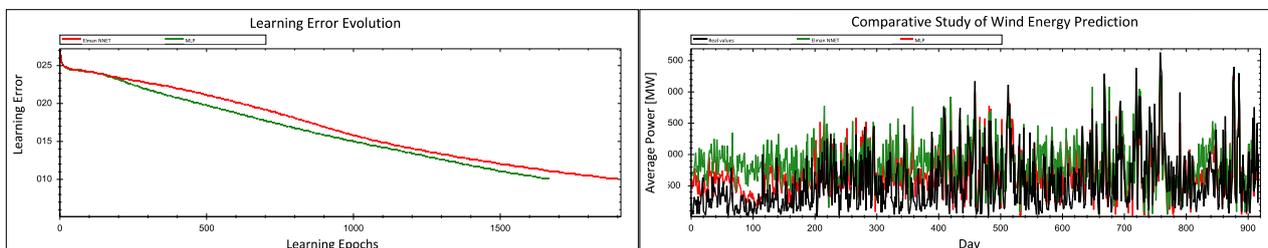


Fig. 7. Learning error and comparative study of wind energy production using MLP and Elman neural networks (30 neurons, 20 data window)

As the experimental results show the internal structure of the neural network influences the estimation quality and accuracy. In the current study it can be observed a better behavior of both neural networks in the case of larger data window mainly caused by the pattern of the input data series.

Tests show that the studied configurations can be used in prediction but with limited precision. The neural network structure must be chosen carefully, considering the influence of the learning efficiency and computation effort.

#### 4. Conclusions

Artificial intelligence represents an attractive solution for solving common tasks. One suitable application is for data series prediction. In this paper we have chosen to apply this technology in the case of the management of RES. In order to test the viability of this method the wind energy production estimation was selected. Two well-known neural networks architectures were tested, namely MLP and Elman neural network, with suitable results.

The experimental results can be considered as a starting point in preliminary adoption of the neural networks specifications. This can be easily observed in the presented figures. Choosing small number of neurons in the structure of the networks and low small data windows for complex data series as that considered for the wind energy prediction will lead to poor performance in terms of learning (high number of learning epoch, low level of learning through high error learning rate). By considering a high complex structure for the neural network doesn't mean necessarily improved results but high computation effort and large computational resource usage.

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## ASSESSMENT THE ACTUAL SYSTEMS OF COLLECTING WAVES ENERGY FROM POINT OF REDUCING THE WAVES IMPACT ON SHORELINE

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### Abstract

*Direct and indirect action of waves on coastal areas has increased in recent years, due to climate changes. As a result, a number of coastal areas are affected, which endangers the safety of human residences and industrial activities that are carried out in these areas. This is a characteristic state of the Romanian shorelines of the Black Sea, which showed pronounced erosion in recent years.*

*Energy associated with the waves and sea currents that lead to the degradation of shoreline areas, although existing facilities can not be controlled, leading to their continued degradation.*

*In this paper are presented the engineering judgment of current solutions and the actual technologies to collect renewable wave energy from coastal areas, from point of their capability to protect shoreline areas. The use of these especially in the shore and coastal areas which represent 15% of the land, with a 40% concentration of the population of the earth, it will ensure the necessity of energy.*

*It also presents a new technological solution to collect renewable energy from coastal and shoreline areas that could offer active protection of these areas. This solution consists in the development of equipment that can collect wind and solar energy in these areas in addition to the energy of waves and marine currents. Related equipment have a relatively large capacity energy storage in the form of pressure energy (compressed air). Production of electricity from the stored energy is done by downloading the compressed air in the new wind turbines mounted on such equipment.*

*This solution consists in the development of floating type equipment with a length that can be between 1.5 to 3.0 wavelengths of the wave. The arrangement of these turbine farms with a specific geometry, allow an installed power of 0.5 to 20 MW, depending on the energy potential of the region in which they are located.*

**Keywords:** *waves energy, shoreline protection, collecting systems.*

### 1. Introduction

The interaction between the wind and a smooth water surface generates a wavy motion of the water known as a wave, which is made by the kinetic energy transfer in the superior layers of water, which represents a deformable environment, incompressible and without amortization. Depending on the intensity and the duration of the wind's action and the length of the water surface, the generated waves are storing a big quantity of energy which manifests under the form of an oscillated wave. These waves have maximum amplitude at the surface, and it de-creases as the water gets deeper. Because of the dissipative propriety and the incompressibility of the water, the generated waves are propagating on big distances.

The mitigation of the waves because of the geometric scattering is insignificant, because they have been generated on a very large surface, with a big wave front which by propagating it opens with a very small angle, which has no influence on the amplitude in the central area of the wave.

In consequence of their characteristics, waves have both positive and negative effects on the environment.

A very important characteristic of the waves is predictability which makes possible the evaluation and forecasting of the both positive and negative effects (waves can be predicted with 1 or 2 days before forming by satellites) this also presents a growth of energy stored in the cold season when the need of electricity rises (1).

In this respect the available energy owned by the waves represents a positive aspect, by correlation with the increase of energy and at the same time a negative aspect trough the degradation and erosion effects made upon the shore and coastal areas.

The present article suggests an analysis of the most developed wave energy collecting systems till present, in terms of wave energy collecting efficiency and the possibility of ensuring an active protection of the shore. This analysis is based on engineering judgment, starting from existent conditions. At present, in conditions of the developing of the society with the increase of population, and implicitly the increase of energy consumption, because of the depletion of the non-renewable resources and the necessity of reducing the carbon dioxide emissions, it is required to develop some technical solutions of collecting renewable energy with high efficiency, cheaper prices and positive effects on the environment. Furthermore the distribution of a percent bigger than 40 of the Earth's population (which represents approximately 3.1 billion people distributed on a distance of 200 kilometers towards the continent) in the shore area (areas which cover approximately 15% of the higher potential land regarding resources and the production of goods and services), requires an active protection of the shores regarding emphasized degradation from multiple causes in the last period of time (2; 3) .

The developed technologies until present WEC (Wave Energy Convertors), allow the harvesting of the wave energy only for intensity values which have a specific power of the annually average bigger than 15-20 kW/m linear meter of wave crest.

Regarding the wind waves generated by the continuous action of the wind, in the seas and oceans tidal waves and tsunami waves can appear.

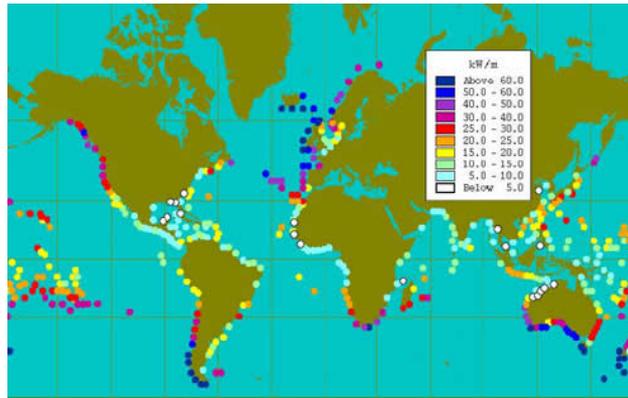
The tidal waves are waves generated by the gravitational attraction of the moon and the sun exerted upon the oceans, because the Earth's rotation and they have a perfect cyclicality (given by the interaction cycle, the average cycle being of 12 hours), and their amplitude is dependent on the volume of water in which they are generated, as well as the position on the globe (4).

Besides the energy generated by the long period oscillatory motion, tidal waves generate horizontal motions of a big quantity of water, whose energy can be collected.

Tsunami waves are generated by seismic motions and earthquakes whose epicenter is in the middle of the seas and oceans. The amplitude of these waves is very big, with destructive effects on the shore, and whose energy won't be collected.

The distribution of the power density of waves at a worldwide level has the biggest values in the areas between ~30° and ~60° degrees latitude in the both hemispheres as it is illustrated in Figure 1.

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**Figure 22** The power density of waves at a worldwide level expressed in kW/m linear of wave crest (5)

From the evaluations made regarding estimating the theoretic energetic potential of the oceans is estimated at around 7400EJ/year, which exceeds the necessary present and future energy for humanity. At Europe's level the theoretic potential of the energetic wave resources is estimated at least at around 2800TWh/year which is equivalent of 80% of the energy generated in Europe in the year 2010 (6).

With all the improvements brought, actual technologies for collecting wave energy don't have efficiency bigger than 15-20%, conversion efficiency ~70%, efficiency achieved by the Pelamis system (7).

From the technologies developed until present, whose efficiency will be analyzed in this paper are:

- Oscillating water column
- floating buoyancies devices anchored on the seabed
- Wave collecting system PELAMIS

## 2. Actual technologies of harvesting wave energy

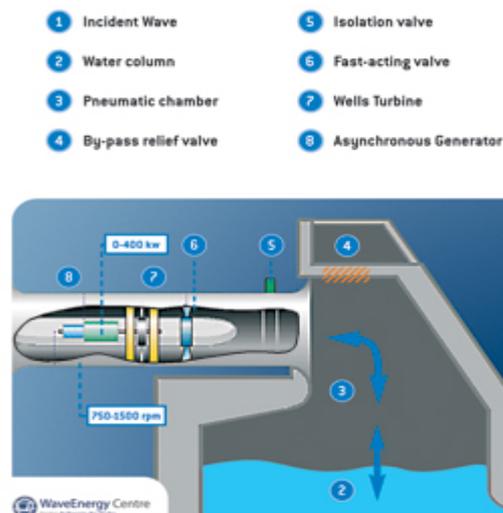
The wave energy, being a renewable energy source, the technology of harvesting this type of energy doesn't have a rich history. The developing of these technologies, as it is known, was determined only by the impulse sent out by the energy crisis (oil crisis and the nonrenewable primary resources).

To the harvesting of other renewable resources, as example the solar and wind energy, with a big expansion, wave collecting technologies developed after those, regarding the achievement difficulties as well as the fact that it is found only in some areas.

Next up, a short presentation of the actual technologies as well as the possibility of using them for the active protection of the shore, will be shown, at the same time with the collecting of the wave energy and transforming it in electric energy.

The negative effect of the waves upon the coastal and shoreline areas is bigger and bigger as the amplitude of the waves is higher. From the studies made it was concluded that the degradation made upon the shores, as well as the coastal areas is significant for wave amplitudes bigger than 2 meters.

### 2.1 Oscillating Water Column Device



**Figure 23** Oscillating Water Column device

This technology consists of the creation of a room from ram forced concrete, usually having the form of a parallelepiped, sealed at the top, being placed in a steady position in an area where the depth of the water is at least twice the size of the wave, Figure 2 (8).

Water entering in the expansion chamber, compression is achieved through a slot at the bottom of the room, the wall facing the direction of wave propagation wave.

For having a continuous oscillating water column effect of the air inside the room, generated by the movement of the waves, which will result the realizations of a continuous flow of alimentation and exhausting of the oscillating water column chamber trough the admission slot

The entry of the water in the oscillating water column chamber is realized through a slit at the bottom of the chamber, on the wall in the direction of the propagation of the wave. The supplying and the evacuation of the air flow is made at the top of the room trough a small circular tunnel comparing to the room in which a wind turbine is attached. The converting of the wave energy into electric energy is made by the suction and evacuation made by the rise and the decrease of the water level in the oscillating water column chamber regarding the wind action inside the room. The oscillating movement of the water outside the room, as well as the rise of the water on the frontal wall made by the braking effect, determines the oscillation of the water level inside the oscillating water column chamber trough the communicative vessels.

The oscillatory movement of the water inside the room generates trough the oscillating water column effect upon the air volume inside the room, which determines trough the supply tunnel an oscillating air flow which acts on the wind turbine found in the tunnel. For the wind turbine to spin in the same direction, at the entry of the air flow as well as at the evacuation of it, the blades of the wind turbine needs to allow the spin with pre-mentioned angles regarding the normally fixed pintles on the wind turbine’s axle. The sizes of this kind of installation are given by the cinematic characteristics of the wave and the amount of unitary power of the system as shown:

The width of the room in the normal direction of the propagating of the wave is limited only by the changing of the angle of the propagation of the wave to the normal to shore. This variation given by the propagation direction of the wind is relatively small and does not impose restrictions regarding it.

The length of the room in the propagation direction of the wave is given so that the waves don’t generate rise and decrease movements, at the same time in the room which reduces the oscillating water column effect on the air in the room, because there appear small variations of the air volume. The length of the room is given by the length of the wave, so that the rise and decrease effect of the water in the room to be maximum. This is realized when the width is  $< \lambda/2$  (if it is  $> \lambda/2$ , the rise and decrease effect outside the room won’t produce the compression effect inside the room. Also it needs to consider the heightening of the wave on the frontal wall of the room.

The height of the room is given by the height of the maximum amplitude waves which are created in the area. To the 0 cote of the water, if the waves are missing the room has to be a height of at least 50% of the amplitude of the wave and a depth of at least the length of the height.

The depth of the water in which the montage of the room is recommended needs to be at least twice the amplitude so that the energy of the wave won’t be consumed by friction with the continental platform and to avoid the entrance of air in the room trough the frontal area at the lowering of the wave (because of the suction effect)

On the width of the room, the energy of the wave is fully consumed by the progressive entrance of the wave in the oscillating water column chamber and by the repeated hits on the frontal wall. Behind the room, the energy of the wave is partially remade by the bypass effect made by the wave coming from the sides. The energetic efficiency of these systems is reduced and is almost 10% because of:

- The ratio between the water’s density and the air’s density is 980 times bigger, which makes that the cumulated energy in the air volume to be much smaller than the energy cumulated in the same volume of water;
- The reduced efficiency of the wind turbines;
- The loss granted by friction at the air as well as at the water.

Regarding the capacity of the system to realize a protection of the shore by diminishing the wave energy is relatively small, because:

- Relatively small size of the room related to the length of the wave;
- The placement of these at a big distance related to the shore which allows the remake of the wave energy, from the wave energy coming from the sides as well as the pumping effect given by the compressed air inside the room (the compressed air acts as a piston which generates waves).

The realization of a big number of rooms at a small distance between them is the shore area, as shown in Figure 3 (9), has negative effects on the shore by generating water currents which can affect more than the shore, as well as the perturbation of the regular water flow.



Figure 24 Farms of oscillating water columns developed by Oceanlinx (9)

The growth of the shore protection efficiency with these kinds of systems can be possible by the realization of a big ensemble of rooms with a common wall on a big distance.

These are negatively affecting the flora and fauna behind the rooms by reducing the flow of the water in the directed area.

Another disadvantage is the fact that they have a fixed position and in the case of placing them in an area where there are forming high amplitude waves, their functioning is affected by the raise and decrease of the water level.

## 2.2 Buoyancy floating devices anchored on the seabed

This installation is made from a floating object, with a relatively small size compared with the wave length which is anchored on the marine platform by a flexible system or by a heavy leaning rod system connected through a cylindrical articulation at the in castrated foundation in the continental platform. The floating flexible articulated object usually has the form of a rotation body, usually spherical, while the rigid articulated floating object at the foundation usually has a cylindrical form, as shown in Figure 4 (10).

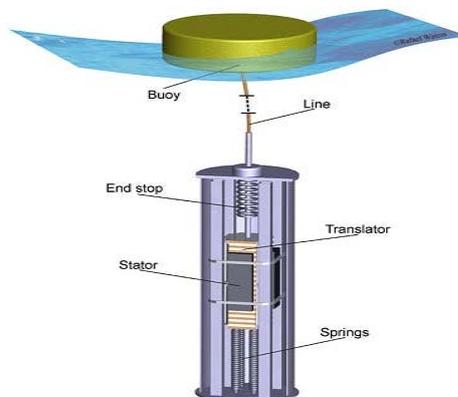


Figure 25 Oscillating Body System (10)

The rise and decrease movement of the sphere imposed by the wave action is transmitted to a permanent magnet which does a raise and decrease motion in a veiler, generating electromagnetic tension. The lift of the electromagnet is ensured by the action of the floating object through a cable. The size of the floating object is imposed by the wave length.

For having a good efficiency on the wave action, the diameter of this is recommended to be under  $\frac{1}{4}$  of the wave length so that the rise and decrease motion of the wave should not be consumed on the floating object.

The weight of the floating object should be relatively small so that the decrease motion of this is given by the proper weight, and it can't be transmitted through the cable of the system that transforms the wave energy into electric energy.

Tilted arm at a distance from the foundation is fixed by hinges to a set of piston rods. The pistons are arranged in an inclined position and are hinged to the foundation so that the arm forms an angle close to  $90^\circ$ . The point of articulation of the pistons angled arm and wave amplitude is given by the maximum stroke of the pistons.

The size of the floating object is given by the length of the wave as well as by the variation of the direction of the propagation of the wind.

The diameter of the floating cylinder should be smaller than  $\frac{1}{4}$  of the wave length so that its action to not be consumed on the cylinder's surface

The length of this is given by the maximum power which we want to collect from the wave, but it can't be more than the value given by the modification of the propagation direction of the wave referred to the shore normal. The length of the cylinder needs to be smaller than the minimum length which trough the modification of the propagation direction of the waves is generating

torsion effects in the rigid bar (generated by the out of phase movement of the ends of the floating object) under a specified value limited by the resistance capacity of the bar.

For transforming wave energy into electric energy the installation contains another circuit closed from liquid, usually oil or water, made out of: a set of pistons, a hydraulic turbine, some connecting pipes between those and a volume compensator which does not allow the accumulation of pressure in the circuit bigger than the limit value. The length of the circuit made by the relatively small diameter pipes, is big because the hydraulic turbine is mounted on the shoreline at relatively big distance related to the position of the floating object, which leads to relatively big loss of energy by friction.

Trough the action of the wave, the raise and decrease movement of the floating object is transmitted with a smaller stroke and a bigger force at the cylinders pistons. The come and go motion of the pistons is creating pressure upon the pumped liquid. The pressure energy of the liquid is transformed into rotational mechanic energy respectively electric energy with the help of the hydraulic turbine coupled to an electric generator. The rotational mechanic energy is transformed into electric energy trough an electric generator coupled at the turbine’s shaft.

Trough the action on the hydraulic turbine the pressure in the liquid is reducing and it is replenished trough the pumping system winded up by the wave’s action.

The role of the volume compensator which can be with compressed air or vapors is to maintain a relatively constant pressure in the closed hydraulic circuit.

In case that the rise of pressure in the pumping system is not entirely consumed in the turbine and trough the loss of the pressure on the closed track, then the pressure will rise in the avalanche system, reaching really big values which can actually destroy the system (it can explode). The role of the volume compensator is to get this pressure raise trough the entrance of a volume of incompressible liquid which can lead to the compressing of the air or to the condensation of the vapors and to maintain a constant pressure at the vacuuming of the pumps.

In what is looking forward to the capacity of the installation to realize a protection of the shores trough diminished the action of the waves, this is relatively reduced because the dimensions of the installation are small. As a result, the energy of the waves is reduced on a small portion from their length. From safety reasons these installations are placed at a relatively big distance between them (so that they don’t destroy themselves in case of a storm).

Therefore these systems are placed in farms, as is shown in Figure 5 (11).

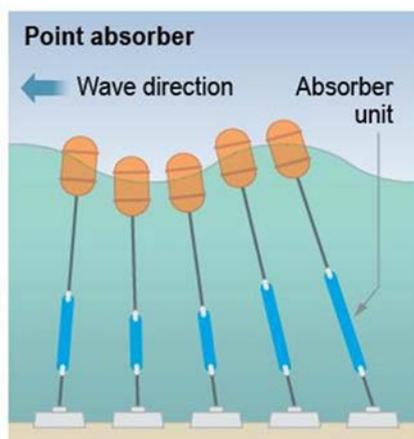
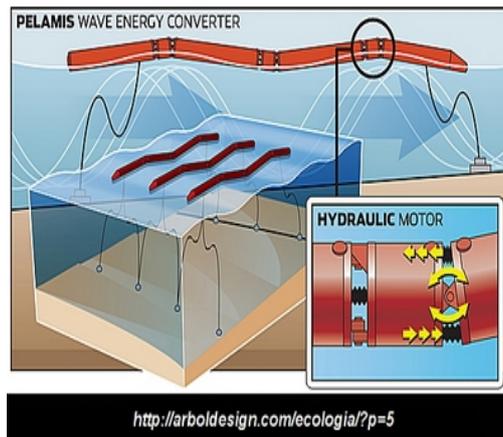


Figure 26 Farm of point absorbers (11)

- The dimensions of the floating objects are small compared to the wave’s length and from well functioning reasons, efficiency and safety they can not be placed one next to each other;
- The energy taken from the waves is relatively small, maximum 15% on a reduced area and the wave is remaking itself in the area behind the floating objects trough taking the energy from the rest of the wave;
- The devices are placed at a relatively big distance from the shore making the loss of energy of the wave to be physically unnoticeable for actions on the shore.

### 2.3 The wave collecting system PELAMIS.

The most complies installation of collecting wave energy realized until present is the PELAMIS installation, as is shown in Figure 6. (12).



**Figure 27 Wave energy convertor PELAMIS**

The installation is made by a number of floating objects articulated so that they can perform raising and decreasing movements to go along with the waves. The system is anchored at the end facing the deep water and it is maintained on the direction of the propagation of the wave.

The relative movement between the floating objects generated by the propagation of the waves is then sent to a pumping system that are include in a system that transforms the relative movement energy into electric energy.

The system is related to the one presented earlier and it is placed in the floating devices. The disadvantage is the big loss of energy trough friction in the pipe system, in the case of PELAMIS system this is eliminated by the fact that the circuit has a length much smaller, being placed in the floating devices.

The liquid from the system used to convert relative energy of the moving devices into electric energy is usually hydraulic oil to ensure the greasing of the system's equipment.

The sizes of the floating objects are imposed by the cinematic characteristics of the waves and especially the wave length, so that the installation can reproduce the movement of the waves through the relative movement of the floating devices. The length of these, including the articulation system of the devices needs to be equal to the semi-length of the wave to have a relative movement between the floating devices. From technical realization reasons as well as for the efficient collecting of the energy of the waves , the floating devices usually have a smaller length (for example: the PELAMIS installation placed in the Atlantic in the area of Portugal where the length of the waves is 136 meters, it has floating devices with a length of about ¼ of the wave length of the waves and the length of the installation exceeds the length of a wave length with a device unit, for continuous collecting of wave energy.

As well, the diameter of the floating devices is given by the oversized sizes that can be transported on public roads and usually they don't exceed the length of 5 meters.

Related to the installation capacity to realized an active protection of the shorelines by decreasing the waves action, this is relatively reduced because the transversal dimensions of installation are little, making that the energy of the waves to be reduced on a small portion of their length approximately 5m. From safety reasons, these installations are placed at a relatively big distance between them (to avoid the destruction in case of a storm)

The Pelamis system, compared to the other 2 systems has the advantage that it could be placed in any location as well as at a big distance from the shore, trough the fact that it doesn't need a fixed connection with the continental platform and it is anchored on its place which can be realized in deep water.

#### **2.4 Systems proposed for collecting of wave energy and active protection of the shore.**

The systems developed until present for collecting wave energy presented in this article have a small unitary power and a relatively lower efficiency compared to the systems for collecting wind energy. Though from a theoretic point of view you can imagine systems with a big unitary power and a high efficiency, until present there were not realized this kind of systems because of the technical limitations as well as the small investments realized until present related to those of wind energy domain. This is granted to the fact that the exploitable wind energy is found in very large areas on the Earth, whereas the exploitable wave energy has limited areas.

The systems presented in the article can't realize an effective protection of the shore because the fact that they are focusing on a small surface compared to the size of the waves and that they get a small amount of energy of approximately 15% from the wave energy which will be transformed with a specific efficiency in the electric energy.

In the doctorate states, along with the group from CITON there will be developed new systems for collecting low, medium and high intensity wave energy.

The new suggested system for collecting wave energy is designed so that it can collect wave energy no matter their amplitude. This energy collecting system is made out of multiple triangular floating devices anchored on the top of the triangle as well as in the base and tied together in the base area of the triangle for the raise of the stability

These systems are floating type and they collect wave energy from a surface more than 10 times bigger than the actual systems and at the same time with the collection of the wave energy, these will collect as well as solar and wind energy in the area. These systems allow the storage of the energy produced under the form of pressure and thermal energy as well as transforming these into electric energy

Trough the collecting of the 3 forms of renewable energy which are usually complementary as well as the storage of this, the disadvantages related to the random character of these is eliminated.

To ensure a big efficiency in the collecting of the wave energy as well as a good stability including (when the storms come) the form of those installations in a horizontal section which is triangular and they are placed with the top towards the open ocean and the base towards the shore as is shown in Figure 7 (13).



Figure 28 Modular plant for high, medium and low amplitude waves

The anchoring of an installation is made at the edges of this to maintain position in every situation. The collecting of the wave energy is made on the sides of the triangle and in the back area on the base, because of the whole wave energy gain on a big wave length will be realized a good active and efficient protection of the shore.

Trough the assembly of the installations so that the bases are connected on a parallel line with the shore, the collecting of the wave energy will be more efficient and a total protection of the shore will be granted trough the collecting of the whole wave energy Figure 8.



Figure 29 SERB waves, solar wind plant with active coast protection (13)

The platforms will be placed at a given distance from the shore, distance which is given by the amplitude of the wave and that ensures a depth of the water of at least 2.5 times bigger than the medium wave amplitude.

The length of the floating platform (the height of isosceles triangle) must be greater than wave length because to achieve a high stability in vertical plan and it could be collect energy waves at maximum and that not consuming by the oscillating movement of the floating platform.

In order to collect the waves energy to the lateral sides of the platform are mounted collecting systems of wave’s energy. These systems could be in a shape of:

- floating units which to transmission system with two uni sense coupling mounted on the shaft which transforms the lifting and lowering movements of bodies in continuous rotational movement of a shaft;
- great flow turbines with horizontal axis and control inlet-outlet water wave clutches in inlet-outlet chambers;
- vertical axis turbines with reclining blades so entering or leaving water wave from accumulation chamber to generate a turbine rotating in the same direction of rotation.

### Conclusions

The paper make a analyzes, based on engineering judgment, of the most developed wave energy collection systems in terms of structural characteristics, wave energy collection efficiency and their ability to provide protection for shores. Although developments to these systems developed to date in the field of wave energy collection, their efficiency is low and specific investment high. Another disadvantage of present systems for the collection of energy waves is that these systems can collect only the high amplitude wave energy which limits their use only to certain areas. The efficiency of these systems is between 5-10% for oscillating water column and 15-20% for Pelamis system.

These systems, due to their low efficiency and their geometrical shape and disposal cannot achieve a shores protection.

The proposed collecting wave energy system almost completely eliminates all the disadvantages of actual systems.

These systems have a geometrical shape of the triangular pyramid which is placed with its base towards the open top of the shore, providing a substantially complete collection of energy from a great length of the wave and converting it into electric energy. The new system can collect solar and wind energy in parallel with wave energy by installing a floating platform with new types of advanced wind turbines and solar panels.

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## THE EFFECTS OF INCENSES ON WOOD

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### Abstract

Frankincense and myrrh are burned during Christian religious services and the smoke deposits on the surface of the varnish layer that protects the paintings, on the back of the paintings which usually consists of unprotected wood and on the gilded sculpture. This study presents the results of an experiment in which wood samples of lime tree and fir tree (common types of wood that were used for panel paintings), with 13% moisture content, were placed in a box and were exposed to the smoke of natural frankincense, artificial frankincense (made of rosin/colophony, perfume, and MgO), and myrrh, which were indirectly burned on pieces of charcoal. The wood samples were left inside the box until all the smoke settled, then they were exposed to UV-A light, together with reference samples, for 70 hours. The modifications were analyzed by optical microscopy and CIEL\*a\*b\* colorimetry. The microscopic analysis didn't show any changes at the surface (visible deposits of burned resin, cracks), but presented micro particles of burned charcoal. The colorimetric analysis and the calculated values of  $\Delta E^*$  revealed that myrrh smoke has produced the smallest colour changes, while artificial frankincense smoke induced the greatest colour variations in both types of wood. Also, the modifications of wood pH were analyzed, comparing the results with the samples' pH before they were exposed to UV and it was showed that the samples pH slightly dropped after exposure to smoke and also dropped after exposure to UV light. The smallest pH was induced by artificial frankincense in both types of wood, while myrrh didn't change very much the wood acidity. Therefore, myrrh and natural frankincense should be chosen for liturgical purposes, so the colour of the wood and its acidity would not modify to a great degree.

**Keywords:** frankincense, myrrh, fir tree, lime tree, colorimetry.

### 1. Introduction

Frankincense (olibanum) and myrrh are resins obtained from trees or shrubs pertaining to the *Burseraceae* family that grow in North – East Africa, India, and Oman [Mikhaeil *et al.*, 2003, Moussaieff and Mechoulam, 2009]. They were used for millenniums in religious ceremonies and as cures for different illnesses. The use of these resins in Christian ceremonies became popular in the 4<sup>th</sup>-5<sup>th</sup> centuries [Moussaieff and Mechoulam, 2009]. Frankincense is obtained by scratching the bark of *Boswellia* trees, which release a resin that hardens. The colour of the resins varies from dark brown (*Boswellia neglecta*) to whitish yellow (*Boswellia sacra*, *carterii*) [<http://fairtradefrankincense.com/>]. Also, the composition of the resins depends on the growing area, the climate and time of harvesting [Mikhaeil *et al.*, 2003]. Generally, the olibanum is made of essential oils (5-10%), terpenoid resins (30-60%) and gums (polysaccharides). The essential oils are a mixture of esters, alcohol, monoterpenes, diterpenes and sesquiterpenes. The resin contains triterpene acids (boswellic acid). The terpene compounds have different degrees of volatility, the mono- and sesquiterpenes being the most volatile, while the triterpene have very low volatility. The gums, which are made of pentose and hexose, are non-volatile [Bekana *et al.*, 2014].

The resin used in Christian ceremonies belongs to *Boswellia sacra* or *Boswellia carterii*. Until recent it was believed that the two are one and the same, but the analysis of the composition proved they are two different species. *Boswellia carterii* frankincense has a higher percentage of monoterpenes (C<sub>10</sub>H<sub>16</sub>) like  $\alpha$ -thujene, sabinene, myrcene, limonene and  $\beta$ -phellandrene [Woolley *et al.*, 2012]. Other compounds identified in the essential oil of this resin are monoterpenes  $\alpha$ ,  $\beta$ - pinene, diterpenes (C<sub>20</sub>H<sub>32</sub> - cembrene), acetates (duva-3,9,13-trien-1,5 $\alpha$ -diol-1-acetate, octyl acetate), alcohols (C<sub>20</sub>H<sub>19</sub>OH - citronello) and ketones [Mikhaeil *et al.*, 2003]. The resin fraction has 15 acids (7 triterpene boswellic acids) and 2 cembrenes [Frank *et al.*, 2009].

The study of pyrolysates of ether extract obtained from *B. carterii*, realized by Pailer *et al.*, revealed the presence of a large number of aldehydes (phellandral, myrtenal) and ketones (eucarvone, piperitone, verbenone, thujone). In a study made by Basar, the diterpene compounds like cembrene, incensole were found unaltered. There were also identified compounds like 1-octanol, octyl acetate and 6 new triterpene substances like 24-norursa-3,12-diene, 24-noroleana-3,12-diene, triterpenes that are products of deacetylation, decarboxylation and dehydration of  $\alpha$ ,  $\beta$  - boswellic acids [Basar, 2005].

The myrrh, a dark brown resin, is obtained from the trees of *Commiphora* species [Hanuš *et al.*, 2005]. It, too, contains gums (30-60%), resins (25-40%) and volatile oils (2-10%) [Bone, 2006]. The polysaccharides are based on galactose, arabinose, and glucuronic acid. The oil contains furano sesquiterpenes (curzerene, furanoeudesma-1,3-diene, linestrene, different ketones- 1,10(15)-furanodien-6-one, curzerenone) that give the specific odour, monoterpenes ( $\alpha$ -pinene, limonene), eugenol, m-cresol, formic acid, acetic acid [Hanuš *et al.*, 2005]. The resin fraction has  $\alpha, \beta, \gamma$  - commiphoric acid, commiphoric acid and phenolic resins ( $\alpha$ ,  $\beta$  - heerabomyrrholic acid) [El Ashry *et al.*, 2003].

Another type of incense that is used in religious cult is obtained by mixing rosin with different types of perfumes after which the incense is covered with different powders like titanium dioxide or magnesium oxide. The rosin (colophony) is a resin with a high content of diterpenic acids (>90%) and a small fraction of neutral substances. The acids are of abietic type (abietic acid, neoabietic acid) and pimaric type ( palustric/levopimaric acid, pimaric acid) [Wiyono *et al.*, 2006].

This paper presents some of the effects of the smoke of frankincense, myrrh and artificial frankincense on the wood, because the back of many icons in church do not have a protective layer like paint or gesso and are directly exposed.

### 2. Methods and Techniques

For this study there were used samples made of fir tree (F) (8) and lime tree wood (L) (8). Two samples of each type of wood were used as references – one for the initial moment and one for the UV exposure. The rest of the samples were kept in a chamber where the RH was 95%, so the moisture content of the wood reached 13%. The purpose was to enhance the adherence of smoke on the wood's surface. To every type of incense two samples of lime tree and two samples of fir tree wood were exposed.

Three types of incense were used: frankincense (*B. carterii*) (NF – natural frankincense), myrrh (M) and rosin based incense (AF – artificial frankincense). 1g of each type was put on a burning charcoal. The smoking incense was placed in a chamber with the wood samples. Then the chamber was kept closed until the smoke settled.

From the 4 samples that were kept in one type of incense, 2 (1 lime tree and 1 fir tree sample) were placed under UV-A lamp, Osram Dulux S Blue UV-A (9W) the other two being kept for comparison. The total of 6 samples treated with incense smoke and 2 reference samples were maintained under UV-A light for 70 hours, at 1500 lx, the equivalent of 12.5 weeks of exposure to 200lx, 7 hours a day, 6 days a week [Comission Internationale de L'Éclairage, 2004]. The UV-A lamp was chosen because the UV-A rays are the ones that pass through window glass and influence the ageing [Feller, 1994].

The reference samples and the samples kept in incense smoke were analyzed with a portable spectrophotometer Lovibond RT 300, before UV-A ageing and after. The samples were also analyzed by means of optic microscopy, to observe the changes that might occur under the influence of smoke and UV light. It was used a microscope Zeiss Imager.a1M, which has attached a photo camera AXIOCAM and works with a software type Axion Vision Release 4.7.1.

After UV-A exposure the samples were cut transversally in half and their pH was analyzed. For the determination of wood pH it was used a cold extraction method. Half of each wood sample was weighed on an electric scale, cut in small pieces (thickness < 0.5 mm) and put in a beaker glass. A specific amount of distilled water (pH = 6.86) was poured on the wood pieces. The amount of water was calculated for every piece of wood, knowing that for 1 g of wood correspond 70 ml of distilled water. The wood was left in water for 1 h. The pH was measured with a digital pH meter, calibrated with standard solution (pH = 6.86, pH = 4, pH = 9.18). The temperature at which the measurements were made was 18°C.

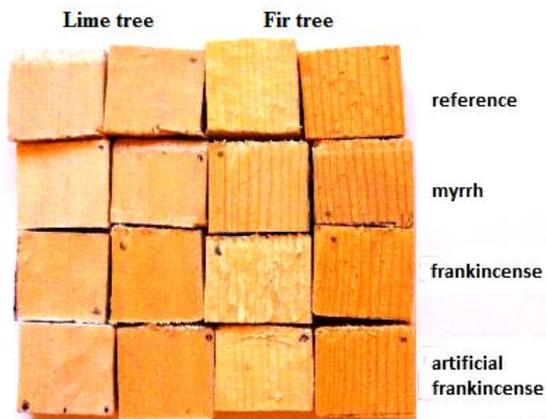


Fig. 1. Wood samples before and after UV exposure left -lime tree samples, right - fir tree samples

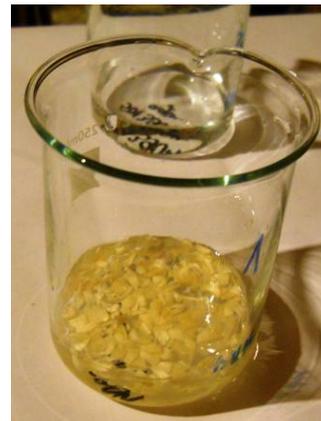


Fig. 2. Fir wood sample cut and placed in distilled water for pH determination

#### 4. Results and Discussions

The microscopic analysis didn't revealed changes in the fumigated wood aspect (Fig. 3, 4), but small particles of charcoal could be observed on the surface. During the fumigations, microscopic slides were placed in the chamber and in each case it could be noticed a greasy yellowish deposit on the surface of glass. Therefore, the wood samples have a thin greasy deposit on the surface.

The colorimetric analysis, realized in CIEL\*a\*b\* showed a change of the wood colour after it was exposed to incense smoke and UV-A light, as showed in tables 1 and 2.

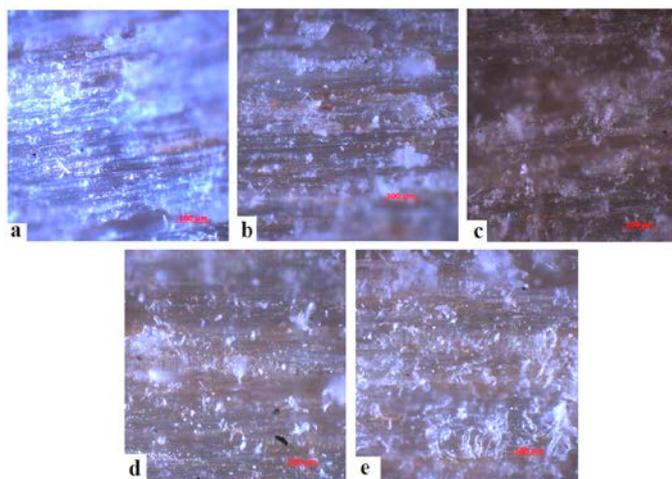


Fig. 3. Images of lime tree samples (200x):  
a – reference before UV, b –reference after UV, c – lime tree wood with myrrh after UV,  
d- lime tree wood with artificial frankincense after UV,  
e – lime tree wood with natural frankincense after UV

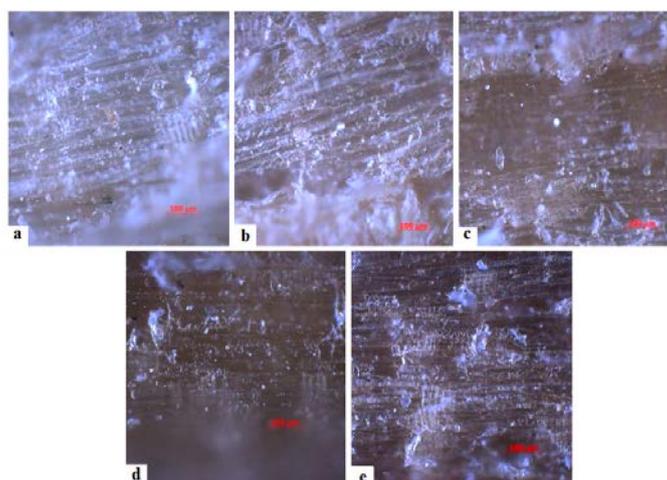


Fig. 4. Images of fir tree samples (200x):

a – reference before UV, b –reference after UV, c – fir wood with myrrh after UV, d- fir wood with artificial frankincense after UV, e – fir wood with natural frankincense after UV

	L-R (ref.)	L-RUV	L-M	L-MUV	L-NF	L-NFUV	L-AF	L-AFUV
L*	84.73	78.91	83.87	79.64	81.74	78.10	81.50	77.59
a*	+5.33	+8.30	+5.39	+7.62	+6.43	+8.87	+7.09	+9.28
b*	+17.27	+20.99	+21.21	+19.95	+25.84	+26.69	+24.35	+25.45

Table 1. L\*, a\*, b\* values for lime tree wood samples

	F-R (ref.)	F-RUV	F-M	F-SUV	F-NF	F-NFUV	F-AF	F-AFUV
L*	81.44	76.45	78.90	75.50	78.72	74.79	78.90	74.89
a*	+6.37	+9.84	+7.47	+10.35	+8.03	+11.01	+7.66	+10.73
b*	+23.77	+29.29	+26.71	+30.47	+31.75	+33.62	+28.79	+32.59

Table 2. L\*, a\*, b\* values for fir tree wood samples

Colour variations  $\Delta E^*$  were calculated with the formula

$$\Delta E^* = [\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2}]^{1/2} \text{ [Sandu et al., 2002, Schanda, 2007],}$$

and the values (Table 3, 4) were used to create the graphics in the fig. 5 and 6 an

time t(h)	0	70
$\Delta E^*$ L-M	4.03	6.19
$\Delta E^*$ L-NF	9.14	12.05
$\Delta E^*$ L-AF	7.97	11.55

Table 3:  $\Delta E^*$

time t(h)	0	70
$\Delta E^*$ F-M	4.03	7.38
$\Delta E^*$ F-NF	8.59	12.75
$\Delta E^*$ F-AF	5.77	11.81

Table 4:

variations for lime tree  
variations for fir tree

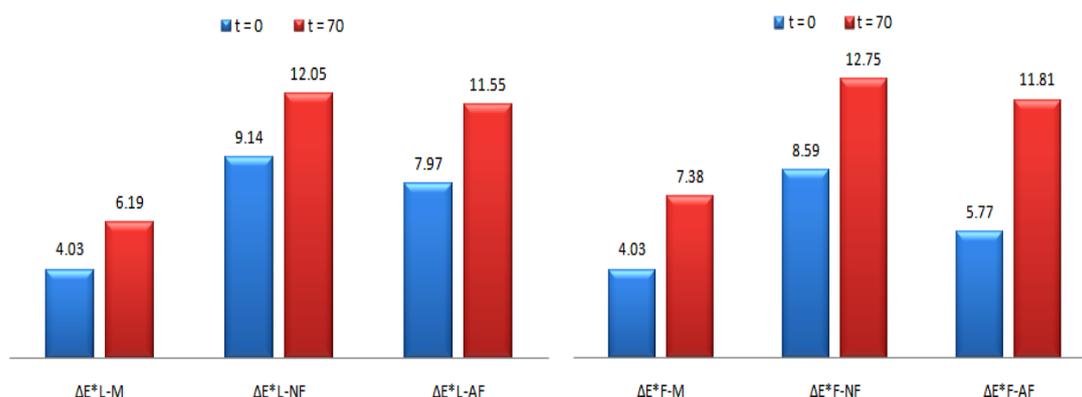


Fig. 5.  $\Delta E^*$  values of lime tree samples

Fig. 6.  $\Delta E^*$  values of fir tree samples

As it can be seen in tables and graphics, the  $\Delta E^*$  variations are higher in the case of fir tree and both types of wood are affected more by the artificial frankincense based on rosin, while myrrh has a smaller influence.

The pH of the wood samples decreased after the exposure to incense and UV ageing (Fig. 6). The lowest pH was given by the artificial frankincense, probably because of the high content of acids in its composition. Myrrh has the smallest influence, which

may be due to the higher content of polysaccharides and smaller percent of resins and volatile oils. The lime tree acidity seems to suffer higher changes than fir tree in the case of natural frankincense and artificial frankincense.

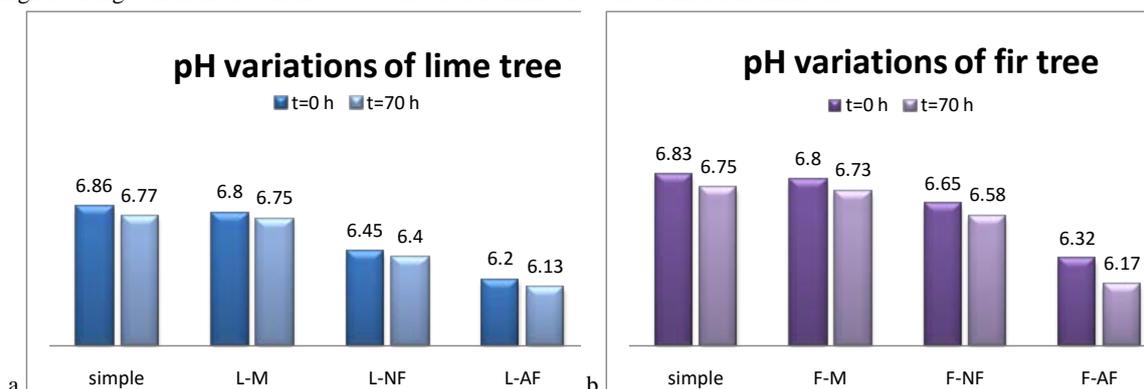


Fig. 6. The pH variations of lime tree (a), and fir tree (b), before ( $t = 0$  h) and after ( $t = 70$  h) exposure to UV

## 5. Conclusions

The wood colour and acidity are influenced by the pyrolysis products of incenses. The most damaging seems to be the artificial frankincense which lowers the pH of lime tree and fir tree and gives the more dramatic colour change, whilst myrrh seems to be the least influential. Therefore, natural incenses should be chosen for liturgical use.

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**SECTION II**  
**SOCIETAL CHALLENGES: E-COMMUNITIES, SOCIAL NETWORKS, ECONOMICS AND GOVERNMENTS**  
**IN DIGITAL ERA.**  
**PUBLIC POLICY, COLLABORATIVE WORK AND PARTNERSHIPS FOR SCIENCE COMMUNICATION.**

# URBAN CHALLENGES: ROMANIAN CANDIDATE CITIES FOR THE 2021 EUROPEAN CAPITAL OF CULTURE TITLE. SMART, SUSTAINABLE AND INCLUSIVE CITIES?

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## Abstract

Since the end of the 90s, several strategic European Union (EU) documents are stressing the importance of cities in EU policy-making process. According to them, cities are supposed to lie at the heart of Europe's main objectives for smart, sustainable and inclusive growth, of the Europe 2020 Strategy.

This paper refers to the role played by cities in the implementation of a specific European program: the European Capital of Culture (ECoC) in the context of the Romanian competition for the 2021 title, which was launched this year. The general purpose of this article is to assess the rhetoric connection between the Europe 2020 Strategy and the ECoC Program and to verify to what extent Romanian ECoC candidate cities are rhetorically assuming Europe 2020 goals. This study will provide an initial assessment of the 'smart, sustainable and inclusive' profile of the Romanian competing cities. Due to the fact that cities' Bid Books are not publicly available yet, the research data consist in the long term Cultural Strategies of candidate cities – as the first publicly available documents requested within the competition. Using the content analysis, this paper offers an initial assessment of the occurrence in the lexis used by Romanian candidate cities of current European strategic themes.

**Keywords:** smart, sustainable, inclusive, European Capitals of Culture, Romania, 2021.

## 1. From Urban Agenda to Culture led Urban Regeneration, within the European Capital of Culture Program

Europe has a dense network of cities, and most European Union (EU) countries have the majority of their population living in urban areas. Overall, "more than 70% of the European population lives in urban areas"(European Parliament, 2014:19). The constant increasing attempt to involve subnational governance levels into EU policy making process is one of EU's goals since the middle of the 80s, with the purpose of reaching out to citizens through regional and local democracy: "The expansion of the Union's activities over the last fifteen years has brought it closer to regions, cities and localities, which are now responsible for implementing EU policies" (European Commission, 2001:10)

The year 1985 was the starting point of the European Capital of Culture (ECoC) program (back then it was named "City of Culture") with the purpose to "bring the people of the Member States closer together" (Council Resolution, 1985). There has been "an obvious political dimension in seeking to highlight a common European cultural heritage" (Hughes, 2008:1), in search of a soul for Europe. The Program had a dynamic evolution, regarding its goals and selection procedures. The newest legislative framework was adopted in 2014 (European Union, 2014), containing new rules for the period 2020-2033. These are the rules based upon the candidature of Romanian cities for ECoC 2021 will be judged. The new rules acknowledge for the first time the addition to the original objectives of the ECoC (to highlight the richness and diversity of European cultures and the common features they share), of a new objective: "to foster the contribution of culture to the *long-term development of cities* in accordance with their respective strategies and priorities." (European Union, 2014, art. 2, p.4) This new objective is motivated in the Preamble of the 2014 EU Decision as being the result of the fact cities holding the title in the past have progressively added this new dimension, by using the leverage effect of the title to stimulate their more general development. In particular, past evidence has shown "the potential of the European Capitals of Culture as a catalyst for local development and cultural tourism." (European Union, 2014, Preamble, p.2). Moreover, one of the mandatory conditions for a potential candidate city is "to have a cultural strategy in operation, one linked to the city development strategy."(European Commission, 2014).

In the last years cities were given a special interest in EU's strategic documents: "Towards an urban agenda in the European Union" (European Commission, 1997), "Sustainable Urban Development in the European Union: A Framework for Action" (European Commission, 1998), "European Governance: A White Paper" (European Commission, 2001), "Smart cities and communities – European innovation partnership" (European Commission, 2012), "Europe 2020 – A strategy for smart, sustainable and inclusive growth" (European Commission, 2010).

All of these documents have built an Urban Agenda of EU policies, stressing the inclusion of non-state actors (cities, regions) in the implementation processes of European Union's policies, in order to produce better policies, by pooling resources and increasing acceptance, or, in order to help better implement policies. This is an ideal type of good governance, a so called *transnational output oriented effective governance* (Borzal, 2008). The official EU rhetoric is stressing that EU policies should support and enable cities "to express and attain their full potential as motors of economic growth, employment, social inclusion and sustainable development" (European Parliament, 2015, Motion for a resolution).

In this attempt, cities are facing challenges, which they can only solve in a national or international context: *Smart growth challenges* (favorable conditions for innovation, generation and circulation of knowledge; attracting talents, improvement of educational system, favorable entrepreneurial environment); *Inclusive growth challenges* (manage and adapt to demographic changes due to ageing, age imbalances, mobility within counties and cross-border mobility, international migration. Realize provisions for integration, respect for diversity and participation); *Inclusive green challenges* (Green infrastructure challenges, sustainable urban mobility and transport, climate change adaptation -water shortages, floods, heat waves, etc.-, energy efficient cities; *Management and governance challenges* (need for new forms of flexible governance within functional urban areas. Combine formal government structures with flexible informal governance structures that correspond to the scale at which the challenges exist). (European Parliament, 2015, Explanatory Statement). These challenges correspond to Europe 2020 goals for smart, sustainable and inclusive growth. As a consequence, cities themselves must become smart, sustainable and inclusive.

It's interesting to note the fact that the rhetoric of the European Urban Agenda can be found in the ECoC rhetoric, as concluded in one of my previous studies performed on Central and Eastern European Capitals of Culture. The Europe 2020 goals have a horizontal character with regard to EU policies, so that they can be found even in the Bidding documents of ECoC winners.

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Cities competing for the European Capital of Culture title have presented their European dimension (one of the selection criteria) using themes considered to be classical in the European rhetoric, according to the Europe 2020 goals: social inclusion, participation, ecology, sustainability, digitalization, innovation and technology (Tursie, 2015).

According to the ECoC logic, ideas of using culture as an instrument for city economic growth have become an intrinsic part of cities' development strategies, in order to consolidate their competitive position. Starting in the 80's, culture led urban regeneration strategies obtained a central position in urban public entrepreneurship. Even the meaning of culture itself was redefined, from the idea of a representation of values, symbols and lifestyles, towards that of “a resource able to solve political and socio-economic problems, including those of a city” (Miles, Padison, 2005, p. 834). The process of urban regeneration was associated with cultural policies. (Florida, 1992; Bianchini, Parkinson, 1993; Porter, 1995; Zukin, 1995; Hall, Hubbard, 1998; Garcia, 2004; Hemphill, Berry, McGreal, 2004; Miles, 2005; Evans, 2005; Grodach, Loukaitou-Sideris, 2007; Sacco, Belssi, 2009; Gonzales, 2011; Sacco, Ferrilli, Blessi, 2013; Pares, Costa, Blanco, 2014; Uldemolins, 2014). One of the central preoccupation of cities authorities became the degree of the potential positive influence of cultural programmes over the regeneration of areas confronted with physical (infrastructure) and/or economic degradation or areas facing multiple social problems – unemployment, criminality, low levels of education. Using cultural activities as a catalyst for urban transformation is the essence of the concept of culture led urban regeneration, one of the core goals of the European Capital of Culture Programme.

The main purpose of this paper is to assess whether this rhetorical connection “Urban Agenda, in the context of Europe 2020 goals – European Capital of Culture goals” is also available in the case of Romanian competing cities for the ECoC title in 2021. Given the fact that Romania has just launched in 2015 its internal competition between cities willing to hold the ECoC title in 2021, this paper represents a preliminary analysis of the 14 competing cities. Due to the fact that the official Bid Books are not publicly available, this analysis will not refer to the six official ECoC selection criteria, according to the legislative framework of the Program for the 2020-2033 period. Instead, it represents an attempt to identify the smart, inclusive and sustainable character of these cities, using as analysis data the Long term cultural strategies of the cities, as the first strategic documents that competing cities had to prepare.

## 2. Transparency and responsiveness – an overview of the City halls websites and Candidacy websites of the Romanian ECoC competing cities

The initial contact for any researcher in the field of European Capital of Culture Program with the competing cities is represented by discovering the two websites each competing city must have: the city hall website and the ECoC candidacy website. In the case of the 14 Romanian cities, I have identified that not all of them have, at this moment, both types of websites, which is a basic indicator of cities' administrative capacity and interest in preparing the candidacy.

City	City Hall Website	ECoC Candidacy Website
1. Alba Iulia	<a href="http://www.apulum.ro">http://www.apulum.ro</a>	-
2. Arad	<a href="http://www.primariaarad.ro">http://www.primariaarad.ro</a>	<a href="http://www.arad2021.ro">http://www.arad2021.ro</a>
3. Bacău	<a href="http://www.primariabacau.ro">http://www.primariabacau.ro</a>	-
4. Baia Mare	<a href="http://www.baiamare.ro">http://www.baiamare.ro</a>	-
5. Braşov	<a href="http://www.brasovcity.ro">http://www.brasovcity.ro</a>	<a href="http://brasov2021.brasovcity.ro">http://brasov2021.brasovcity.ro</a>
6. Brăila	<a href="http://www.primariabraila.ro">http://www.primariabraila.ro</a>	<a href="http://www.braila2021.ro">http://www.braila2021.ro</a>
7. Bucureşti	<a href="http://www.pmb.ro">http://www.pmb.ro</a>	<a href="http://www.bucuresti2021.ro">http://www.bucuresti2021.ro</a>
8. Cluj Napoca	<a href="http://www.primariaclujnapoca.ro">http://www.primariaclujnapoca.ro</a>	<a href="http://www.clujnapoca2021.ro">http://www.clujnapoca2021.ro</a>
9. Craiova	<a href="http://www.primariacraiova.ro">http://www.primariacraiova.ro</a>	<a href="http://www.craiovaculturala.ro">http://www.craiovaculturala.ro</a>
10. Iaşi	<a href="http://www.primaria-iasi.ro">http://www.primaria-iasi.ro</a>	<a href="http://iasi2021.ro">http://iasi2021.ro</a>
11. Sfântu Gheorghe	<a href="http://www.sfantugheorgheinfo.ro">http://www.sfantugheorgheinfo.ro</a>	<a href="http://www.i2021.ro">http://www.i2021.ro</a>
12. Suceava	<a href="http://primariasv.ro">http://primariasv.ro</a>	<a href="http://suceava2021.ro">http://suceava2021.ro</a>
13. Târgu Mureş	<a href="http://www.tirgumures.ro">http://www.tirgumures.ro</a>	<a href="http://www.tirgumures2021.ro">http://www.tirgumures2021.ro</a>
14. Timișoara	<a href="http://www.primariatm.ro">http://www.primariatm.ro</a>	<a href="http://www.timisoara2021.ro">http://www.timisoara2021.ro</a>

Table 1. Romanian ECoC competing cities. Status of existing promotional websites  
(Source: author compilation from available public data, November 2015)

The websites of Suceava, Craiova, Sf. Gheorghe and Timisoara city halls are the only ones which display on front-page a visible link to the city candidacy website. Brasov is the only city with reciprocal links, on both city hall and candidacy website. In fact, the candidacy website is an extension of the city hall website domain brasovcity.ro. Bacău, Baia Mare and Alba Iulia are the three cities which do not have a special candidacy website. Bacău city hall website doesn't have any reference to city's candidacy for the ECoC title. From the few media coverage on this subject (Gavrilă, 2015), Bacau's superficial candidacy was allegedly seen as some sort of electoral campaign of the current city-mayor. Alba Iulia city hall website also doesn't have any reference to the ECoC candidacy. Still, its frontpage contains original promotional references to the European/international character of the city: the first Romanian city rated by the Moody's International Agency, the winner of the European Excellence destination Award, following a national competition, the City of the Union. The website also contains a list of the International Cities' Associations to whom Alba Iulia is a member. Only Alba Iulia, Arad, Brasov and Iasi have similar Associations lists on their city halls websites, which is a relevant aspect for assessing city's European profile. Of course the other cities are also member of different Cities' Associations, there is common knowledge on these aspects, but it is questionable why they are not displaying this information publicly, as it is an important image opportunity. On the website of Baia Mare city hall, after a content search, there can be identified minimal information regarding the city's efforts to win the ECoC title, starting with February 2015, when Baia Mare European Capital of Culture Foundation was created. Baia Mare also proved to be one of the most responsive cities to a small transparency and digital responsiveness experiment I performed.

I have registered on 3<sup>rd</sup> of November 2015 several requests, based on the Law 544/2001 on free access to public information, using either the applications existent on city halls websites of candidate cities or, I have directly written emails to City Halls PR or International Relations Offices. I demanded information regarding the Cultural Strategy of the city (where it didn't already exist on the websites) or other details regarding the city and its candidacy for ECoC. Alba Iulia, Baia Mare, Brasov, Bucharest, Sf. Gheorghe and Timisoara proved to be responsive cities. Baia Mare and Timisoara are the only cities which contacted

me twice in order to elaborate an answer according to my specific demands. Baia Mare’s case is the most interesting. The city didn’t have on its website a publicly displayed Cultural Strategy; following my email, the City hall PR Office contacted me for the first time on 17 November, claiming an extension of the 10 days time for the response, and secondly, it have sent me another answer on 24 November, containing the link to the Cultural Strategy of Baia Mare, posted on city hall website the day before. The Document is currently on a one month public consultation.

The International Relations Office of Timisoara City Hall contacted me first by phone and then by email, sending me the required information within the agreed period of time, of two weeks, and agreeing, at my request, the preparation of an even more detailed response, further on.

Alba Iulia City Manager answered to my email within 9 days, transferring me an archived folder of available information regarding the City. The folder does not contain the long term Cultural Strategy of the City, so probably it doesn’t exist yet. Brasov Public Information and Mass Media Office answered to my request in 9 days, sending me all the requested documents, including the Cultural Strategy. Still, Brasov City Hall website doesn’t yet display this document. Bucharest General City Hall answered on 19 November with a complex address gathering answers from three services (Office for Decisional Transparency, General Direction for Development and Investments and General Direction for Urban Development) containing most of the required information, including the Cultural Strategy, and indications to the potential source of the missing information. Sf. Gheorghe Town Image Office answered within 3 days with short, but competent, information. Cluj Napoca City Hall International Affairs and Foreign Investment Department answered to my request the same day, announcing the forwarding of my demand to Cluj 2021 Association, from whom I received no answer. I didn’t apply my experiment to Iasi, for example, because all the information I needed, already existed on City hall website.

Long Term Cultural Strategy	City Hall Website	ECoC Candidacy Website	Details/Status
1. Alba Iulia	-	-	-
2. Arad	-	-	The last Cultural Strategy of the city covers the period 2009-2013 and it is accessible on <a href="#">city hall website</a> , following a content search.
3. Bacău	-	-	-
4. Baia Mare: <a href="#">“The Cultural Development Strategy of the Municipality of Baia Mare 2015-2030”</a>	X	-	Public consultation Nov-Dec. 2015; Document published in Nov. 2015 on the city hall website
5. Braşov “The Cultural Strategy of the Municipality of Brasov 2015-2030”.	-	-	Received By Email under the Law 544/2001, Strategy adopted in September 2015
6. Brăila: <a href="#">“The Cultural Strategy of the Municipality of Braila for the period 2015-2025”</a> .	X	-	Elaborated feb-June 2015, Adopted Sept. 2015
7. Bucharest: “Cultural and creative strategy of Bucharest, 2015-2025”	-	-	Public consultation initiated by <a href="#">ARCUB</a> – Bucharest City Hall Centre for Cultural Projects (summer 2014), Published Feb. 2015 on the website of ARCUB.
8. Cluj Napoca “Creative industries Strategy 2014-2020. Cluj Napoca: smarter city” + Cultural Strategy	-	X - available only in summary	Public consultation launched in July 2013
9. Craiova	-	-	-
10. Iaşi: “Proposal of a Cultural Strategy for the Municipality of Iasi 2015-2025”	X	-	No further details regarding the date of issue or the adoption of the Strategy by the Iasi City Hall
11. Sfântu Gheorghe: “The Cultural development Strategy of the Municipality of Sf. Gheorghe 2015-2021”.	X	-	Adopted in Sept. 2015 under an emergency procedure
12. Suceava: The Strategy of Cultural and Creative Development of the Municipality of Suceava 2015-2025”	-	X	Date of the document: September 2015
13. Târgu Mureş	-	-	-
14. Timișoara: <a href="#">“The Cultural Strategy of the Municipality of Timisoara 2014-2024”</a>	X	-	Elaborated feb-aug. 2014

**Table 2. Long Term Cultural Strategy of Romanian ECoC candidate cities**  
(Source: authors compilation form publicly available data, November 2015)

Cluj Napoca was the first city to elaborate a long term cultural strategy of the city in the summer of 2013, followed by Timisoara in spring 2014. Both cities’ Strategies are available for the 10 years period between 2014 and 2024. Cluj Napoca has two strategies in the cultural field: one for creative industries and a general cultural strategy. Both strategies can be found after a content search of the Cluj 2021 website, the first one is complete, but the second one is only presented in summary.

The majority of other cities’ strategies was elaborated in the summer-autumn of 2015, most probably motivated by the proximity of the official deadline for ECoC candidacy (October 2015) and are available for the 2015-2025 period. Sf. Gheorghe’s Strategy is available for only 7 years, “corresponding to the EU multiannual financial period but differing from the endpoint of Europa 2020 Strategy” (Sf. Gheorghe, 2015:8). Baia Mare and Brasov have the most extended strategy, for a period of 15 years, until 2030. Even though Suceava 2021 created its candidacy website very recent, at the end of October 2015, it is the only ECoC candidate

city website which displays visibly on the front page the long term Cultural Strategy of the City. Cluj-Napoca 2021 displays its strategies only after performing a content search. The Cultural Strategy of Bucharest is under ongoing public consultation and can be found only on the website of ARCUB public service, subordinated to Bucharest General City Council, who is actually managing the city’s Bid. The Cultural Strategy of Arad, available on the city hall website after a content search, expired two years ago.

The following section of my paper will represent a quantitative content analysis of the 9 available Long Term Cultural Strategies of Baia Mare, Braşov, Brăila, Bucharest, Cluj-Napoca, Iaşi, Sfântu Gheorghe, Suceava and Timișoara.

### 3. Long term Cultural Strategies – Romanian ECoC candidate cities - smart, sustainable and inclusive?

I have started my content analysis with a clear delimitation of the concepts I am trying to identify in the long term Cultural Strategies of cities, in order to verify their correspondence to the EU urban agenda and the official rhetoric of Europe 2020 Strategy. According to the Europe 2020 Strategy, three mutually reinforcing priorities are being put forward:

- “Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion. “ (European Commission, 2010: 6)

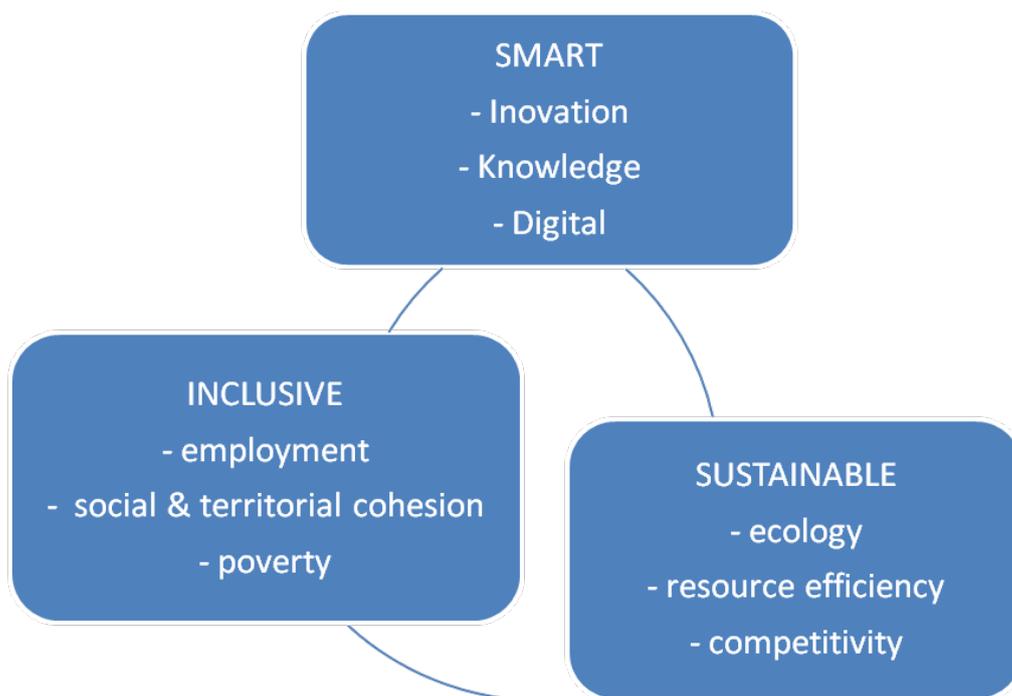


Figure 1. The conceptual framework of Europe 2020 Strategy (Source: author’s compilation following the Executive summary of Europe 2020 Strategy)

#### 3.1. Smart cities

Starting my analysis with the attempt of identifying the smart character of cities, analyzing the content of their long term Cultural Strategies, I have searched for the use of the terms: “innovation” (“innovative”), “smart” (both the English term and the Romanian translation “intelligent”), “knowledge” (only within the context “knowledge society”, “knowledge economy”) and “digital” (“digitization”). The only two cities which are actually using the English term “smart” in their Strategies (written in Romanian language) are Cluj Napoca and Brasov. Brasov used the term “smart” in expressions such as “smart development” or “smart solutions” and Cluj Napoca used frequently the expression “smart/smarter city” – and it is the only city to use this concept. For Cluj Napoca “a smarter city is defined by a partnership between three actors – the state, the creative industries and the citizens” (Cluj Napoca, 2014:27). Suceava refers to “smart growth”, or “smart allocation of resources”, and Bucharest refers to “smart partnerships”.

The long term Cultural Strategy of Sfântu Gheorghe contains the lexical family of the word “innovation” most frequently, compared to the incidence of this word in the other 8 strategies, more than double the incidence of the following cities, Brasov or Baia Mare. Even if “knowledge” it is a rare expression in the analyzed documents, Cluj Napoca Creative Industries Strategy uses the most the expression “knowledge based society”, or “knowledge based economy”. Braila, Brasov, Bucharest or Iasi do not used it at all.

Expressions related to “digital agenda” or “digitization” are used by all cities in their strategic cultural documents, but again Sf. Gheorghe is using it the most, followed by Brasov, Suceava and Bucharest. Brasov Cultural Strategy even refers to a “Digital Agenda for Brasov”, with the primary goal of offering the access to cultural services to people with disabilities (Brasov 2015:162). The Cultural Strategy of Baia Mare speaks about the “digitization of culture”: “introducing innovation within the cultural act represents an essential step towards the improvement of cultural products performances” (Baia Mare 2015:153). Bucharest is referring to the “digital revolution” of the PR sector (Bucharest 2015:117); Timisoara and Braila are noting the goal of digitization of public county libraries.

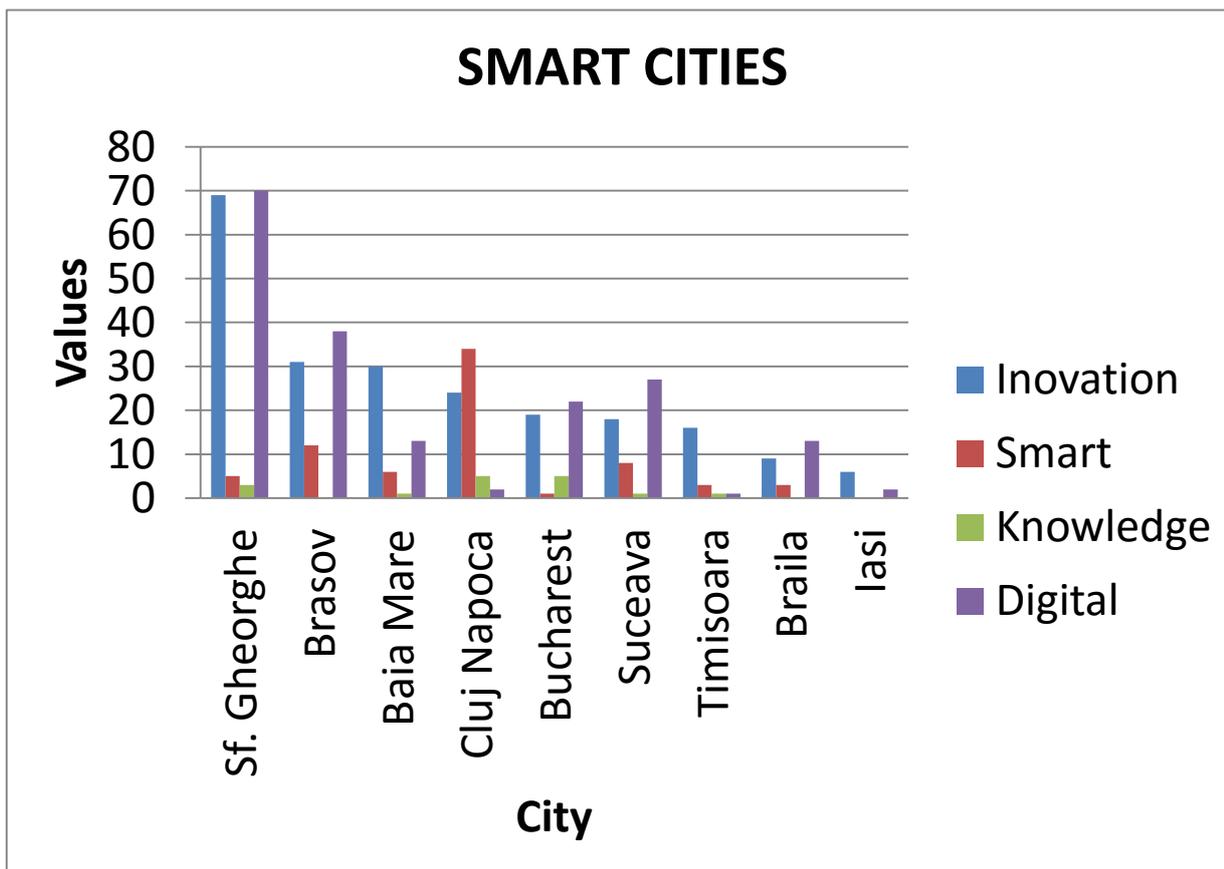


Figure 2. Quantitative content analysis of the long term Cultural Strategies of ECoC candidate cities – the use of “smart” related concepts (Source: author’s compilation)

### 3.2. Sustainable cities

In order to speak about sustainable cities, I have searched the incidence in cities’ Cultural Strategies of the associated concepts: “competitiveness”, “ecology/green” and “resource efficiency”.

The Cultural Strategy of Sf. Gheorghe uses the most, compared to other cities, notions related to “competitiveness”. Iasi doesn’t use it at all in its long term Cultural Strategy. References to the concept of “sustainability” are most frequently made by Bucharest in its Cultural Strategy, followed by Baia Mare and Timisoara. “Green” or “ecological” themes are being used the most by Suceava, Baia Mare and Brasov. Brasov calls itself the “Romania’s Green Capital” –title awarded in 2011 by the Ministry for the Environment. (Brasov 2015:15). It is understandable the preoccupation of Baia Mare for the environment, given its mono-industrial mining profile during the communist era. Timisoara mentions the Bega Boulevard Festival, as an “ecologic awareness project” (Timisoara 2014: 22). References to natural resource efficiency, especially “energy efficiency” are used by Baia Mare (given its understandable interest for natural resources), Braila, Suceava and Cluj Napoca.

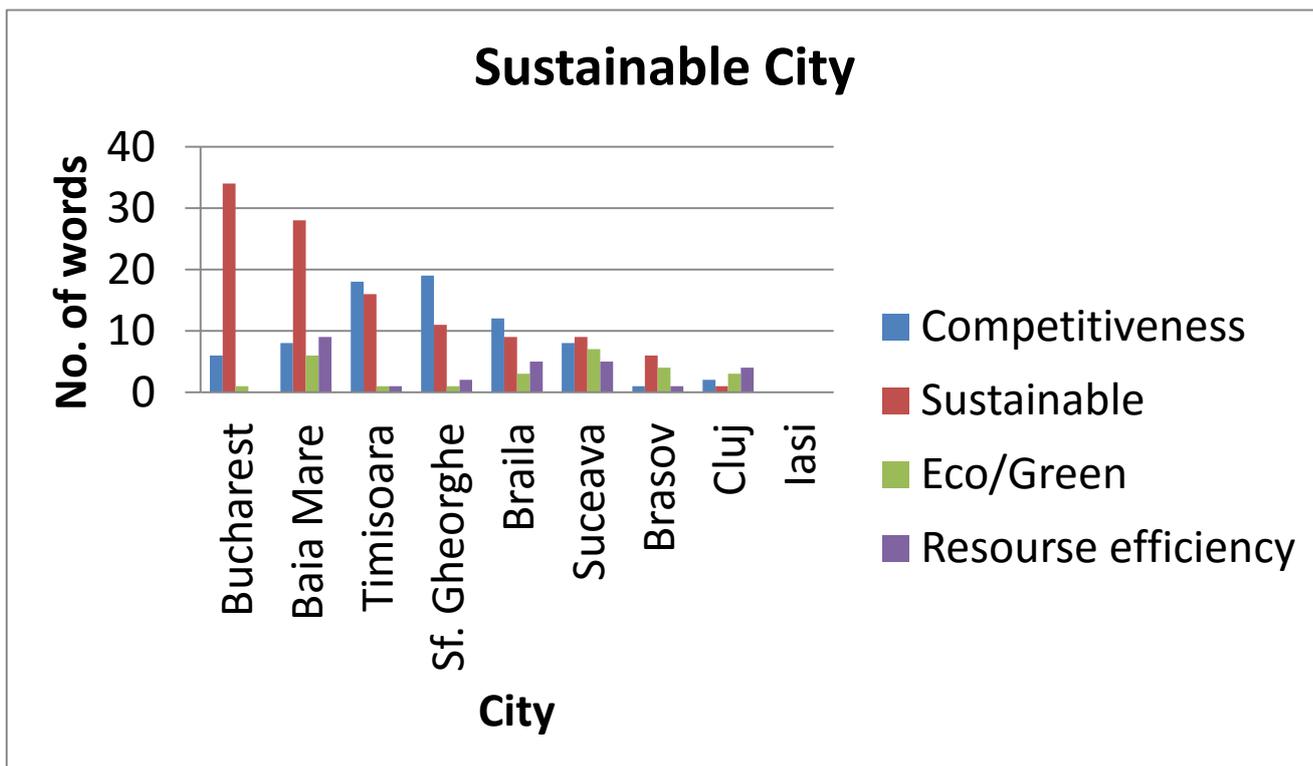


Figure 3. Quantitative content analysis of the long term Cultural Strategies of ECoC candidate cities – the use of “sustainability” related concepts (Source: author’s compilation)

### 3.3. Inclusive city

In order to identify the inclusive character of cities in the rhetoric of their Cultural Strategies, I have searched the incidence of the following associated concepts: “cohesion”, “employment” and “poverty”.

The theme of “inclusiveness” is, by far, used by Sf. Gheorghe in its Cultural Strategy, more than any other city. At the opposite side are Iasi and Timisoara. The rare use of this theme by Timisoara can be a sign of self-sufficiency, considering the fact that social exclusion is not a problem for a city with such a multicultural character: “Timisoara has a complex social structure with a multicultural specific based on tolerant spirit and exemplary peaceful multiethnic cohabitation” (Timisoara 2014:13). The importance given to “inclusiveness” by Sf. Gheorghe is understandable, given the fact that the city is bidding for the ECoC title in the name of the Tinutul Secuiesc, a Romanian region where the Hungarian national minority represents a numeric majority, having a vocal presence related to minority rights. Sf. Gheorghe and Baia Mare are also speaking about strategies of inclusion for the Roma community. Along with Baia Mare, Sf. Gheorghe also uses the most, compared to the other analyzed cities, expressions related to “cohesion”. If in the case of Sf. Gheorghe the theme of “cohesion” is related to “identity” and national majority-minority relations, in the case of Baia Mare the use of the term “cohesion” can be associated with “economic cohesion” and also “poverty” and “social exclusion”, as one of the cities’ acknowledged problems (Baia Mare, 2015:9). Fighting poverty is a Europe 2020 major goal, which requires an exercise of honesty only performed by Baia Mare, Cluj Napoca and Sf. Gheorghe. The theme of “employment” is mostly used by Sf. Gheorghe, Brasov and Braila. Sf. Gheorghe is explicitly speaking about employment strategies as means to overpass the economic crisis (Sf. Gheorghe 2015:68). Brasov (2015:144) and Suceava (2015:97) both set the goal to create more jobs in the cultural sector.

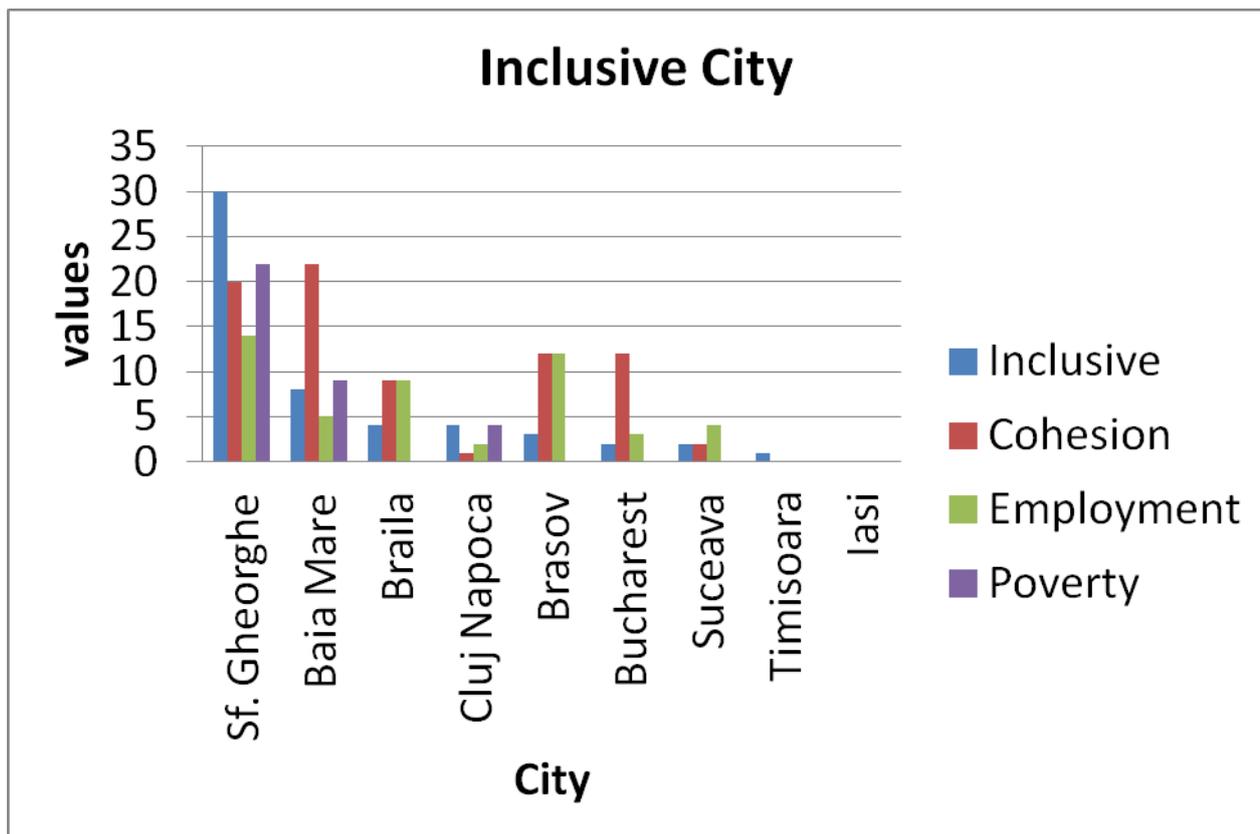


Figure 4. Quantitative content analysis of the long term Cultural Strategies of ECoC candidate cities – the use of “inclusiveness” related concepts (Source: author’s compilation)

#### 4. Conclusions

The main purpose of this paper was to assess the presence of the *Europe 2020* goals in the strategic documents prepared by the Romanian candidate cities for the 2021 ECoC title. Given the fact that cities’ long term Cultural Strategy is the first strategic document published by most of the candidates (9 out of 14), my analysis was limited to this data, waiting for the official Bid Books to be published (November-December 2015). Mixing the information presented in this paper’s subsections “smart”, “sustainable” and “inclusive cities”, I surprisingly discovered that two small cities, Sf. Gheorghe and Baia Mare, are the ones which are using the most the European rhetoric in their Cultural Strategies. It was also a surprise to see that Iasi and Timisoara, one of the “big” competitors, do not use much of the current European rhetoric related to Europe 2020 in their Cultural Strategies. I must also note the lengths discrepancies between the Strategy of Iasi (24 pages), Cluj Napoca (33 pages) and Brasov (231 pages), Sf. Gheorghe (134 pages), Suceava (107 pages) or Baia Mare (97 pages).

This study is relevant from the following point of view. As I have argued in a previous research (Tursie 2015), describing the European dimension of a ECoC candidate city can be compared to a very technical process, of fulfilling a checklist of European themes. The original and creative part of the Bid is not to be found in the section where cities speak about their European dimension. From this point of view, this study is offering an overview of the cities which have early done their homework in using the European lexis. This doesn’t mean that they have the biggest chances to win the title, nor the biggest chances to be proposed to the short list of candidate cities in December 10, 2015. A lot of other variables are involved, which exceed the purposes of this study. I didn’t intend to create classifications, or to make predictions. My demarche represents a preliminary exercise of over viewing the European lexis used by the Romanian ECoC candidate cities, which are supposed to be the most Europeanized Romanian urban areas.

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# AIR ACCESSIBILITY AND ECONOMIC CONVERGENCE IN A DIGITAL ERA - CONCEPTUAL DELINEATIONS

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## Abstract

*This paper will analyze the way in which the main concepts in the geography of air transportation evolved in different epistemological frames. In a first part we deal with the classical geographical analysis, continuing with the vision of the nomothetic spatial analysis and finishing with the new approaches of the postmodern geography. In an era of hypermodernity that is characterized by the emergence of the digital reshaping of spaces and places we interrogate the basis itself of the air transportation geography: how appropriate are today concepts such as accessibility and air connectivity, both for users and public bodies (decision takers and policy makers). We also articulate this new conceptual challenge with the economic regional impact of airports at NUTS3 scale, in Europe. In the conclusion we suggest that the nowadays geographical speech lacks the methodological tools properly to address the challenges represented by a new digital world order, where immaterial flows trend to overpass and overlay the classical material ones. This leads to a new basis of theoretical thought in geography, a frame that will need to combine complex quantitative tools with a more relaxed and qualitative approach of the passengers needs, perceptions and spatial representations.*

**Keywords:** *air accessibility, spatial interaction, regional convergence, non-place.*

## 1. Introduction

Although it may look a trivial activity, engaging in an air travel represents, from a geographical point of view, a complex process of movements and spatial interactions with a substantially economic impact at local, regional or national level. This impact can be measured and the conclusions of the scientific analysis could form the basis of the political-administrative decisions, able to improve the qualitative dimension of a route (less time to transfer or to fly, quality services to leisure at the airport, a better connection between the airport platform and the urban system etc).

Our main intention is to achieve theoretical and conceptual analysis of the air transportation system, starting from how the airport is seen as a geographical object, through the analysis of the air flows in support of spatial accessibility and ending with binominal economic growth and regional convergence. The analysis of the airports will be implemented using three different visions of the geographical discourse – a classical vision, a nomothetic and a postmodern one – while for the concept of accessibility we will use an approach which involves spatial analysis methods. The European airport is not just a geographical object, part of an air network, but it is a collectively or individually psychological representation, allowing it to become a *place* or a *non-place*, totally or partially included in the field of spatial trajectories of those who use it.

## 2. Literature review

The existence of an extensive literature relating to the concept of air accessibility explains the importance of this topic for researchers, governments, airlines and airports, due to the large number of users of air services and the strong interdependence of economic development, tourism and migration phenomena (Malighetti et al., 2007; Dobruszkes et al., 2011; Maertens, 2012; Redondi et al., 2013; Suau-Sanchez et al., 2014). The TRACC Project (Transport Accessibility at regional/local scale and patterns in Europe) defines accessibility as “a construction of two functions, one representing the activities or opportunities to be reached and one representing the effort, time, distance or cost needed to reach them” (Spiekermann and Wegener, 2011), being a major factor of economic attractiveness of cities and regions.

The recent literature contains a large number of studies focused on the economic effects of the regional airports or of transport infrastructure in general. A number of projects within the ESPON 2013 Programme (TRACC, ADES, SURE) study the link between the economic development and the transport infrastructure, especially of regional economic development and regional airports, link perceived as a mechanism type circular-linkage: transport infrastructure determines the economic growth, economic growth leads to the construction of new transport infrastructure, a process that is worth exploring, especially for countries in Eastern Europe, which are asymmetrically positioned in the equation of economic growth.

Economists, as well as policy makers, or geographers share their concern for the economic convergence issue, the last ones being interested in integrating the spatial dimension of the data needed to estimate the level of convergence of regional economies, proposing a multiscale approach to measure regional disparities (Bourdin, 2013). Theoretical studies related to regional convergence review and analyze the so-called *catching-up* process (*rattrapage* in french language), the less developed regions making significant efforts in order to catch-up the rich ones.

## 3. Methodology

The analysis of air flows involves an approach through the concept of spatial interaction. The importance of these flows (number of passengers, number of journeys, freight traffic) translates the intensity of interactions between places (Pumain D., Saint-Julien Th., 2001), interactions generated by economic, social and demographic mechanisms. The frequency of interactions and their stability in time transform them into flows (Groza, 2005), the geographical analysis often missing random and circumstantial spatial links (charter flights for example). One of the methods of the analysis is represented by the mapping, the mathematical modeling and the interpretation of the dominant flow, this method being extremely easy to implement, with relatively surprising results in terms of image of the integration of European regions into a continental flow system.

The second tool in order to analyze the air flows refers to the gravity model, a mathematical model designed to represent a large range of flow models in human geography, which despite its constraints is widely used in transport planning: the variety of mathematical formulations leads almost always to approximations of empirical data. Currently, using the gravity model into the air flow analysis is becoming increasingly sophisticated on the methodological level (Chang, L.-Y, 2014; Dobruszkes et al., 2011). The classical gravity model considers that air flows are directly proportional to the mass of the underserved regions and inversely proportional to the distance that separates them, distance-time, distance-cost or distance-kilometer. For now, using a gravity model in the air flow analysis has not produced interesting results, maybe because we don't have specific data related to the passenger flows, but only informations on the number of flights between the airports.

The study of the airport in terms of contemporary geography was based on a collectively or individually psychological representation, allowing it to become a *place* or a *non-place*, totally or partially included in the field of spatial trajectories of those who use it.

#### 4. Analysis and results

The European airport does not represent a simple hub on an air flow network, flows reduced to a common dislocation of a group of users or objects, generally referred to as goods. The airport is strongly anchored in the regional territory through a complicated system of economic and social relations and psychological attachments.

##### 4.1. Airport as an object of study in classical geography

From the perspective of classical geography, the study of airports can be divided into two key fields: the analysis of airports sites and the study of airport functions. The geography of an airport site analyze the airport at three different scales: the international/national/regional level, the local level and the specific scale of the airport site. Contrary to expectations, the airport analysis in terms of classical geography involves a series of difficulties, expressed by a limited acces to some basic informations, such as the land covered by each airport, the number of employees in the airport industry, the number of passengers, number of passengers declined by destinations, number of flights operated. Most websites of East-European airports does not include this type of descriptive information, so we turned to an approximation of the curent situation of East-European airports, concerning a series of descriptive characteristics: the construction/opening year, the distance to the deserved city center, the runways lenght, the number of passenger terminals, number of destinations etc.

##### 4.2. Airport analysis in nomothetic geography

In order to better understand the air flow system in Europe, we preferred to use the method of the dominant flow.

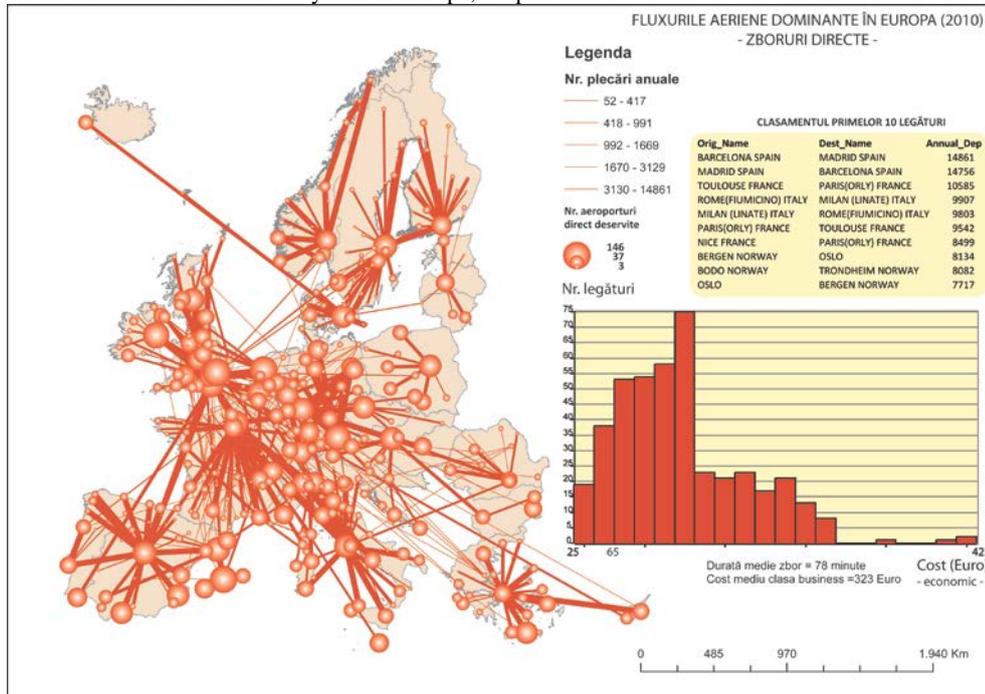


Figure 1 - The dominant flows between European airports in 2010

The map in Figure 1 indicates that European regions served by at least one airport present a double system of the integration of flows: **the metropolitan system of interactions** – this air network connects the major cities and the metropolitan areas, through a limited number of hubs (Heatrow, Charles de Gaulle, Schipol, Barajas, Fiumicino etc.). In this network are included the most important European airports, in terms of passenger traffic, which are joined by the airports with national service area (Atena, Otopeni sau Zagreb). However, in the top ten links, in terms of frequency, are found the air flows between the capitals and the secondary/tertiary cities; **the national system of interactions** – this air network ensures the connections between the secondary and tertiary cities from European countries, focusing on their capitals, capitals linked to the hubs mentioned in the previous category.

To regard an air link from airport *i* to airport *j*, we calculated the ratio between the average annual cost of travel (economy class) and the mean annual time of air travel (duration of flight). The variable obtained is called cost flight per minute (Cost/min) and is expressed in Euro (2010). This indicator can be interpreted as a general cost of departing from airport *i* to all European airports, whatever airport *i* is.

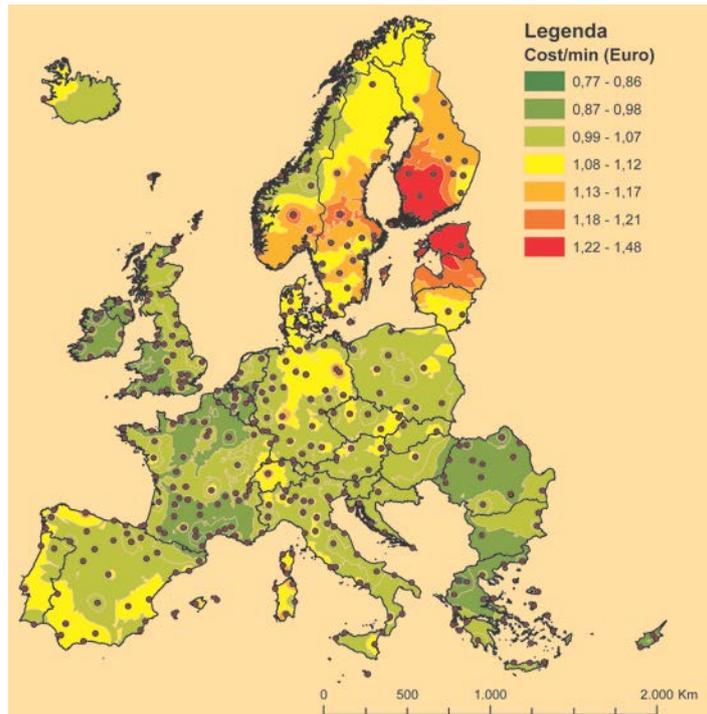


Figure 2 Time - accessibility and cost – accessibility of the European airports in 2010

The most expensive origins of air passenger flows are situated within the Scandinavian Peninsula (especially Finland) and Baltic region (Estonia). Something more affordable, from a financial point of view, are the Danish airports, the ones from eastern and northern Germany or southern Spain. On the opposite side are Romania, Bulgaria, or southern France. In an intermediate class are the Italian regions, Central and Eastern Europe, western and southern Germany, United Kingdom (except Wales and Northern Ireland).

If we weight the cost-distances with the time-distances, the analysis effectuated leads to the elaboration of some airport typologies, either as airports of origin or as destination. The resulting typology builds seven categories of airports, the dominant classes in Eastern Europe being the classes 3, 5 and 7. Occasionally appear airports from class 1 and 6. These last categories of airports are generally expensive airport platforms, if we refer to the European Union average. In the case of Romania, Arad, Iasi, Satu Mare, Constanta or Craiova airports are included in these two classes. Instead, Timisoara or Cluj-Napoca, to which we add the airports of Suceava, Bacau and Oradea, are characterized by a lower cost of air transportation, compared with the European average value.

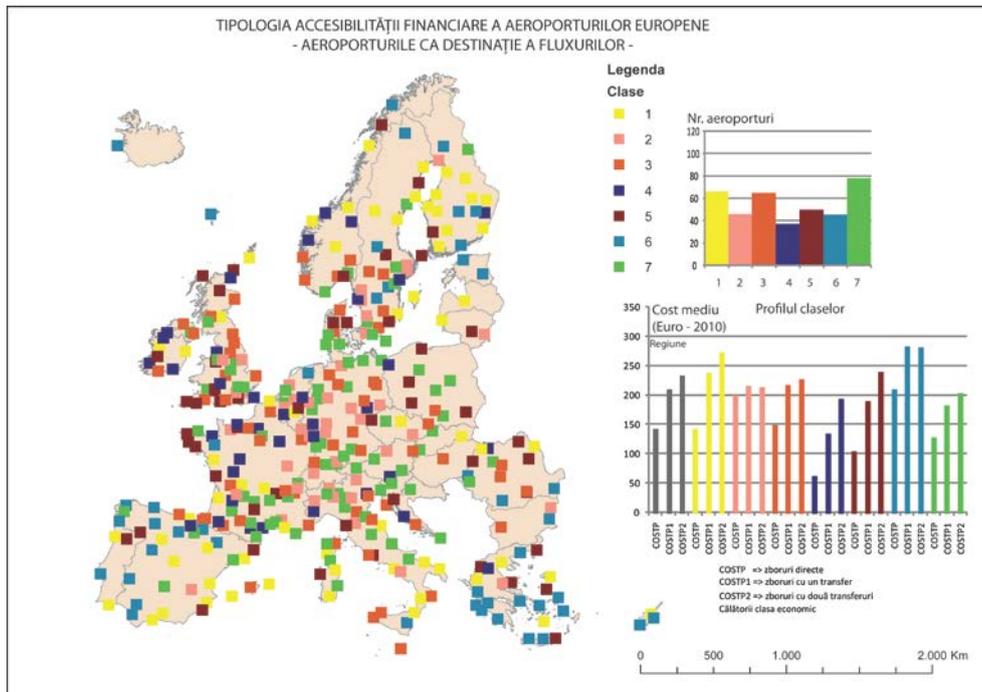


Figure 3 Classification of European airports by cost-distance in 2010 (destinations)

#### 4.3. Airport analysis in contemporary geography

Purchasing the quality of keyword in humanistic geography, the concept of *non-place* was introduced by French anthropologist Marc Augé, in the mid-1990s, defined as „temporary spaces for transition, communication and consumption”, a negative attribute of place, „an absence of the place itself, caused by the name assigned to it”. Next to supermarkets, hotel chains,

fast-food restaurants, shopping malls, highways, railway stations, airports are perfect spaces to illustrate the concept of *non-place*, or *placelessness*. Many of these examples represent spaces with large flows of people, where one tries to suggest the feeling of *home*, by creating sensorial experiences, uniform all over the world.

Airport as a *non-place* is a space of transition, which structure does not require authenticity in order to function, the main purpose consisting in transporting people on the desired destinations. Thus, the airport can dispense the historical and cultural component, since no one comes to the airport for the airport itself, but to go to other destinations. Making the automatism in order to pass over all steps of check-in operation is perceived by French anthropologist Marc Augé as an evidence of proof of innocence.

Although sociologists and humanistic geographers perceive airports as the most suitable example for the concept of *non-place*, their perception can't be reduced to such features as: the eradication of the individual identity, the existence and the persistence of the feeling of lack of belonging, the absence of historical and cultural component, the anonymity, loneliness and disorientation states.

As a response of putting the *non-place* label, architects, planners and airport management used a series of strategies in order to give those spaces a local identity, a symbology, a historical and cultural component, able to take them out of anonymity. Thus, changing the names of the airports, the presence of restaurants with traditional food of the region where the airport is located, or the introduction of artistic programs, designed for the clients of the airport services, represent relevant strategies, whose purpose consists in obtaining the quality of *place*. In this regard, the easiest and common strategy, changing the name of the airport creates links in the collective perception, leading to a space identity. For example, in the case of Romania, Bucharest Henri Coanda International Airport evokes a much stronger significance in the collective mind than the name Otopeni International Airport.

#### 4.4. Economic impact of the airports

According to the study conducted for the Airports Council International Europe (ACI Europe), European airports contribute to the creation of 12.3 million of jobs, generating a GDP of 675 billion Euro, representing 4.1% of total GDP of continent.

According to the same analysis (ACI Europe, 2015), in 2013, the six Eastern European countries (Bulgaria, Czech Republic, Poland, Romania, Slovakia and Poland), which represents the study area of my PhD thesis „From regional convergence to economic development – the analysis of air flows in Eastern Europe”, cumulated 201 100 thousand jobs and a GDP of 4.92 billion Euro, due to the direct, indirect and induced economic effects of the airports of these states.

Type of impact	Number of jobs	Income	GDP
Direct impact	1 696 200	68,5 billion €	101,6 billion €
Indirect impact	1 353 100	39,9 billion €	69,7 billion €
Induced impact	1 401 100	38,4 billion €	76,4 billion €
Catalytic impact	7 893 500	209,5 billion €	426,7 billion €
<b>Total</b>	<b>12 343 900</b>	<b>356,4 billion €</b>	<b>674,5 billion €</b>

Table 1 Economic impact of European airports

#### 5. Conclusions

This paper represents a partial survey of a complex issue that involves the articulation of the concept of air flows with the concept of airports accessibility, trying to understand how they induce economic growth and contribute to regional economic convergence. Also, the analysis of the geographical object called airport, in terms of classical geographical discourse, nomothetic or contemporary perspective, made us to reconsider the role played by the perception and the representation of people in their strategies for choosing an air hub in order to travel.

From the perspective of nomothetic geography, we notice that the dominant flows of Eastern European airports are still organized by the opposition between the continental metropolitan areas and national capital cities. Correlating their accessibility with the dynamic of the economic growth, we may better understand how these hubs behave in order to generate economic convergence.

At the perception level, Eastern European airport is a *non-place* because it is unable to take the role of visual interface between the region and the travellers. The attractiveness of airports is influenced and will lead to the avoidance of these ones, in the medium and long term, by businesses men or by common users. This situation is not specific to Eastern European airports, but it is equally problematic in Western European countries.

#### Acknowledgement

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## STRUCTURAL EMERGENCE OF THE MANAGERIAL CLASS IN ROMANIA. PERSPECTIVES ON MANAGERS FROM IAȘI CITY

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### Abstract

The trajectory of the post-communist Romania has experienced changes in organizations so that managers become key elements in understanding the process of change. To understand the new category of managers is necessary to study this ruling class mentality, ideology, philosophy, values, attitudes, relationships with the political world, but also a deep analysis of the privatization process and the functioning of the Romanian capitalism logic.

**Keywords:** manager, post-communism, leading class, capitalism, romanian capitalism.

În studiul „Emergența structurală a clasei manageriale din România. Perspective asupra managerilor din municipiul Iași”, mi-am propus să surprind caracteristici ale managerului emergent atât din sectorul de stat, cât și din sectorul privat.

Deși studierea acestei categorii profesionale a început chiar dacă timid, înainte de 1989 și a continuat după acest an, se poate totuși afirma că există un decalaj vizibil între valoarea și amploarea studiilor din România comparativ cu cele din alte țări. Făcându-se o comparație între cele două perioade, înainte de 1989 și de după 1989, se poate observa o mare schimbare a activității acestei categorii profesionale cât și a modului cum este percepută. Schimbarea despre care vorbesc a fost determinată de factori sociali, istorici, politici, economici, naționali și globali.

Cercetarea pe care mi-am propus-o nu este definitivă în sine, nefiind reprezentativă la nivel național, scopul ei fiind acela de a obține o mai bună înțelegere a obiectului cercetării. Caracterul explorativ, de cunoaștere a particularităților specifice emergenței acestei categorii profesionale, a managerilor din România, a impus ca studiul să fie abordat din perspectiva multidisciplinară, folosind metode de tip calitativ, interviurile semi structurate, studii de caz și analiza de conținut. Abordarea sociologică a anumitor dimensiuni ale teoriilor organizaționale și de management, cât și a teoriilor din domeniile implicite acestor discipline – sociologie economică, psihologie socială, sociologie politică, istorie – a întregit modul de abordare a temei de cercetare.

Pentru a putea dezvolta și argumenta fiecare perspectivă urmărită, teza este divizată în cinci capitole, fiecărui capitol fiindu-i atribuit câte un domeniu de interes.

Ideea principală care se dezvoltă în această lucrare este aceea a existenței unui întreg proces de emergență a clasei manageriale, având la bază mobilitatea socială a unor categorii socio-profesionale (sau doar a unor membri ai ei).

Pe tot parcursul cercetării, conceptul de emergență a fost dezbătut pe larg atribuindu-i-se semnificația evoluției personale a individului care își dorește o ascensiune în plan profesional (și nu numai), o condiție pentru manageri de a fi actuali în spațiul organizațiilor și a afacerilor, și o caracteristică specifică impusă de competiția în domeniu. Caracteristica principală a acestui tip de manager emergent este aceea că a suferit o schimbare de identitate în conformitate cu modelul noii structuri de clasă din România. Identificat după dimensiunea economică și statusul profesional, ocupațional, educațional și stilul de viață, managerii indiferent de domeniul de activitate se consideră ca făcând parte din aceeași clasă socială.

Identitatea profesională pentru managerul emergent este consubstanțială identității sociale. Gândirea stereotipă asociază managerul nu numai cu conducerea unei organizații ci și cu un stil de viață specific, un consum ostentativ și o imagine caracteristică. Managerul emergent se poate recunoaște și după stilul de conducere. Acesta este mereu activ, curios, dornic să se perfecționeze în domeniul în care profesează. Pentru asta urmează cursuri, școli, participă la conferințe.

Primul capitol, „Concepte, teorii, definiții”, constituie baza teoretică a lucrării. Acest capitol propune o vedere de ansamblu asupra teoriilor manageriale, definițiilor managerului, iar subcapitolul „Manager vs. director” propune *in extenso* parcursul emergenței acestei profesii de-a lungul deceniilor de sfârșit de secol XX și început de secol XXI, din perspectiva sociologică, politică, istorică și economică, în România. Managerul emergent în capitalismul Europei de Est nu este neapărat copia fidelă a omologului din capitalismul occidental, date fiind condițiile diferite de dezvoltare. Traectoria postcomunistă a României a cunoscut modificări în cadrul organizațiilor, astfel că managerii, devin elemente cheie în înțelegerea procesului de schimbare.

Pentru înțelegerea noii categorii de manageri se impune studierea mentalităților acestei clase conducătoare, ideologiilor, filosofiei, valorilor, atitudinilor, relațiilor cu lumea politică, dar și o analiză profundă a procesului de privatizare și a modului de funcționare a logicii capitalismului românesc.

Cel de-al doilea capitol – „Clasă socială sau grup profesional?” – cuprinde prezentări ale termenilor și definițiilor de clasă managerială, clasă socială, inegalități de clasă, precum și un studiu asupra diferențelor între generații având ca reper managerii. În acest capitol sunt catalogate diferite tipuri de manageri, clasificările acestora și istoricul lor, într-un cadru comun.

Noțiunea de emergență este reluată printr-o expunere plecând de la schimbarea socială, care este privită ca o „regândire a socialului” dar și ca un efect al tranziției de la un tip de societate (cel comunist) la altul (societatea post-comunistă), mai dinamică.

Capitolul al treilea se ocupă de analiza valorilor și atributelor care aparțin clasei manageriale: puterea managerilor, sub toate formele de manifestare, consumul și modelele de consum atribuite acestei categorii profesionale, narcisismul grupului specializat, stereotipurile, formele de manipulare și secretul profesional.

Capitolul IV cuprinde datele statistice demografice estimate ale acestei categorii profesionale. În același capitol, cititorul poate face o analiză comparativă a sistemului de învățământ de specialitate, MBA, din România față de cel din alte țări ale lumii. Din diferențele statistice rezultă încă o dată, însă din altă perspectivă, diferențele de viziune dintre managementul românesc și cel din alte state. În același timp, aceste diferențe pot fi interpretate ca un început al mișcării emergente a pieții economice din România.

În capitolul V, „Ancheta de teren”, sunt abordate metodele de lucru la care s-a recurs în acest studiu sociologic. Din analiza datelor culese se desprind unele idei ce țin de activitatea managerilor. Principala idee este aceea că o bună desfășurare a activităților dintr-o companie este asigurată numai atunci când autoritatea îi aparține managerului nu celor din subordinea acestuia. În cazul

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companiilor private unde antreprenorul nu are și funcția de manager, deciziile trebuie să aparțină corpului managerial deoarece acesta are cea mai bună percepere asupra sistemului economic, administrativ și de recrutare a personalului. Așadar, în sistemul privat, managerul reprezintă legătura dintre interesele patronatului și executanți.

Un alt aspect important este autoritatea. Managerii care nu au criteriile bine stabile de gestionare a autorității în raport cu muncitorii sau nu și-o exercită direct față de ei ci preferă o „descentralizare” a manifestării acesteia, nu pot reuși un contact real cu „pulsul” organizației pe care o conduc. Lipsa empatiei, distanța pe care o impun unii manageri față de oamenii din echipa lor determină o depersonalizare a poziției pe care o ocupă aceștia. *Acest fenomen face să se piardă legătura dintre manager și realitatea din organizația pe care o administrează. În același timp și dintre angajați și corpul managerial. În lipsa unui contact direct și al comunicării poate apărea neîncrederea, nemulțumirea și demotivarea. Un alt pericol din perspectiva acestei practici manageriale este acela de a pierde din vedere obiectivele reale ale companiei sau implementarea unor scopuri nerealizabile necunoscând cu precizie resursele și disponibilitățile acesteia.* Diferențele regăsite dintre sectorul privat și cel de stat în modul de a conduce organizațiile sunt radicale. *În urma analizei interviurilor s-au evidențiat patru caracteristici ale managerilor: valori, narcisism, consum și putere.*

*Originalitatea acestor analize constă în distingerea unor elemente noi, specifice managerilor și activității acestora. Inversarea ierarhiei, unde contravalorile capătă însușirile unor valori poate reprezenta o caracteristică a New managerului.*

Analiza narcisismului, la fel ca în cazul analizei valorilor, descoperă particularități ale managerului de tip emergent. Managerilor de acest tip le sunt caracteristice trei moduri de manifestare a narcisismului: cel individual, cel propriu grupului specializat și un al treilea, în care se regăsesc combinate primele două moduri. Reiese din analiză că formele de narcisism depind de domeniul de activitate: cu cât activitatea se desfășoară la nivel mai amplu, cu atât și narcisismul managerului se dezvoltă mai mult.

Foarte interesantă este observația conform căreia managerii din companiile multinaționale au un sentiment de satisfacție dat de apartenența profesională la grupul managerial deosebit de celelalte categorii de manageri din sistemul privat sau de stat.

Urmărind inițial în analiza consumului managerilor aspectele emulației pecuniare și ale consumului ostentativ, analiza s-a îndreptat către o nouă formă de consum: tendința managerilor spre consum de tip *prosumption*. Dorința unora dintre manageri de a înlocui mărirea salariului unui angajat fidel cu alte „tipuri de motivație” cum ar fi: laude colective sau în cazul managerilor care lucrează la companii multinaționale, posibilitatea de a-și însuși informații despre cum se poate conduce o afacere la nivel profesional, secretele antreprenorialului în lipsa școlilor de profil din România, toate acestea sunt forme de consum *prosumption*.

Tendința spre neplata forței de muncă mai mult decât aceea de a o plăti este un produs al unei noi forme de capitalism practicate de managerii de tip emergent.

O motivație a *New managerului prosumer* poate avea la bază și raționamente de compromis, în care producția și consumul se contopesc.

Producția pentru consum nu mai satisface individul post modern. Dintre managerii cercetați, cei care practică consumul de tip prosumer sunt convinși că un manager atinge culmile succesului abia atunci când angajatul va munci pentru el fără a o face neapărat pentru bani.

Acest tip de consum este specific organizațiilor private. Managerii firmelor private românești își doresc ca angajatul să muncească din plăcerea de a prospera afacerea, iar în cazul companiilor multinaționale, procesul este inversat, în sensul că managerii cu care am discutat își oferă forța lor de muncă urmărind să obțină beneficii de tip informațional.

Analiza tipurilor de putere la care se raportează managerii studiați s-a conformat așteptărilor inițiale unde exercitarea puterii reprezintă o necesitate în impunerea echilibrului în interiorul societății, respectiv al unei organizații. Managerii asociază în mod unanim puterea cu decizia.

Ipoteza emisă la începutul analizei puterii manageriale: „*Cu cât managerii dispun de resurse financiare mai mari, relaționale, informaționale și au un capital cultural și simbolic mai vast, cu atât puterea financiară, politică, culturală și simbolică a acestora este mai mare*”, se confirmă în totalitate. Fiecărui manager i se poate atribui câte un tip de putere dominant: financiar, relațional, cultural, simbolic sau politic în funcție de caracteristicile managerului, tipul organizației, numărul de angajați sau domeniul de activitate.

Concluzia analizei calitative este aceea că emergența acestei clase profesionale, a managerilor, este o consecință firească a transformărilor ce au decurs după Revoluția din 1989. Influența societății globale, a economiei de tip capitalist, a politicilor naționale și internaționale asupra tipului de management românesc nu au întotdeauna cele mai bune rezultate atât la nivelul managerului (individual) cât și asupra organizației.

În concluzie, o definiție a emergenței structurale a clasei manageriale din România nu poate fi citată, cărțile de specialitate nu oferă o definiție operațională a emergenței managerilor. Dimpotrivă, trimiterea se face către alte concepte, generale, ce pot fi asociate acestui proces.

Referirile propriu-zise la emergența managerilor români nu se pretind a fi definiții atotcuprinzătoare ci mai curând definiții provizorii, deocamdată timide, ale conceptului, văzut mai ales din perspectiva socio-umană.

Teza mea dorește să demonstreze că fenomenul emergenței managerilor din România se află în plină expansiune, în plină restructurare, încă e departe de a putea fi transpus în teorii stabile, este deci permisiv la noi interpretări și perspective, deschis unor întrebări îndrăznețe, cărora le vom găsi, în timp, noi răspunsuri.

Abordarea acestei teme nu este în sine un demers facil pentru cercetător, dimpotrivă, acesta trebuie să apeleze la un număr apreciabil de surse bibliografice pe care trebuie să le parcurgă, să aibă „harul” de a inspira încredere managerilor și nu în ultimul rând să se dedice acestui domeniu de cercetare.

Tabloul se întregeste dacă avem în vedere și diversitatea modurilor de a studia acest domeniu, complexitatea posibilităților de abordare și de ce să nu o spunem, a nenumăratelor critici ce pot fi aduse. Acest demers, cel de a studia noul manager român, are o mare importanță în contextul social și economic al țării noastre.

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## THE ROLE OF COMMUNICATION RESEARCH IN MEDIA POLICY-MAKING: AN ANALYSIS OF MEDIA INDEPENDENCE IN EUROPE

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### Abstract

*This paper addresses the challenges and implications of how communication policy research can contribute to media policy-making across Europe, with an emphasis on the regulatory independence of audiovisual media regulators. The key objectives are to identify the gaps in the extant interdisciplinary literature, and to contribute to academic and professional debates regarding the regulation of the European audiovisual media sector. Two key research questions are advanced: What is the role of communication policy research in media policy-making? What is the state of the art of the academic research on media independence? The methodology is based on a systematic review of the current literature. The most significant contribution of this study can be attributed to the interdisciplinary approach used to explore and understand how media independence is defined.*

**Keywords:** *policy research, policy making, media independence, Europe.*

### 1. Introduction

On June 17<sup>th</sup> 2015, the head of the Latvian national media watchdog, the National Electronic Mass Media Council, was dismissed by the Parliament. The Latvian Journalism Association considered that the Parliament has disregarded the principle of the independence of the media regulator, and suggested that the head was dismissed because politicians were dissatisfied with the content of the programmes of the public broadcaster [1]. Earlier on April 26<sup>th</sup>, the anticorruption prosecutors expanded their case against the chairman of the audiovisual media regulator in Romania, the National Audiovisual Council, by including the charges of malfeasance in office and instigation of forgery. The chairman was accused of instigating the drafting of false notifications that resulted in television channels being fined [2]. These two recent events highlight the ongoing debate on the regulatory practices for the audiovisual media sector in Europe. Both the Latvian and Romanian cases raise concerns about the effectiveness of the legal instruments created to safeguard a free media and an independent regulation. But what do we mean by media independence and regulatory independence? Does it matter if regulatory agencies for the media sector are independent from political control or industry interests? How can we assess the independence of media regulators? What is the state of the art of academic research on media independence? What is the role of communication research in media policy-making? This article addresses the challenges and implications of how communication policy research can contribute to media policy-making across Europe, with a focus on the independence of national regulatory authorities for the audiovisual sector.

### 2. Theoretical Approaches

There is a growing body of academic work focusing on the role of communication policy research and its impact on media policy-making. As highlighted by Just and Puppis (2012, p. 11), communication policy research is of great importance for scholars of ‘various academic disciplines from sociology and political science to law and economics, resulting in the coverage of a myriad of multi-faceted topics’. The study of communication policy is explicitly important because the ‘communication policy decisions can directly affect political and social beliefs and values that are central to the democratic process’ (Napoli 1999, as cited in Just & Puppis, 2012, p. 11). However, despite the fact that policy decisions have ‘far-reaching effects on society’, ‘communication policy issues are low profile’ and ‘regarded with suspicion’ (id., p. 11).

Several definitions of communication policy research have been put forward. For instance, Rowland (1984, p. 423) has defined communication policy research as ‘the investigation of those issues centering around the way in which—and why—societies and governments make choices they do regarding the purposes, ownership, control, support and guidance of their media institutions and services’. Van Cuilenburg and McQuail (2003, p. 183) have argued that communication policy research deals with ‘the goals or objectives to be pursued; the values and criteria by which goals are defined or recognized; the various content and communication services to which policy applies; the different distribution services (...); and finally the appropriate policy measures and means of implementation (...)’. According to Lasswell (1970), communication policy research encompasses two tasks: research about communication policy (subject), and research that informs communication policy-making (role of research in policy-making).

Informing communication policy-making leads to debates about the role of communication policy research, as Puppis (2015) observed. Among the key issues debated by communication policy researchers are media regulation and media governance, media policy, media pluralism, policy analysis of regulation, multi-level governance, regulatory independence, and agency theories.

### 3. Interdisciplinary Accounts on the Regulatory Independence of Audiovisual Media Regulators

Independence is considered a central principle of good governance, among other key elements such as accountability, transparency and participation [3]. The attempt to understand what independence is has led to a multitude of viewpoints and definitions. For scholars in media and communication studies, media independence and media freedom are interchangeable concepts, often employed when contextualising issues such as press freedom, rights and regulations across the world. Apart from the scholarly approaches, several international organisations have been actively engaged in lobbying and enforcing media independence worldwide. These organisations include the International Research and Exchanges Board (IREX), International Standardisation and Accreditation Services (ISAS), BBC World Service Trust, Freedom House (FH), World Bank (WB), the United Nations Educational, Scientific and Cultural Organisation (UNESCO), Reporters Without Borders (RSF), European Federation of Journalists (EFJ), Transparency International (TI), and the Global Forum for Media Development (GFMD).

In the political science literature, there are important distinctions between the independence from government, independence from stakeholders, independence in decision-making, and the autonomy of the organisation (Johannsen, 2003). Independence from government refers to the regulator’s formal rights to make independent decisions, without governmental constraints or pressures (Majone, 1996). The measures of protecting the regulatory independence are summarised by Johannsen

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(2003): measures addressing the risk of informal pressure from the political authorities, including non-revocable appointments of regulators for fixed terms to prevent appointment and dismissal on political grounds; measures relating to the organisational autonomy, such as having maximum control of the input of resources, control of appointment, allocation, promotion, dismissal and salary policies in relation to the regulatory authority's staff (p. 23). Independence from stakeholders is threatened when there is a risk of regulatory capture by the regulated parties, if the industry uses asymmetric information and misinformation to manipulate the regulator, or when the regulator's independence is compromised by the regulator's private interest in the sector (Johannsen, 2003). Measures limiting these risks are: setting standard rules regarding impartiality and disqualification; formal rules prohibiting informal discussions of pending cases with any of the parties involved are often part of the general legislation regarding good governance; formal rules prohibiting the employment of regulators in the regulated industry both before, during and after their term in order to increase the relational distance between the regulator and the regulated parties (Johannsen, 2003, p. 22). Independent decision-making as a third dimension of regulatory independence relates to the regulatory competencies of agencies. There is a significant difference between a regulatory agency that has decision-making powers, and an agency that only has consultative powers. Finally, the autonomy of the organisation is related to the control of resources, assignment, promotion and salary policies (Larsen, Pedersen, Sørensen, & Olsen, 2006).

Much of the current literature pays particular attention to the major distinction between formal (*de jure*) and actual (*de facto*) independence (Baldwin, Cave, & Lodge, 2010; Gilardi, 2008; Hanretty & Koop, 2013). The term 'formal independence' is used to refer to 'the product of laws and statutes prescribing the institutional design and safeguards of a regulatory body' (Indireg Report, 2011, p. 28). Whereas formal refers to legal requirements for independence, the notion of 'actual independence' refers to the effective independence of agencies during their day-to-day regulatory activities 'without receiving and acting on the basis of instructions, threats or other inducement from politicians' (Hanretty & Koop, 2012, p. 199). However, even though regulatory agencies may enjoy high levels of formal independence in their relationship with the government, in practice, *de jure* independence does not always determine *de facto* independence (Maggetti, 2007, 2012). The 'other conditions' that are proven to determine the actual independence of regulatory agencies are political salience and policy complexity (Epstein & Segal, 2000), the age of the agencies, membership of European networks, and the number of veto players in the polity (Coen & Thatcher, 2008), the structural design, the size of the regulatory agencies, and the country's politico-administrative tradition (Jordana et al., 2011; Yesilkagit & Christensen, 2010).

Empirical assessments of *de jure* and *de facto* independence originate from methodologies developed to study central banks (Alesina & Summers, 1993; Cukierman, 1992). Several scholars subsequently adapted the central banks methodology and developed universal indices in order to assess cross-country and cross-sector variations in independence (Gilardi, 2002, 2005a; Gutiérrez, 2003; Montoya & Trillas, 2007).

In the study of national media regulators, relatively few studies have dealt with regulatory independence derived from the institutional structure (Färdigh, 2010; Hallin & Mancini, 2004, 2011; Hanretty & Koop, 2013; Jakubowicz, 2007; Mutu, 2013; Mutu & Botella, 2013). Little systematic research has been done so far, and the scarcity of comparative works is due to many conceptual and methodological inconsistencies in prior research (Livingstone, 2003; Norris, 2009). As Norris (2009) explains, at a theoretical level, systematic interdisciplinary analyses or complementary conceptual approaches focusing on identical issues are rare. The majority of studies only examine topics from one perspective, for example from the viewpoint of media and communication studies, or from a political science approach. The missing element from prior studies is the emphasis on the regulatory independence of National Regulatory Authorities for the audiovisual sector. In general, national media regulators are not analysed as a category *per se*, but included in the broad category of telecommunications regulators.

From a methodological perspective, as Norris (2009) clearly illustrates, there is a serious lack of systematic comparative works and quantitative data on the regulatory independence of the NRAs for the audiovisual sector, and no available instruments for measuring independence. Owing to the lack of quantitative data, systematic empirical cross-national studies are rare. As pointed out by Maggetti (2012), one of the major reasons for the absence of cross-country comparative works is the paucity of suitable methods for clear conceptualisations and assessments of core concepts such as independence or autonomy.

#### 4. Conclusion

This article addressed the importance of studying the regulatory independence of audiovisual media regulators, in an attempt to answer two key questions related to the challenges and implications of how communication policy research can contribute to media policy-making across Europe. Based on a systematic review of the current literature, the current interdisciplinary approaches on media regulation and independence were discussed. Conceptual limitations and methodological weaknesses related to the lack of extensive comparative works, the lack of quantitative data and the lack of available instruments for measuring independence have been emphasised. Departing from this study, further analyses could be carried. Significant advances would be made by finding a comprehensive way to measure whether the regulatory independence of national media regulators has an impact on media policy outcomes, and whether in the various institutional contexts of media regulation and governance the civil society organisations play any role in shaping media policy.

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#### Notes

[1] See [http://www.epra.org/news\\_items/independence-of-nras-chair-of-latvian-broadcasting-regulator-dismissed](http://www.epra.org/news_items/independence-of-nras-chair-of-latvian-broadcasting-regulator-dismissed).

[2] See [http://www.realitatea.net/sefa-cna-laura-georgescu-trimisa-in-judecata\\_1736587.html](http://www.realitatea.net/sefa-cna-laura-georgescu-trimisa-in-judecata_1736587.html).

[3] See White Paper on European Governance, 25 July 2001, COM (2001).

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# RECONFIGURING THE WAY WE CONSUME AND SOCIALIZE: THE TUMBLR PLATFORM

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## **Abstract**

*This paper examines some socio-economic aspects of the emergence and subsequent success of the virtual platform known as Tumblr. It aims to prove that this networking and blogging website has modified consumerist behavior in regards to media and the online acquisition of physical goods. It also intends to show that the Tumblr format has remodeled social consciousness among a particular age group. In order to demonstrate these findings, the paper makes use of statistics and sociological input which follow the development of the platform from its inception to its current status. The paper also presents concrete examples of how Tumblr interacts with its users and manages to modify their media-consuming tendencies. The paper wishes to establish a link between the pervasiveness of this platform and its role in the future of media, advertising and consumerism.*

**Keywords:** *microblogging, media, consumerism, social networking, advertising, user interaction.*

## **1. What is Tumblr?**

Officially launched in 2007 by web developer, David Karp, Tumblr is, above all else, a free blogging platform, but one should not mistake it for the likes of *WordPress*, or *Blogger*, since it is not a CMS (content management system) where you may modify and edit content from a central interface (Boag, 2009: par. 5). The user does not have access to the platform's mainframe. There is a so-called "staff" in charge of such matters and they make sure to alert their users every time a change has been implemented. Yet, if it's not a CMS, then what is it?

Tumblr is a blogging website that fosters the notion of "microblogging", or blogging at a small level in order to produce relatively short content (Smith, 2010: 14). The word itself, "tumblr", comes from the concept of "tumbleblog", which is a blog that includes various types of media (14). Tumblr operates on two levels; there is the "sharing" level, by which one is encouraged to forward small posts from other websites or from other Tumblr blogs. Then there is the "creation" level, where one makes one's own original posts. So far, the platform is not much different from Facebook, in terms of content distribution. What is novel and specific to Tumblr is the intertextuality of posting (included in its very name, as explained above) and the effort-value balance on which the website is built. Both shall be explained below.

## **2. How does Tumblr work?**

All posts, whether "sharing" or "creation", include different types of media, such as quotes, text, videos, sound clips, photos and GIFs (Graphics Interchange Format) (Smith, 2010: 14) (see Annex 1). One is encouraged to incorporate as many media as possible to convey a message and, more importantly, one must engage with this media in order to acquire "notes" from other users. That is where the effort-value equation comes in.

The point of blogging on Tumblr is to submit content that is part of a conversation (Gitner, 2015: 393). The users attract "followers" (see Annex 2) by making their posts as appealing and varied as possible. It is not enough to simply forward content; one must adapt it to the tastes of the community. In that sense, Tumblr is an idiosyncratic social network (Hedengren, 2011: 7) where one's worth is not connected to the number of "friends", but to the number of posts and their adaptability. Users, for example, have no way of knowing how many followers other bloggers have acquired. Their main frame of interaction with another user is achieved through content. There is a messaging feature included, but it does not promote a constant dialogue, like the instant messaging feature on Facebook [1]. Therefore, bloggers socialize more often by "liking" or "reblogging" other users' content (see Annex 3). An additional way of interaction is through tags. Tagging is used both as a tool to select and isolate a particular corner of the community, and also as a means of conveying messages. A user may reblog a specific post and choose to write down in the tags certain impressions or opinions regarding the post (see Annex 4). In any case, communication is geared around content rather than people (Ahmed, 2014, para. 3).

The platform, thus, fosters a reward system; it gives users incentive to keep posting and investing time and effort into their blogs, because the real value lies in what they can produce, not in who they are. This may seem a rather callous way of systemizing blogging, but the effort-value equation is sometimes to the users' benefit. Bloggers are encouraged to focus less on self-image and promote "other" images. Since the Tumblr platform hosts representatives of actual companies, businesses and brands, if a user makes content geared at that brand, the representative of said corporation will promote or "reblog" their posts. Thus, a simple Tumblr user may participate in the image of a brand (Gitner, 393). Not only that, but most Tumblr users are anonymous; they do not share real names or personal information on their blog, because the platform does not promote self-disclosure, in the vein of Facebook, Instagram or Twitter. This means that there is a freedom of identity which links the Self with Content in an almost symbiotic way. You become what you create. Your posts are a narrative, or a story, and this is what gives Tumblr value (393).

Unlike the famous Facebook "timeline" feature which creates "a lifelong history of your every move on its network" (Tappin, 2014, para. 27), the Tumblr "story" the users construct is not a reflection of their personal life or experience on the platform, but a personification of media and culture (Ahmed, 2014, para. 9).

## **3. How Tumblr Affects Consumer Culture**

To understand the manner in which Tumblr affects consumer culture, one must first look at statistics; how many consumers does the platform reach? And what type of consumers are they? A recent study shows that Tumblr is home to over 147 million blogs (Jackson, STATISTICS, para. 1). Since there is a big incentive to post, as explained above, the number of actual posts is much higher, reaching sixty-seven billion (para. 1). A quick mathematical equation indicates that one Tumblr user is responsible for at least 450 posts (para. 1). While this is not a constant variable for every blogger, it attests to the level of commitment dedicated to personal blogs. This is particularly important since most blogs do not survive a four-month lifespan (Quenqua, 2009, para. 4). Tumblr is designed to incentivize regular posting due to its simple and friendly interface (Smith, 2007: 7), but also because the user receives a lot of validation from the community. A simple statement or joke that bloggers find relatable may acquire over tens of thousands of notes (see Annex 5) and it may even become a "meme", an idea, or a piece of information that gets replicated and passed on until it

takes a life of its own (Blackmore, 2000: 4-6). There is even the notion of a “Tumblrverse” where users exchange “inside jokes” and interact on a cultural level specific to Tumblr (Ahmed, 2014, para. 8). But what is Tumblr culture?

Considering the fact that a great portion of Tumblr users are under the age of 45 (Jackson, STATISTICS, para. 2) and spend more time on this platform than they do on Facebook and Twitter (para. 1), one may safely assume that Tumblr culture is a youth culture that thrives on certain idiosyncratic features. More than half of its users have a college degree and earn an average of 30.000 \$ a year (para. 3). This means that those idiosyncratic features will be sophisticated enough to cater to an educated community.

Firstly, there is the idea of “aesthetic”. Bruce Sterling talks about something called “New Aesthetic”, a concept which is built on “crowdsourcing” and networking (Berry, Dieter, 2015: 29-30). A New Aesthetic presupposes a new manner of interacting with the idea of taste. The New Aesthetic is diffuse and fragmentary, integrating both cultural changes, but also “technological gadgets and software to design, marketing and more” (30). It is a heterogeneous, intra-mediatic process and ultimately, a self-referential system; for example, an application like Google Maps has its own aesthetic universe (30). Likewise, Tumblr has constructed its own aesthetic. The main visuals are elegant and slick, comprising of a “Dashboard”, which is an infinite scroll-on screen that is filled with all types of media. Its background is a dark blue and it is organized in such a way as to center the attention on the middle of the page, providing few distractions for the user (see Annex 6). This means that when the blogger is visiting the Dashboard, he or she is interacting solely with the content. If they wish to visit a blog or send a message, they must go into a different window.

What does this mean for the media consumer? The effect is that of instant gratification, which most social networks and media platforms already provide (Hall, Manfull, 2014: 336), but Tumblr makes sure the gratification is centralized and directed towards a certain *kind* of content. Hence, the platform “creates” taste, so to speak. Take, for example, the popular trend of “room aesthetics”. Bloggers will post pictures of “aesthetically pleasing” rooms and the effect is immediate; such posts will usually gather thousands and hundreds of notes, quickly becoming an aesthetic standard for anyone’s taste in interior design. The examples this paper has provided show a clear pattern; users prefer white, sparse, minimally decorated rooms that are obviously costing and expensive to maintain, but appear frugal or even “messy” to the untrained eye (see Annex 7). Such “aesthetically pleasing” displays are not simply enjoyed liberally by the blogger; he or she will experience material desire as a direct result of visual exposure. The need to assimilate and imitate the Tumblr aesthetic ultimately means investing in a real-life product.

A similar phenomenon may be identified in food posts. One only need glance at a blog such as “vtasty.tumblr.com”, whose tagline reads “Visually Taste It!” (see Annex 8), to understand the dynamics in place. The user is invited to swap two of the five senses in order to satisfy both. Again, such posts act as propellers for the blogger to either consume similar images or go out in the real world and eat a similar dish. One could argue that the user is not forced to interact with such blogs since there is a clear tagging system that isolates certain parts of the community. However, one may come across such posts without ever meaning to. It is the case of the log-in screen, which more often than not, promotes popular posts in the background (see Annex 9). The image provided here is highly suggestive and meant to encourage the user to interact with it. The source of the post is published at the right bottom of the screen, as a further incentive to seek similar posts.

Yet perhaps the most pervasive example of Tumblr consumer culture is the gif, or the gifset. A gif (graphics interchange format) is a moving picture that supports animation (“GIF” Wikipedia, 2004, para. 1), or a short sequence from a video, usually lasting only seconds. A gifset is a corroboration of several gifs in a certain order with the purpose of telling a narrative. Tumblr is the primary source and platform for gif-makers and as such, users are daily bombarded with thousands of moving images that tell them a story. This may not seem important at first glance; after all, are we not a visual age that is constantly assaulted by the iconic and the pictographic? The rhetoric sounds familiar, but the actual socio-economic effects are fascinating. New media nowadays, especially upcoming TV shows and movies are no longer promoted only via trailers; they are bracketed and split into gifsets. In marketing terms, such a type of promotion is called “dynamic advertisement” and it creates a positive loop in the viewer’s brain as well as a lasting impact on their memory (“Marketing and Consumer Behavior”, 2014: 1175). Yet why would an animated image, spanning only a few seconds, be more effective than a full-fledged trailer? One must go back to the idea of Tumblr aesthetic to find an answer. Gif-makers largely use sophisticated programs to enhance the quality of their images (Photoshop and GIMP, to name two), which means that the few seconds of the video the blogger is exposed to are, once again, “aesthetically pleasing”. The trailer is broken into viable and desirable products; namely, the gifs.

The real impact of gifsets is seen at a socio-economic level; the user is compelled to not only pay attention to the fragmentary, dynamic content on display (“Marketing and Consumer Behavior”: 1175), but to also seek the rest of that content, i.e. the movie or TV show in question. When a blogger’s Dashboard is assaulted by gifsets of the same media product, said blogger will feel a need to acquire the “unabridged” version of that product. Hence, this is a consumer culture that does not thrive on visual harassment or manipulation techniques. Instead, it is a collective endeavor to curb and construct taste. Tumblr users participate in a cyclical process of creating *demand* and then providing a virtual *offer* (such as gifsets) which the users must satisfy in real life.

#### **4. How Tumblr Affects Advertising**

When Tumblr was acquired by Yahoo! in 2013 for the steep price of 262 million dollars (Jackson, 2013, para. 6), its bloggers were legitimately concerned that the platform would alter its appearance and cater more to corporations. As mentioned above, Tumblr’s main page, the Dashboard, is relatively free of advertising and nifty distractions. Users were naturally worried this would change. Yet, if one visits Tumblr nowadays, little has changed, visually. Yet, perhaps it is advertising which has changed.

Due to the fact that Tumblr is an idiosyncratic and highly selective networking blog, advertising companies and household brands must, in one way or another, integrate their promotional message within Tumblr’s previously discussed aesthetic. One way to do this is to disguise the ad as blogging content (see Annex 10). The Dashboard usually reserves a space on its upper right side where popular posts are promoted. Among such posts one may find carefully stylized advertising that looks like an average posts. This means that advertising on Tumblr is a subtle game of content-manipulation. Sometimes, the advertising is blatant and specific, although it still adheres to a tagging system (see Annex 11), but more often than not, it still tries to infiltrate the Dashboard via concealment. Hence, we may speak of covert advertising.

This may seem like nothing new. Ads and pop-ups on the Internet are designed to appeal to us and draw our attention, by any means available. They are geared to our needs, that much is true, but do they revolve around our tastes? Visit any normal website online and the advertising will not necessarily match the content or the visuals of the page. Yet, advertising on Tumblr takes on a

distinct look, because it has understood that the “Tumblrverse” will not allow entrance to outsiders without undergoing a process of “tumblr-ification”, so to speak.

Another aspect of covert advertising present on Tumblr are business deals, and the fact that users rarely get to see what goes on during such transactions between bloggers and a media company. For example, hundreds of writers have turned their Tumblr blogs into books or earned TV deals thanks to their free promotion on the platform. One such case is Lauren Bachelis, whose blog “Hollywood Assistants”, almost landed a CBS adaptation in 2012 (Lane, Chapter 8, For Tumblr – And Yahoo, para. 4). More recently, there is the editorial sensation of *Slaughterhouse 902010*, the pop culture Tumblr blog turned book, by Maris Kreizman (Goldstein, 2015, para 1).

Various artists promote their work on Tumblr, yet they rarely disclose how much they profit from the exposure, or whether they do at all. Bloggers contribute to covert advertising mainly out of a genuine desire to support creators they feel are neglected (see Annex 12). This, however, is yet another aspect of the almost indistinguishable line between posting and advertising. In Section 2 of this paper, it was mentioned that some bloggers may, through the content they post, contribute to or become the image of a certain brand. Hence, the act of expressing support or preference for a certain product, be it a TV show or a mascara, ultimately becomes another chain in consumer culture.

## 5. Conclusions

The present paper has attempted to prove that the Tumblr platform has affected the way bloggers consume and interact with media. Due to its heterogeneous and intertextual use of media, the blogging website has influenced concepts like aesthetics, taste and web culture, creating trends or curbing certain tendencies, according to the specific demands of the “Tumblrverse”. Bloggers are, willingly or not, contributing to consumer culture and solidifying a system by which they create their own offer and demand.

## Notes

[1] A new instant messaging feature has been launched on Tumblr in 2015, but it is only a few weeks old and therefore, there is not enough material yet to ascertain how it will evolve.

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## COMMUNICATIONAL BARRIERS AND CONFLICTS IN AN INTERCULTURAL CONTEXT. CASE STUDY: MINUSTAH

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### Abstract

The UN is currently the largest international organization, with the objective of maintaining the international peace and security; Romania is also an active UN member. Regarding the stabilization mission in Haiti, MINUSTAH, the topic has not been addressed in the Romanian scientific community, even though it is unique in terms of the intercultural communication and social implications stemming from it, both for the mission members as well as for the natives with whom they interact. The impact on the latter is not just temporary; it can persist or even be adopted after the end of the mission. By directly taking part in such a project, our perception is an informed one and, in this research, in light of our direct findings, we bring into discussion to what extent are there ways of transgressing intercultural communicational barriers and what efficiency would they have.

Obviously, the exchange of information between opposite areas of the world, in real time, is extending, and the economic, political, cultural implications of the globalization phenomenon apparently favors this type of communication. However, to assume that the media is a *sine qua non* condition of the intercultural communication is a fundamental error. Throughout human history, the socio-economic relations, the trade or even the wars represented forms of intercultural communication. We intend to analyze, from this perspective, the communication anxiety level induced by the contact between different cultures, the acceptance degree of the local population and the communicational adaptive ability of the UN's mission members.

**Keywords:** intercultural communication, cultures in contact, Haiti, MINUSTAH, United Nations.

In the context of the last few decades, the “Global Village” concept has been frequently discussed by sociologists, politicians or scholars. One of its core values is, without a doubt, intercultural communication. Obviously, the media is currently speeding up the exchange of information between opposite areas of the world, in real time, and the economic, political, cultural implications of the globalization phenomenon apparently favors this type of communication. The more obvious globalization is, on certain levels of the current socio-cultural and economic life, the more the concept of cultural resistance against a common template takes shape. It is precisely this type of resistance that is at the basis of cultural diversity and, therefore, constitutes the guardian of humanity's cultural values. Therefore, we are talking about a communicational globalization, not about a cultural one.

To imply that the contemporary technology and the expansive media is the *sine qua non* requirement for intercultural communication is a fundamental error. The cultural, artistic, economic exchanges, the business interactions or even the wars have been, since the dawn of human history, interactions between different cultures and, implicitly, types of intercultural communication.

Moreover, the collective and individual identity, based on the religious, ethnic, cultural, national or territorial experiences gives meaning to the lives of individuals, justifying their actions and thinking paradigms.

In this study, we have set out on a journey into the realm of communicational relations between people, as they were formed between the local community and the multinational MINUSTAH group, in the years prior and in those following the earthquake that has marked the last decade of the socio-political landscape of Haiti, in order to demonstrate that, beyond ethnic considerations, the interaction between the two groups of people we are bringing into question is *ab initio* affected by intercultural premises, which is not really that surprising.

In *The Practice of History*, G.R. Elton states that “history is a mutilated knowledge” [1]. From this point of view, the fact that we have direct access to the facts allows us to perceive the phenomenon more accurately, in tune with the reality in the field, which we will attempt to render in this research endeavor.

We should not forget, from the very beginning, to refer to Samuel Huntington's theories regarding the contact and/or conflict between civilizations. According to him, with the shift in power balance between civilizations, a new world order will emerge and the civilizations with cultural similarities will cooperate with each other, whilst others will organically reject one another. The universality claims of the Western civilization are highly questionable and the West's salvation, from the author's perspective, would be the reaffirmation of the American adhesion to the Western culture [2]. With a global politics that is increasingly dependent on cultural factors, the emphasis on multi and intercultural communication seems natural, especially in the strategy of some polymorphic international organizations, as the United Nations undoubtedly is.

After Jean-Claude Duvalier's (also known as “president for life”) departure from the country's helm, in 1990, Haiti's interim government requested the UN to send observers during the elections of the same year. As a result, ONUVEH (The United Nations Observer Group for the Verification of the Elections in Haiti) assisted to the preparations and supervised the elections, after which Jean-Bertrand Aristide emerged victorious. He was ruler of Haiti only until 1991, when he was dismissed after a military coup; Aristide was then exiled. As a result of the continuous degradation of the general situation, in 1993, the International Civilian Mission in Haiti (MICIVIH) was elaborated and implemented. Its main purpose was to oversee and investigate the cases of human rights violations. In June 1993, the Security Council imposed the arms and oil embargo and in 1994 a trade embargo, all aimed at restoring constitutional order.

At the same time, the creation of a multinational force was authorized, in order to hasten the restoration of the democratic regime. Right before the deployed of this multinational force, the US concluded a negotiation with the leaders of the coup to avoid confrontations. Therefore, the peaceful deployment, in the field, of this multinational force was made possible. Throughout October 1994, the embargo was lifted and President Aristide returned from exile. In 1995, the multinational force was replaced by a UN peacekeeping mission, tasked to assist the government in order to maintain order and stability, namely to participate in the training of Haiti's first national civilian police.

A serious political deadlock hit Haiti again, in January 2004, endangering the country's stability. Clashes between pro-governmental and anti-governmental militias erupted, which ended with a violence streak and the death of several people. Aristide's second term, which began in 2001, was completed and he was forced to leave the country. The new president, Boniface Alexandre

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requested the UN's support; the Security Council authorized the immediate deployment of an interim multinational force and, in April 2004, the Council gave the green light for MINUSTAH, The United Nations Stabilization Mission in Haiti, to peacefully and constitutionally support the political process, in a safe and stable environment.

In the next two years, the MINUSTAH's mandate, the concept of the operations, i.e. the number of authorized troops were regularly reviewed by the Council, in correlation with the operative situation in the field and the political necessities imposed by the political climate, the security conditions and the socio-economic situation.

In February 2006, the Haitians voted in high numbers, resulting in the reelection of the old president, René Préval [3]. Following the catastrophic earthquake of January 2010, the Council approved the increase in numbers of the MINUSTAH troops, to support the reconstruction and stabilization processes. MINUSTAH, alongside other international factors, offered humanitarian aid throughout 2010. The UN also offered international electoral assistance to Haiti, along with other international forces, such as OAS, the Organization of American States [4]. All these happened in the context of the tremendous disaster that has left its mark in the historical annals of this country: on January the 12<sup>th</sup> 2011, i.e. one year after the earthquake, the Haitian Prime Minister, Jean-Max Bellerive announced 316000 victims"[5]. According to official statistics, these also included 96 people who were part of the UN's peacekeeping personnel [6].

Once the security situation in Haiti had improved, the MINUSTAH troops started to decrease in numbers, which however did not reduce the extent of the cultural interconnection phenomenon, the presence of the mission in the area having a long term, synchronous effect. The impact of the socio-cultural contact of the local population with the multinational mission team goes both ways, with irreversible effects on both sides. Moreover, the barriers imposed by the socio-mental differences of the MINUSTAH mission members are themselves a consistent debate topic, in terms of intercultural communication.

Etymologically, the term "culture" comes from Latin (*cultura*) and refers to the ensemble of operations of cultivating the soil. Subsequently, its meaning was enriched with the meaning of developing certain spiritual faculties through appropriate intellectual exercises. According to the *le Nouveau Petit Robert* dictionary, nowadays the term designates "the entirety of a nation's or civilization's intellectual aspects" [7]. Culture is therefore reflected in a society's social organization method and development, in the mundane practices which make its members feel they belong to a certain group, individualizing themselves by comparison to other similarly established groups.

Throughout the history of mankind, all societies have had a certain type of culture, more or less developed, which individualized them and conferred them their uniqueness, in comparison with other societies or nations. Therefore, globalization does not cancel our cultural diversity; not only that, but it enhances it and it determines a reevaluation of one's identity with the alterity and/or with the diversity.

Regarding the linguistic aspect involved by the participation in a mission such as MINUSTAH, at least three areas of discussion are required: the challenge (if not even the difficulty) to transpose in another linguistic universe, a requirement which must be met by all the personnel dispatched to Haiti; on the other hand, the multilingual communication within the mission and, last but not least, the relationship with the local population, that speaks Creole, a mixed linguistic system resulting from the interaction between the French and indigenous languages, which has become the mother tongue of the local community [8].

Starting from the idea that it is not the linguistic sign, but the cultural space that creates the major difficulties of transposing from one language to another, communication in another language is a complex human experience of relating to the otherness and, simultaneously, of an ontologically scheduled attempt to satisfy the natural need of the human being to communicate. The ideal of obtaining a total equivalence is an illusion, because languages are structurally different and one can rarely find a perfect synonymy, even within the same language. The alternatives the speaker has come from the very dual essence of the language: it is, on the one hand, a code composed of elements which, combined, convey a semantic meaning and, moreover, it is a communication system which uses this code to create signals with communicational value. The person who expresses themselves in another language is thus able to look for formal equivalences (at the level of words) or functional equivalences (at the level of meanings). All these occur in the broader context of human communication, according to Roman Jakobson's schematic model of the communication situation, while bearing in mind that in this situation, in the communication channel either a third entity emerges (the translator) which mediates the message between the transmitter and receiver, or the transmitter translates himself, in a communicational effort that may produce confusion, distortions and, sometimes, very serious intercultural misunderstandings. After Babel, when God, in his wrath, mixed the tongues of men [9], they remained with the nostalgia of the primary unity and with the consciousness of the separation, of the difference from one another [10]. "He who speaks in a foreign language does not speak to men, but to God" [11], says the biblical text; therefore, the translator's status is a fortunate one, precisely because of the determined ontological importance of interpersonal communication. A clarification is necessary: even for those who possess a highly developed francophone linguistic portfolio, the interaction with the language stereotypes of the French speaking Haitians (even though French is the official language, not all the population speaks it!) can, at the very least, be disconcerting and surprising.

Since, in a multinational and intercultural context such as the MINUSTAH, it is not just about mechanically transposing a language into another language, but about transposing the culture, conceptions and life paradigms into a totally new language, we should note, at least briefly, the importance of the socio-cultural context in the communication cycle (also including here the religious dimension, the traditions, culinary customs, the tolerance or rejection of certain gestures/behavioral patterns/ideas etc.). It is precisely on this premises that the UN's implication in Haiti was, for a good while, perceived as an invasive element by the local population, an element to which a hostile resistance was absolutely justified. The mission's contact and dialogue with the Haitian soldiers was often difficult, since they refused to accept the legitimacy of the mission in their country, especially after the withdrawal of the Harlan County vessel, in October 1993 [12].

Even now, the perception of foreigners as a disruptive element of the traditional culture and ancestral civilization is obvious, especially because of the economic gap that separates the locals from the team members of the UN's structures or other organizations active on Haitian land. Taking pictures can be a real challenge and can be often associated with a serious offense, oftentimes attracting strong reactions against those seen as fans of humiliating souvenirs, regarding the local population. (we are referring here especially to photos or videos depicting the poverty, human and material misery, the destruction caused by the earthquake, the neglect or the street conflicts etc.)

Given the field observations and the theoretical references of the intercultural communication, we can try to draw some conclusions by combining elements of historiography with the major principles of communication: we can certainly not overlap the history of intercultural interactions with the idea of a continuous rejection or persecution. The idea that the daily interactions of the

natives with the foreigners were contaminated by negativity is not substantiated. The local population does not exhibit generalized communicational anxiety, despite some cases of marginalization or exclusion.

Except for some specific cases or contexts, the willingness for intercultural communication and the acceptance level of the Haitian population towards the multinational community, inserted via the UN device, has been maintained in normal parameters, crisis situations therefore demonstrating that the human side prevails over other existential dimensions. The keys that opened the sometimes closed paths of interpersonal relations are, on the one hand, the dignified and sometimes risky acknowledgement of the identity, and on the other hand the sometimes difficult acceptance of alterity.

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# INTERNET USE AMONG HIGH SCHOOL STUDENTS FROM IASI MUNICIPALITY. SOCIOLOGICAL PERSPECTIVES.

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## Abstract

*The main category of the population which is massively exposed to technological progress is the youth, who have a large and steady access to new digital trends, as evidenced by national and European Union's statistics (National Institute of Statistics from Romania, Eurostat). In this context, nowadays, the role of culture has acquired complexity along with the deep transformations that society has known in decades, both technologically and economically.*

*The central topic of this sociological research, around which is elaborated this article, was the study of cultural consumption and production behavior of upper secondary school students from Iasi Municipality. The aim of this paper is to emphasize the main uses of Internet among teenagers from Iasi Municipality. The survey revealed that 92 percent of the teenagers questioned have constant access to a personal computer or laptop. Also, 82 percent of the respondents mentioned that have a smartphone, and 44 percent possess a tablet. However, 41 percent are surfing the Internet for more than 4 hours per day, while 35 percent assign for this activity between 2 and 4 hours daily. Starting from these preliminary assumptions disclosed through the field study, it is important to identify – in a short manner – specific patterns of digital behavior of upper secondary school students from Iasi Municipality and the purposes of using the Internet (for cultural, educational, leisure, entertainment and informational and so). Moreover, will be highlighted the main digital behavior variations depending on some relevant socio-demographic variables of the study. In conclusion, among the high-school students from Iasi Municipality, the Internet is a top source of entertainment. For youngsters, the Internet has become a tool which enables instant access to digital assets, supporting also the socialization. On the other hand, the proportion of young people who are using the Internet to gather information on personal development opportunities (jobs, volunteering programs, cultural events, etc.) is extremely low.*

*The data set have been obtained following a quantitative field survey, conducted in five upper secondary schools from Iasi Municipality: “Dimitrie Cantemir” Theoretical High-School, “Costache Negruzzi” High-School, “Gheorghe Asachi” Technical College High-School and “Petru Poni” Technical College High-School and Economic-Administrative College High-School. Data collection was carried out within December 2014 – March 2015. The sample size included a number of 815 pupils, from from 9<sup>th</sup> to 12<sup>th</sup> grade it was structured according to some socio-demographic characteristics which are significant for this field of study: age, gender, the main specializations of the high schools and others. Thus, I desired to cover a heterogeneous group of respondents with different social backgrounds and educational profiles and interests, focused on theoretical, technical, technological, professional and also economic pathways. The analysis is mainly descriptive, and is one of the very few of its kind conducted in Iasi Municipality.*

**Keywords:** *Internet, youth, digital, online, behavior, pupils, culture, multimedia.*

## 1. Introduction

Nowadays, the ongoing progress of the Internet has an enormous impact on people – in general, and on youth – in particular. In this context, the social and human sciences researchers are interested to analyze how the massive development of the Internet and technology is shaping the human behavior. One of the basic concepts of this article is „digital native”, which was firstly introduced by Marc Prensky [1] in an article structured in two parts, entitled „Digital Natives, Digital Immigrants”. Prensky emphasized that in the new millennium, in the United States of America had started to assert a generation of young people, born between 1980 and 1990, who are practically growing up with the new technologies („digital natives”). Alongside these young people, we find their parents and teachers („digital immigrants”), individuals who had no early access to technological huge boost. Between these two categories which are representing in fact two different kinds of generations – digital natives and digital immigrants – it can be easily discovered a gap, especially when we are talking about the educational issues (implications and challenges for an optimal adjustment of the teaching curriculum, introducing in a proper and systematic manner the Information and Communications Technology – I.C.T. among learning tools, etc.) [2]. Furthermore, Prensky [3] argued that teenagers tend to spend more and more hours for online and digital activities (playing games, surfing on the Internet, multimedia, etc.) and for watching TV, neglecting some various traditional cultural practices such as reading books. Nevertheless, E. J. Helsper and R. Enyon [4] underlined that this appellative is often used in an „uncritical” and extremely general manner. In this context, it is emphasized the importance that should be given to qualitative studies which can help us to better understand, in a comprehensible manner, the motivations and expectations of young people regarding education and learning. As opposed to qualitative approach of this social phenomenon, the quantitative surveys has a tendency to homogenize opinions of young people who are frequently using the new technologies and the Internet. Actually, Sue Benett, Karl Maton and Lisa Kervin argued that „young people's relationships with technology is much more complex than the digital native characterization suggests” [5]. Thus, the adaptation of learning tools to the digital age should be carried out gradually, by means of a thorough consultation of the main stakeholders involved in the educational process (students, teachers, parents, policy makers, etc.). Also, Tom Boonaert and Nicole Vettenburg [6] are among the researchers who call for identifying the different visions that young people have on digitization, regardless of their own social background. On the other hand, in a „position paper” of E.C.D.L. Foundation [7] has been pointed out that the digital abilities of youngsters (use of social media, watching online movies, playing games, etc.) are not in a complete agreement with the labor market requirements. The fact that young people benefit from a large exposure to technological innovations does not automatically mean they have the required skills to use them in as optimal as possible.

### 1.1. Statistical frames about internet and computer uses among young people

In the Eurostat report entitled „Being young in Europe Today – 2015 edition” [8], it is mentioned the fact that in 2014, in European Union states, 80% of young people aged between 16 and 29 are frequently using computers and the Internet. This statistical book, shows that Romania can be found among the nations (together with Poland, Portugal, Lithuania, Greece, Slovenia, Bulgaria, Latvia, Czech Republic, Cyprus and Croatia) where there is a major disparity between the number of young people who are daily using a computer and the rest of the population, the percentage difference between the two groups of individuals being more than 25%. In terms of Internet use, according to Eurostat, Romania is on the last position in the European Union (E.U. - 28), including the

age group 16-19 years which is recorded at European level as the biggest Internet consumer. Overall, the trend of the number of Internet users and computers is constantly increasing, in some countries such as Iceland, the Netherlands, Sweden and United Kingdom almost reaching saturation. Incidentally, in Romania the percentage of people who is daily using the Internet has doubled between 2008 and 2014 (from 18 percentage points to 32 percentage points). Along with statistics on use rates of computers and Internet among young people, the Eurostat study notes that a challenge for the future public policies will be to identify ways of counteracting the online dangers that may be exposed youth (invasion of privacy, cyberbullying, exposure to inappropriate content, etc.) and safe use of I. C. T that would bring social and economic benefits to individuals.

According to data sets provided by the Romanian National Institute of Statistics [9], in 2014 54.4% of Romanian households had Internet connection, the vast majority (70.9%) being from urban areas. In the North-East region, the percentage concerning access to a computer was 6 points lower than the national average (48.3%). By age groups, the N. I. S. report marks that with increasing age there is a decrease in the rate of computer use. Thus, among the total population aged between 16 and 24 years, 90.3% used at least once a computer. Instead, in the age range 45-54 years, the percentage is 59.1% with 20 percentage points higher compared with the age segment 55-64 years. In conclusion, the N. I. S. statistical research shows - broadly in line with Eurostat - that there is a major gap in using new technology among residents in urban and rural areas and between young and elderly.

**2. Case study: Internet use among high-school students from Iasi Municipality**

In recent years in Romania have begun to be developed local studies that aim to identify and analyze specific the digital behavior of young people. The analysis included in this article seeks a to highlight the main use of the Internet among teenagers in five high schools in Iasi.

**2.1. Methodology**

The quantitative study which I am going to present in this paper was carried out within December 2014 and March 2015. The sociological research was conducted in five representatives’ upper secondary schools from Iasi Municipality - “Dimitrie Cantemir” Theoretical High-School, “Costache Negruzzi” High-School, “Gheorghe Asachi” Technical College High-School and “Petru Poni” Technical College High-School and Economic-Administrative College High-School. The sample size (N) is 815 high-school students from 9<sup>th</sup> to 12<sup>th</sup> grade and - in order to collect the results - I used a paper questionnaire which was auto-administrated during the classes. Moreover, I applied a statistical step of two, so only a half of the students who were at that time present in the classroom had participated to my survey. The responses were anonymous and the participation at this sociological research was voluntary. Nevertheless, almost none of the young people surveyed did not refused to answer. By establishing the basic filling criteria previously mentioned, I tried to limit – on one side – the social desirability bias (which could occur in the presence of a field operator, if I had used face-to-face questionnaire administration) and – on the other side – the mutual influence of opinions among colleagues placed in the same desk. The criteria used in constructing the sample were: age and gender of the subjects, the main specializations of the high schools, educational program and grade. Thus, I desired to cover a heterogeneous group of respondents with different social backgrounds and educational profiles and interests, focused on theoretical, technical, technological, professional and also economic pathways. The analysis is mainly descriptive, and is one of the very few of its kind conducted in Iasi Municipality.

Gender		Grade	
Male	47%	9 <sup>th</sup> -10 <sup>th</sup>	53%
Female	53%	11 <sup>th</sup> -12 <sup>th</sup>	47%

Table 7 Sample design (N=815)

**2.2. Objectives of the empirical research**

The central topic of the sociological research, around which is elaborated this article, was the study of cultural consumption and production behavior of upper secondary school students from Iasi Municipality. The general objectives of analysis that I will develop throughout this research paper are: (1) to identify the main uses of Internet among upper secondary school students from Iasi Municipality; (2) to outline several preliminary types of Internet users among teenagers, starting from their socio-demographical characteristics.

**2.3. Preliminary assumptions of the data analysis**

The survey revealed that 92 percent of the teenagers questioned have constant access to a personal computer or laptop. Also, 82 percent of the respondents mentioned that have a smartphone, and 44 percent possess a tablet. However, 41 percent are surfing the Internet for more than 4 hours per day, while 35 percent assign for this activity between 2 and 4 hours daily. Starting from these preliminary assumptions disclosed through the field study, it is important to identify – in a short manner – specific patterns of digital behavior of upper secondary school students from Iasi Municipality and the purposes of using the Internet (for cultural, educational, leisure, entertainment and informational and so).

**2.4. Data analysis**

Data analysis begins with a brief overview concerning the main use of the Internet among the teenagers who had been interviewed. The subjects were asked to respond to a multiple-choice question, so they had the opportunity to select none, one or more choices from a list of eighteen `closed` items. Finally, they had the possibility to mention - in an `open-ended` item - other types of Internet use.

<b>Internet use</b>	<b>%</b>	<b>Internet use</b>	<b>%</b>
Chat with my friends	83	E-mail services	29
Search information for school classes	78	Meet (make) new friends	29
Download music	72	Read newspapers/ news	22
Use social networks	72	Listen to online radio/ watch online TV	19
Watch clips on YouTube	72	Search information about cultural events	17
Download movies	47	Visit discussion forums	16
Play online games	39	Search jobs for myself	16
Download games	38	Search volunteering opportunities	16
Post my own creations	35	Sell/ buy goods or services	15

**Table 8 Internet use among high-school students from Iasi Municipality (N=815)**

The hierarchy emphasize that the Internet is mostly used for the socialization process and also for entertainment activities. 83% of the high-school students mentioned they are communicating with their friends, while 72% are using social networks frequently. Another finding of the survey is that most youth are not interested to search informations about jobs or volunteering opportunities for themselves. Moreover, only 22% of the respondents pointed out they are reading newspapers/ news on the Internet, and 19% are listening to online radio or are watching online TV. One of six interviewed teenagers is regularly searching for information about cultural events. Otherwise, seven of ten respondents indicated they use the Internet for downloading music and watching clips on YouTube. Almost a half of the subjects are downloading movies, and four of ten high-school students are downloading games or are playing online games. Data also show that no less than three of ten teenagers are using the Internet for meeting (making) new friends. However, the percentage (29%) is the same with the category of youth who said they are using e-mail services.

<b>Internet use</b>	<b>Gender</b>		<b>Difference (%)</b>
	<b>Boys (%) N=379</b>	<b>Girls (%) N=436</b>	
Search information for school classes	68	86	-18
Search volunteering opportunities	8	23	-15
Meet (make) new friends	34	24	10
Download movies	53	43	10
Watch clips on YouTube	78	68	10
Sell/ buy goods or services	21	9	12
Visit discussion forums	23	10	13
Download games	63	17	46
Play online games	63	17	46

**Table 9 Internet use among high-school students from Iasi Municipality- depending on gender**

As the table above points out (Table 3), in terms of gender the study revealed that girls are more likely to use the Internet for searching helpful information for school classes (18% difference) or for seeking volunteering opportunities (15%). By contrast, the boys are more prone than girls to: meet (make) new friends (10% difference), download movies (10%), watch clips on YouTube (10%), sell/ buy goods or services (12%), visit discussion forums (13%), download games (46%) and play online games (46%).

<b>Internet use</b>	<b>Daily time spent on Internet</b>		
	<b>Under 2h (%) N=166</b>	<b>2h-4h (%) N=284</b>	<b>Over 4h (%) N=330</b>
Play online games	18	41	49
Watch clips on YouTube	55	73	81
Chat with my friends	68	86	89
Meet (make) new friends	20	28	36
Post my own creations	25	33	41
Download movies	38	45	54
Download games	32	35	47
Download music	64	72	76
Listen to online radio/ watch online TV	11	20	22
Sell/ buy goods or services	8	16	18
Search information for school classes	84	80	72

**Table 10 Internet use among high-school students from Iasi Municipality- depending on their daily time spent on Internet**

As we can observe in the table above (Table 4), the pupils who are spending over 4 hours per day surfing the Internet, tend to play online games, watch clips on YouTube, chat with their friends, download movies, games and music, etc. in a higher extent compared to the teenagers who are spending less time on the Internet. 84% of the young people who are using the Internet at most 2 hours per day declared that they are searching online information for school classes. Nonetheless, only 72% of those youngsters who admitted they are spending over 4 hours per day surfing the Internet mentioned the same thing. Thus, the analysis highlights a 12 percentage points difference between those two categories of respondents previous mentioned.

Internet use	Grades		Difference (%)
	9 <sup>th</sup> -10 <sup>th</sup> (%) N=434	11 <sup>th</sup> -12 <sup>th</sup> (%) N=381	
Meet (make) new friends	34	23	11
Play online games	44	34	10
Search jobs for myself	10	23	-13

Table 11 Internet use among high-school students from Iasi Municipality- depending on their grades

One of three pupils who is in 9<sup>th</sup> or 10<sup>th</sup> grade mentioned that he use the Internet for meeting (making) new friends. In comparison, the percentage of subjects from 11<sup>th</sup> and 12<sup>th</sup> grades who pointed out the same response is much lower (23%). Also, the teenagers who belong to 9<sup>th</sup> or 10<sup>th</sup> grade declared - in a greater extent as compared to their older high-school colleagues - that are playing online games.

### 3. Conclusion

In conclusion, among the high-school students from Iasi Municipality, the Internet is a top source of entertainment. For youngsters, the Internet has become a tool which enables instant access to digital assets, supporting also the socialization. On the other hand, the proportion of young people who are using the Internet to gather information on personal development opportunities (jobs, volunteering programs, cultural events, etc.) is extremely low. In other words, the Internet is not used by young people in order to develop their socio-professional future (looking for appropriate jobs considering their age, volunteering opportunities, information on cultural events that could participate, posting their own creations, etc.). Beside these considerations, „the informational function” of the Internet is not exploited enough by youth and only a fifth confessed that commonly use the Internet to read newspapers and news. About the same percentage is composed of subjects who access the Internet for listening to online radio stations or for watching TV streams. Making a connection with the central theme of my PhD thesis, it can be seen that the percentage of young people who are looking for new information about cultural events where they might directly participate is 1.7 times lower compared with those who claim that are using the internet to meet new friends in the virtual environment. Another important conclusion of the survey is that most of the young interviewed are not interested to join the online discussion forums.

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## PERSONAL UTILITY AND GRANDPARENTS' EDUCATIONAL ROLE

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### Abstract

*In old age, personal utility in modern times and in many cultures is often questioned due an individual's withdrawal from the professional environment. But one of the activities in which old persons are frequently involved and from which they gain a sense of utility is related to their educational role in their grandchildren's life. In this context, we verified the differences in educational roles exercised by grandparents, taking into account their sense of utility and educational level. We also analysed the relationship between educational role and sense of utility. For this purpose, 212 grandparents participated in this study. The findings indicate that grandparents' positive and negative educational roles are associated with grandparents' sense of utility. The results also suggest significant differences in educational roles between grandparents with high and low levels of utility and also significant differences in their sense of utility, taking into account grandparents' level of education.*

**Keywords:** *utility; grandparents' level of education; educational role.*

### Introduction

Advancing through age is associated with benefits but also with many challenges. Retirement may be one of these challenges and this is mainly because today's society focuses on equating active professional roles and personal utility at the expense of other personal features (Bentley, 2010; Crampton, 2009) and society focuses on defining old age in close relation with retirement ("Definition of an older or elderly person", World Health Organization [WHO]). The implications of this focus translates into the perception of older adults as a burden and obstacle to social and economic welfare (Crampton, 2009) and their personal utility may be questioned. Society's perception of older adults' utility is not the only challenge for an older adult; it is also how s/he manages to replace professional activities, which defined its utility for half of the day during active professional life (Bianchi, 2010; Gauthier & Smeeding, 2001; Ramey & Francis, 2009) since retirement is associated with a decrease in activity involvement (Pushkar et al., 2010).

An older adult defines his/her own utility by engaging in three types of activities: paid work (in much smaller proportion), voluntary activities and activities within the family (Bianchi, 2010; Morrow-Howell, Hinterlong & Sherraden, 2001; Papalia, Olds & Feldman, 2010). Activities related to the family in which older persons can satisfy their sense of utility are often associated with accessing an educational role in their grandchildren's life. Grandchildren's education and care are widespread in many countries and cultures (Buchanan, Attar-Schwartz, Tan, Flour & Griggs, 2008; Chanfreau et al., 2011; Ellis & Simmons, 2014; Fuller-Thomson & Minkler, 2001; Glaser, Price, Montserrat, Di Gessa & Tinker, 2013; Glaser et al., 2010; Guzman, 2004; Speight et al., 2009; Viguer, Meléndez, Valencia, Cantero, & Navarro, 2010). Family contact and family-related activities are valued at older age at the expense of others and are related to positive feelings and gratifying outcomes (Carstensen, Isaacowitz, & Charles, 1999; Carstensen Fung & Charles, 2003). Grandparents' sense of utility stemming from involvement in their grandchildren's education and care activities is valued not only because it fills the gap left by the withdrawal from professional useful activities but also because of its emotional benefits. For instance, 40% of determinants of subjective wellbeing are related to aspects associated with a sense of utility from different activities at any age (Lyubomirsky, Sheldon & Schkade, 2005) but personal utility during older adulthood is associated with positive feelings (Li, Xu, Chi & Gou, 2013; Menec, 2003; Pushkar et al., 2010; Tadic, Oerlemans, Bakker & Veenhoven, 2012; Willigen, 2000) and the reduction of depressive symptoms (Wahrendorf, Ribet, Zins & Siegrist, 2008) while grandparents' utility in educational roles is associated with life satisfaction (Bullock, 2004) and a reduction in loneliness (Wellard, 2012). Meanwhile, a lack of utility is associated with negative outcomes for older adults (Gruenwald, Karlamangla, Greendale, Singer & Seeman, 2007; Menec, 2003).

Due to the frequency of grandparents' educational roles in their grandchildren's lives and due to the implications of utility in general and utility in the family, I believe that there are differences between grandparents with a higher sense of utility and those with a lower sense of utility when it comes to using positive and negative elements in their educational roles. There are no studies that make direct reference to the relationship between a sense of utility and educational roles.

Another variable that may be associated with differences in grandparents' educational roles is grandparents' education level. In the parents' case negative educational behaviours (maltreatment) are more frequent and accepted by low educated parents (Papalia et al., 2010; Hasanvand, Khaledian & Merati, 2012; Qasema, Mustafaa, Kazem & Shaha, 1998) but there are studies that emphasise no relationship between adult education level and corporal punishment and only a small significant positive correlation between education level and positive parenting (Gámez-Guadix, Straus, Carrobes, Muñoz-Rivas & Almendros, 2010).

Education level may also have an impact on a sense of utility. This is because older adults with high levels of education perform different activities that define their utility. People with a high level of education have relatively equal percentages of activities related to family, work and entertainment/leisure (Kelly, 1987) and tend to not retire from professional life so fast (Kiefer, Summer & Shire, 2001; Kim & Moen, 2001; Parnes & Sommers, 1994).

### Objectives and hypothesis

The purpose of this study is to document quantitatively the differences between the educational roles of grandparents with different levels of education while taking into account grandparents' sense of utility. I will also emphasise the relationship between grandparents' educational roles and their sense of utility. Based on the theoretical and empirical evidence presented above, we hypothesise that:

1. Grandparents with a higher education level (university degree) are evaluated by grandchildren but also self-evaluate differently when compared to those with a lower education level (middle school and high school education);
2. Grandparents with a higher sense of utility are evaluated by grandchildren but also self-evaluate differently when compared to those with a lower sense of utility; and
3. There is a significant association between grandparents' educational role and their sense of utility.

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**Method**

**Participants**

The sample consisted of 212 grandparent/grandchild dyads (N=424 participants). Thus, 84 (39.6%) of grandparents had a middle-school education, 99 had a high-school education (46.69%), 30 had a university degree (14.15%) and six had a postgraduate degree (2.83%). Grandparents were aged 65-90 years (M=68.6, SD=3.7) and grandchildren were aged from seven to 11 years. Participants were from Mureş County. Only grandparents who declared that they spent at least eight hours weekly with their grandchildren were included in the study sample.

**Procedure**

Grandparents completed a set of questionnaires sent to their homes and grandchildren were interviewed individually by the researcher.

**Measures**

*Sense of utility*

Sense of utility was assessed using the *Loyola Generativity Scale* (LGS) developed by McAdams and Aubin (1992, 1998). The participants had to indicate how often each of the 20 statements applied to them using a four-point scale ranging from zero (“never”) to three (“very often”). Each of the 20 statements was designed to examine the extent to which an adult assesses his/her own involvement/impact and utility in other people’s life/society (“I have made and created things that have had an impact on other people”; “Others would say that I have made unique contributions to society”; “I think that I will be remembered for a long time after I die”). The final score was the sum of the responses to the 20 items (six of them were reverse scored). The internal consistency for the scale was  $\alpha=.90$ .

*Educational role of grandparents*

The educational roles (positive educational role [PER] and negative educational role [NER]) of the grandparents (self-evaluated and evaluated by grandchildren) were assessed using adapted forms of the *Parent Perception Inventory* (PPI) developed by Hazzard, Christensen and Margolin (1983). The inventory includes two subscales for the negative and positive behaviours for each grandparent separately. The participants had to indicate how often they showed certain negative behaviours and certain positive behaviours (nine types of behaviours for each) using a five-point scale ranging from zero (“never”) to four (“often”). The negative behaviours were related to privilege removal, criticism, command, physical punishment, yelling, threatening, time-out, nagging and ignoring. The positive behaviours were related to positive reinforcement, comfort, talk-time, involvement in decision-making, time together, positive evaluation, offering independence, assistance and non-verbal affection. The final score for each subscale was the sum of the responses to the nine items.

The internal consistency for the self-evaluated PER was  $\alpha=.90$ . Self-evaluated NER reached  $\alpha=.83$ . The internal consistency for grandparents’ positive behaviours as assessed by grandchildren was  $\alpha=.83$  and, for grandparents’ negative behaviours as assessed by children,  $\alpha=.88$ .

*Demographic questions*

Demographic information was obtained from self-reported responses for questions asking about level of education (with four possible answers: middle-school and less than middle-school education; high-school education; university degree and postgraduate education), age, gender and residence information.

**Results**

The results indicate that grandparents’ PER evaluated by grandchildren was positively associated with grandparents’ sense of utility ( $r=.27, p<0.001$ ). This implies that those grandparents who were evaluated by grandchildren as using more positive elements in their educational role perceive themselves as more useful as more useful. The results indicate similar positive associations when the PER of grandparents was self-evaluated ( $r=.29, p<0.001$ ).

The results also indicate that there was positive association between NER and sense of utility: this can be found when the educational role was self-evaluated ( $r=.128, p<0.05$ ) and when it was evaluated by grandchildren ( $r=.14, p<0.05$ ). This means that grandparents who self-evaluate and are evaluated in their educational role as using more negative elements also had a higher sense of utility. The results are presented in Table 1.

Variables	1	2	3	4	5
1.NER_B	1				
2.PER_B	.26**	1			
3.NER_N	.57**	.30**	1		
4.PER_N	.28**	.48**	.16*	1	
5. UT	.29**	.29**	.14 *	.27**	1

**Table 1: Correlation coefficients for educational roles of grandparents and their sense of utility.**

Notes.

\*\* $p<.001$ ; \* $p<.05$ . NER\_B-negative educational role of grandparents, self-evaluated; PER\_B-positive educational role of grandparents, self-evaluated; NER\_N-negative educational role of grandparents, evaluated by grandchildren; PER\_N-positive educational role of grandparents, evaluated by grandchildren; UT-sense of utility.

Before performing the ANOVA statistical procedures, all scores related to the scales for both PER, NER and LGS were normalised, taking into account the results of the Kolmogorov-Smirnov tests of normality, which revealed that  $p<.05$  for most variables.

ANOVA one-way analysis of variance was conducted to examine the effect of grandparents’ education level on the educational role exercised on their grandchildren. The analysis of variance took into account just three education levels due to the fact that the fourth level (postgraduate level) included only six participants (N=196). The results for self-evaluated PER revealed the existence of a  $F=7.19; p<0.001$ . Post-hoc analysis revealed that there were significant differences between the grandparents with a

middle-school education ( $M=-.15$ ;  $SD=.99$ ) and those with a university education ( $M=.48$ ;  $SD=1.01$ ) and between grandparents with a high-school education ( $M=-.10$ ;  $SD=.87$ ) and those with a university education. The same trend was maintained when PER was evaluated by the grandchildren ( $F=8.59$ ;  $p<0.001$ ): when grandchildren evaluated the PER, they evaluated differently the grandparents with a university education ( $M=.50$ ;  $SD=.83$ ) and those with a middle-school education ( $M=-.18$ ;  $SD=1.02$ ) and a high-school education ( $M=-.11$ ;  $SD=.84$ ).

When it comes to self-evaluated NER, the results indicate significant differences ( $F=8.77$ ;  $p<0.001$ ) between grandparents with different education levels. Differences were between grandparents with a middle-school education ( $M=-.04$ ;  $SD=.87$ ) and those with a university education ( $M=.56$ ;  $SD=.93$ ) and between grandparents with a high-school education ( $M=-.21$ ;  $SD=1.00$ ) and those with a university education.

The same trend was maintained when NER was evaluated by grandchildren, with significant differences ( $F=10.03$ ;  $p<0.001$ ) between grandparents with a university education ( $M=.57$ ;  $SD=.97$ ) and those with a high-school education ( $M=-.04$ ;  $SD=.95$ ) and a middle-school education ( $M=-.20$ ;  $SD=.83$ ).

One-way ANOVA was performed to verify the differences between sense of utility, taking into account education level. The analysis revealed that there were significant differences between grandparents with different education levels ( $F=58.97$ ;  $p<0.001$ ). Differences in sense of utility were between grandparents with a middle-school education ( $M=-.67$ ;  $SD=.79$ ), a high-school education ( $M=.17$ ;  $SD=.62$ ) and a university education ( $M=.91$ ;  $SD=.90$ ).

	Middle school		High school		University	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PER_B	-.15	.99	-.10	.87	.48	1.01
NER_B	-.04	.87	-.21	1.00	.56	.93
PER_N	-.18	1.02	-.11	.84	.50	.83
NER_N	-.20	.83	-.04	.95	.57	.97
UT	-.67	.79	.17	.62	.91	.90

**Table 2: Means and standard deviation of educational roles and sense of utility, taking into account education level of grandparents.**

Notes:

*NER\_B*-negative educational role of grandparents, self-evaluated; *PER\_B*-positive educational role of grandparents, self-evaluated; *NER\_N*-negative educational role of grandparents, evaluated by grandchildren; *PER\_N*-positive educational role of grandparents, evaluated by grandchildren; *UT*-sense of utility.

## Discussion

This study aims to understand the relationship between grandparents' sense of utility and grandparents' educational role and to understand the differences in grandparents' educational role when taking into account sense of utility and grandparents' level of education. Sense of utility was taken into account due to the fact that utility at old age may be questioned because of retirement (Bentley, 2010; Crampton, 2009) and because sense of utility has strong implications for an individual's wellbeing (Lyubomirsky et al., 2005).

This study revealed that those grandparents who are perceived by grandchildren or by themselves as exercising their educational role with more positive elements also feel more useful. These conclusions help complete the studies that have identified associations between utility and positive elements at emotional levels (Li et al., 2013; Menec, 2003; Pushkar et al., 2010; Tadic et al., 2012; Wahrendorf et al., 2008; Willigen, 2000). The results show that there are benefits to grandparent/grandchild interaction in terms of: reward; emotional comfort; communication; involvement in decision-making; time spent with the grandchild; the grandchild's positive assessment; and conferring independence, care and nonverbal affection. But the same trend is maintained for grandparents' negative educational role, which means that grandparents who perceive themselves as more useful also use more criticism, give more orders, corporal punishments, threats and timeouts and ignore the child more often. This conclusion can be supported by the fact that people who have a sense of utility engage in more activities. Meanwhile, the frequency of an activity may increase the opportunities for interaction that can favour the display of positive elements as well as negative ones. For example, mothers spend more time with children than fathers (Bianchi, 2010) but they also use more positive and more negative elements than fathers (Gámez-Guadix et al., 2010).

This study also revealed that grandparents with a higher education level have a greater sense of utility than those with a lower education level. This may be related to the fact that higher educated persons have access to a broader category of activities (Papalia et al., 2010) that may help increase sense of utility but they also engage in more diverse activities (Kelly, 1987) that may be related to an increase in a sense of utility.

Another conclusion of this study is that grandparents who are more educated use more positive elements in their educational role (from both the grandchildren's perspective and from the grandparents' perspective). These findings are in line with the results of Gámez-Guadix et al. (2010), which revealed an association between parents' education level and positive parenting practices. The results show a similar conclusion when it comes to negative educational roles: higher educated grandparents use more negative educational elements in their grandchildren's education. This is not in line with the studies that claim that low educated parents use more negative elements in their educational roles (Papalia et al., 2010; Hasanvand et al., 2012; Qasema et al., 1998). A possible explanation can be related to the fact that the studies mentioned above take into account only corporal punishment, a single negative element, while this study considered nine behaviours.

This study has some limitations. One limitation of the present study concerns the generalisation of the findings due to the fact that there were a small number of participants in our sample. The results are mostly applicable to just this sample and our hypotheses need replication for greater confidence in these results. Another limitation is related to the fact that some variables were measured using self-reporting.

## Conclusion

In conclusion, higher educated grandparents use more positive behaviours but also more negative behaviours in their educational role compared to lower educated grandparents. Also, higher educated grandparents have a greater sense of utility than those with lower education levels.

Another conclusion reveals that those grandparents who are perceived by grandchildren or by themselves as exercising their educational role with more positive but also with more negative elements also feel more useful.

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## HISTORICAL AND METAPHORICAL REPRESENTATIONS OF SCIENCES AS MYTH. AN OUTLINE.

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### Abstract

The research will evolve around the notion of imagination, following the tradition established by Bachelard, Durand and Wunenburger, in an attempt to capture the system of correspondences and dissonances of the representations of sciences, as portrayed by mass-media, in two states known for their historical cultural affinity (Romania and France). While assuming the intrinsic dynamics of the notion of imaginary (as it is used in French literature – *l'imaginaire*, since English seems to lack a specific notion in the field), we aim to capture both the **petrified and 'permanent' part of these representations** (Boia, 2000), the functional stereotypes which represent the hard core of the scientific imaginary, as well as **the areas permeable to transformations and, especially, the effects they generate on fantasies, clichés, and prejudices about sciences impregnated in the collective imaginary**. This research aims to investigate, with the methodological tools provided by social sciences and, in particular, those of the communication sciences, the scientific imagery and its dynamics over the six decades (1945-2010) as it was shaped by the remarkable technical and social developments (the ideological and national reconfiguration after 1945, the development of mass media, the re-democratization of South-Eastern Europe, the expansion of the use of ICT and the emergence of new social classes: digital-literate / illiterate, digital-native/ immigrant).

**Keywords:** *imagination; science; communication; scientific imaginary; archetypes; mithemes.*

### Introduction

From the view of the communication sciences, the relationship between science and its public was longtime approached according to the canonical model of communication (S. Shapin, 1990): scientists are the ones that produce knowledge, they also are those that diffuse it with the intention to educate the masses, but also to legitimize the social use of science. Challenged today, the canonical model is blamed to operate too clear distinctions between science, science popularization and general perception on public (J. Gregory, S. Miller, 1998), although, in our opinion, the theory may be useful in providing primary evidence of what can be considered the effective communication of science.

A study of the British Royal Society in 2006 shows that scientists define their interaction with the public in terms of "information, explaining, promoting mutual understanding", without mentioning direct dialogue or interaction among the ways of achieving these goals. Under these circumstances, communicating sciences requires a complex perspective taking into account the active, the interactive character of the relationship between science and public. The uni-directional, canonical model must be supplemented with an interactive component, so the exchange of knowledge and skills that occurs in communicating sciences as in any act of communication to be adequately emphasized. As such, the growing interest of researchers towards the channels used to disseminate the scientific information is fully legitimate, since new media seem to rely precisely on interactivity. Although it seems easy to elucidate, the problem of choosing the optimal broadcast channel for scientific information is far from being solved. Recent studies (Princeton, 2005) shows that Internet and, in general, new media have a much lower penetration than television, for example, and an equalization is not foreseen in the next few years.

### Challenges and assumptions

The repositioning of science in society through dialogue and participation occurred in time, along with the development of mass communication technologies. In a report on the *Optimization of the public understanding of science*, U. Felt identifies four stages in the process of restructuring the relationship between the science and society. The first stage, visible at the end of 1970, called *poor approach (deficit approach)*, is sized similar to the communication model of sender-receiver. Thus, the sender was the scientist who transposes the scientific knowledge in a simplified language for an amorphous, undifferentiated and passive public. The performative stage of communicating sciences (performative character of communication of science) came amid the intensification of environmental, pacifist of feminist movements, criticizes the simplification of knowledge, proposing a "re-building of both the public and his vision of science" (U. Felt, 2004), based on the principle of the non-identity of individuals. It is thus outlined the idea of differentiated, diverse and re-active audiences. The third stage (attributing meaning), in which we can speak of a genuine process of science institutionalization and shaped since the '80s, brings into attention the public space and identify several structural segments of the public: from the careful (attentive) public, to the concerned (interested) one and the non-attentive public - which represents the majority. What is specific to this last stage is the questioning of the use of the gained knowledge and the immediate assignation of meanings to the scientific information. Finally, the last step (dialogue and participation), when science and society seem to have understood the importance of direct communication, has its critics as well. The authority of science is incriminated because, in an age of communication, it seems to play the role of a filter between knowledge and public. The research institutes are accused of secularization by seizing authority in the space of knowledge (Logan, 1991). Contrary views have advocated the acceptance of science as a knowledge provider, based on the two-steps-flow model in transmitting information.

The public perception of science balanced, in Romania - and, apparently, in other European countries as well - between a "tele-mitology", usually validated and accepted instantly, and a strong opacity against the scientific contents disseminated in public spaces in a direct manner, without mass-media. We refer here mainly to the Romanian educational system that seems unable to rally to the global scientific and technical development. Besides the general lack of interest towards the scientific knowledge among young people enrolled in the public educational system, countries in transition - as is the case of Romania - are not able to exploit their assets in research nor to make them properly known in order to create the premises of a re-turn to science. From this point of view, Romanian's case can bring important contributions to understanding the crystallization of the scientific imaginary in a space (S-E Europe) with common notes. The technological development from recent years and the growing scale of using ICT seem to be doubled in Romania - paradoxically - by a more and more fierce religiosity. In other words, we use computers and mobile phones daily, while deeply believing in God and talking about the opportunity of taking icons into schools. It must be

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envisioned here a very personal way to perceive and accept the co-existence of two otherwise divergent dimensions (the techno-social and theological dimensions), banned during the decades of communism.

At first glance, the relation between science and society in Romania developed during at least three stages: first, after the second WW (1947-1971) relied on reconstruction by industrialization (in parallel with the nationalization of industry and the collectivization of agriculture), a process carried out in collaboration with foreign specialists, the next stage (1971-1989), of Bolshevik (and, later, North Korean) inspiration, involved the specialization of our own human resources by a controlled diversification of the educational system, in the sense of the poly-technization of the system - without ensuring an appropriate framework for practice; the present stage includes a number of directions without any visible connection: on the one hand, Romania experienced a period of economic and technological progress and on the other hand the educational system seems unable to sustain this progress with adequate labor force, mainly due to a lack of cooperation and coordination between undergraduate education and university education. An excessive appetite to recover what appears to have been banned or restricted during the communist regime is still obvious. Hence, perhaps, the appetite for social and humanities faculties (the bourgeois pseudo-sciences of the communism as sociology, political science or journalism) although the labor market strongly advertises specialists in technical fields.

### Scientific background and concepts

*The imaginary* (better said, *l'imaginaire*, fr.), as a scientific concept established relatively late and claimed by most diverse areas of research (from history - with its ramifications: history of religions, history of arts, history of mentalities, history of literature - , to psychology, philosophy, anthropology, sociology, etc.), is subject to controversies in terms of methodology and thematic circumscription. The attention for the study of the concept intensified, as the image gained place within the mass communication techniques, invading society and creating a whole culture devoted to the (social) usages of images. The interest of researchers to study the concept was sympathetic with the mass-media behavior (especially television and cinema) who lately rely on the new technologies in order to represent - by tri-dimensional technical effects - fantastic scenarios with para-normal, onirical, magical, and utopian elements. The semi-god of this new popular culture is *image* and its power comes from the ability to manipulate it.

In this context, to define imagination is rather a process of operating the necessary distinctions and boundaries, than an actual description and assignation of characteristics. As Le Goff said, it seems easier to show what imaginary isn't, than what it really is. A first difficulty lies, therefore, in the confusion that reigns "in the too rich terminology of the imaginary: signs, images, symbols, allegories, emblems, archetypes, schemes, illustrations, dramatic representations, diagrams and synopsis" (Durand, 1977: 71). We will retain all over the present paper only some of the terms, as they were defined by Bachelard, Durand or Wunenburger. Thus, we will approach the imaginary as referring to "a set of productions, mental or embodied in the works, based on visual images - painting, drawing, photography - and on language - metaphor, symbol, story - forming coherent and dynamic structures revealing a symbolic in the sense of a combination of significances with its own character and figuratively" (Wunenburger, 2009). For the present study, the activity of imagination - to imagine - will be addressed mainly in terms of its creative function ("as intentionality capable of an eidetic perspective", cf Wunenburger, 2009), the memory counting only because of its reproductive function. Equally, we will emphasize the rational components of imaginary, as defined by Durand (1977: 74-75) (the archetype - as a junction point between the imaginary and the rational processes; the myth - as a dynamic system of symbols, archetypes and schemes to rationalize which turns the symbols into words and the archetypes, into ideas).

Revealing the archetypes out of the vision on science proposed by the Romanian and French media is the main objective of our research. We aim that - by analyzing the evolution of these archetypes, their possible mutual contamination and the predisposition to form distinct, overlapped or united constellations of images - to identify and describe, in the end, the history of the scientific imaginary and its coherent pluralism, in Romania and France, during 1945-2010.

Using the eight functional archetypes agreed by most researchers (1. the belief in the existence of other realities, 2. the otherness, 3. the double - the belief that human body is composed of a material and an immaterial, independent element. 4. unity 5. the update or origins or the permanence of founding myths 6. the deciphering of the future, 7. the escape - the nostalgia for the past or future; 8. the complementarity of opposites), we will try to highlight the process undertaken by the Romanian and French media to (continuously) update their symbol systems and, more important, how these archetypes are received and integrated into the consciousness of communities defined both geographically and digitally (in terms of access to information provided by different communications channels).

Another challenge of our scientific approach is to confront archetypes emerged and updated in various periods of time during 1945-2010, applying the scale of isotopic classification of images proposed by Durand (1977: 536-537). At first glance, the constellations of images that compose the scientific imaginary should enroll and act within the NOCTURNAL regime. The structuring of these images essentially depends, however, on the receiver of the representations carried by mass-media. We thus anticipate that we can isolate within the scientific imaginary both synthetic-dramatic *mithemes* (for digital-native audiences), and mystical structure (for digital-immigrant receptors). The principles that govern each of the two structures are different: on the one hand, the synthetic-dramatic *mithemes* are in relation with the principle of direct causality; on the other hand, the mystical *mithemes* assume the principle of analogy, and similarity. To what extent this diversity of the receivers (audiences) determines a diversity of images and representations of science and what are the processes helping archetypes to crystallize in this case, remains, however, to be investigated.

### Methodological tools and expected outcomes

We will address the notion of scientific imaginary **from a linguistic-iconic perspective**, focusing on the "representative and, therefore, verbalized side" of the composition of the imaginary (Wunenburger, 2009). Centering the research on discourse and discursive practices has the advantage of allowing us - beyond the identification, as such, of the functional archetypes composing the scientific imaginary - to highlight the links between these structures and the inner logic that makes a representation to be favored at the expense of another, or a meaning to be accepted over another.

Within the cinematic process of the construction of the imaginary, we can capture the logic of the configuration and prefiguration of the "clusters" of images and, as well, their indirect second meanings that often generate, at their turn, as a hypertext, new images.

Methodologically, the analysis will develop among the communities of discourse (the media discourse), as a space of action and of the construction and circulation of scientific imaginary in Romania and France. Choosing the location of the research has taken into consideration several aspects: the possibility of having direct access to texts in two languages, the possibility of

exploiting the common semantic fields of the two languages (from this perspective, the research might reveal aspects that concern the 'grammar' of the scientific imaginary). Also, the location of the research favors the use of the content analysis method, especially suitable for investigation concerning the imaginary. The discursive context determined by the texts and enounces of two countries used to communicate (socially, politically, culturally) could be significant by itself, revealing not only the plurality of voices, but, as well, as we anticipate, the correspondence, the unity of the voices. Other methods to be used are interviews (non-structured and semi-structured) with individuals representing the audiences and journalists – as the creators of the messages conveying the primary material for scientific archetypes.

To achieve some of the objectives listed above, the following steps should be undertaken:

I. to elucidate the mechanisms through which mass-media contribute to the transformation of science in social objects, from an exploratory perspective settled at the intersection of technological and social determinism, sociology, anthropology, communication sciences, psychology and history. The premise of this approach refers to the idea that any interactional social process is implying and is shaped by a specific communicative activity (A. Gorăscu, 2004). The ethnographical description of a social community - in our case, the Romanian and the French communities - in terms of science communication is thus justified and potentially explanatory in terms of highlighting the dominant communicative structures.

II. one of the expected results is the elaboration of some "maps of the scientific imaginary" (temporally and spatially scaled) based on the communicative structures actualized for communicating sciences. With the help of contrastive and typological analysis, these maps could become instruments of identification and assessment of the communicative behavior patterns and of the collective mentality. Following the classification of existing communicative structure (normative, preconfigured - rituals, routines, stereotypes, habits, styles -, and institutional) (Gorăscu, 2004), we will try to point out, for each of these structures, the specific notes and their regimes.

III. to identify the semantic fields subordinated to the notion of dissemination of science in postwar Romania and France. The popularization literature, in the formula consecrated by the communists, has completely disappeared, being replaced with erratically, occasional and unprofessional productions developed by TVs, written press or radio. Worse though is the fact that the promotion of scientific information is now determined solely by the existence of a minimum of sensationalism. Equally, public space has been invaded by pseudo-sciences such as astrology, which, through products like horoscope, became omni-present - especially in cyberspace.

IV. to develop a methodology for the identification of the constellation of images generating a scientific imaginary and, secondly, for the evaluation of the effects of the scientific archetypes composing the scientific imaginary. At this level, the analysis will take into account variables such as: the language used in the dissemination of scientific information in various types of media over the six decades; the average capacity of each of these channels to optimally reflect a particular field of science; the media practices in turning the scientific discourse into social discourse (how, when, where, why, with what results?); the effects of the monopoly of mass-communication techniques on the dissemination of scientific information (especially among rural communities). We presume the methodology could be used in assessing the efficiency of communicating science and the impact of such factors as: (1) the proximity - temporal, spatial, emotional, social (2) the prominence - of the subject, the persons involved / affected etc., (3) the diversity of sources, (4) the diversity of messages, (5) the diversity of presentations and representation, (6) the volume of information transmitted (7) the accessibility, (8) the consistency of images (9) the consistency of the archetypes and, finally, of the imaginary itself.

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**SECTION III.  
ETHICS OF COMMUNICATION SCIENCE AND THE RESPONSIBILITY OF SCIENTIST**

# THE POSTFEMINIST JOURNALISTIC DISCOURSE. ONLINE HEADLINES AND FEMALE REPRESENTATIONS

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## Abstract

*The journalistic discourse is nowadays one of the most influential discourses. Due to its exposure, media play a crucial role in the representation, evolution and development of the new feminism also. The new feminism can be read actually as a postfeminism. In recent academic literature, ‘postfeminist media texts’ are often studied and referred to. Postfeminism pleads that every woman must recognize her own personal mix of identities. Seen as response to feminism, postfeminism is quite different by its sensibility markers. This kind of sensibility is not only a backlash, but a more complex movement because of the tendency to entangle feminist and antifeminist discourses. Our first hypothesis that we will try to see in what amount confirm is that the sensibility of postfeminism is a new kind of sensibility, made of contradictions: autonomy, self-improvement, strong self-surveillance, discipline and action while their bodies are powerfully re-inscribed as sexual objects.*

*The main focus of the article is to identify the today’s women values in online media discourse. The background thesis is that postfeminist discourse is not simply a response to feminism but also a sensibility. The synergy is even more significant in popular cultural discourses where women are called upon to exercise to self-management and self-discipline, to a much greater extent than men. This call for self-management which is articulated in postfeminist popular cultural (our second hypothesis) texts such as reality make-over television shows, television fiction series and films, but also in magazines and online specialized magazines. In doing so, I chose to analyze the contingency of the terms found in Romanian online magazines dedicated to women expressing today’s women values such as: power and femininity, power and beauty, career and sex life.*

**Keywords:** *postfeminism, media discourse, self-management, sensibility.*

## 1. Feminism versus femininity. Visions of postfeminism

### 1.1 First and second wave of feminism

Used for the first time in 1895 in Great Britain (Miroiu, 2004: 58), the feminist paradigm states that women are being oppressed by men due to the unbalanced power relationships. Most theorists prefer to categorize feminism in three main waves: **equality feminism** (the first wave), **difference feminism** (the second wave) and **autonomy feminism**, which began in 1990 and continues to this day (the third wave). De Beauvoir proposed the division of feminism in two waves: modern feminism (equality feminism) between 1789 and 1950s and contemporary feminism that runs from the ‘60s until today.

Susan Faludi reminds us that **the feminist agenda** is very simple, even if there are many disputes around the term: feminism “asks that women not be forced to choose between public justice and private happiness” (Faludi, 2006: 15). The first wave feminism has succeeded to obtain a certain equal legal status for women in relation to men (Miroiu, 2004: 56), if we can talk about equality. The main focus in the first wave of feminism was on the legal status that has to be “corrected”, “modified” so that legally women were treated equally mostly in the public field and regarding political and working rights. The result of this struggle were the regulation of women’s work and the full voting rights for all women (Miroiu, 2004: 58).

“In the aftermath of World War II, the lives of women in developed countries changed dramatically. Household technology eased the burdens of homemaking, life expectancies increased dramatically” it is said in the Elinor Burkett about political and social movement study published on Britannica.com, and the growth of the service sector opened up thousands of jobs not dependent on physical strength. Despite these socioeconomic transformations, cultural attitudes (especially concerning women’s work) and legal precedents still reinforced sexual inequalities.

The **second wave** of feminism can be considered started in the moment that Simone de Beauvoir published, in France, *The Second Sex*, in 1949. It became a worldwide best seller and raised feminist consciousness by stressing that liberation for women was liberation for men too.

The main transition pointed in those times was the **transition from the equality feminism to the difference feminism**. Even if the women won their public rights, they still had to deal with inequality in their personal lives.

Second wave feminism is often critiqued for being too ‘white’, too ‘straight’, too ‘liberal’ and consequently ignoring the needs of women from marginalized, diasporic and colonized groups and cultures. **Central to second wave thought is the idea that femininity and feminism are oppositional, mutually exclusive.**

By far the most controversial wave of feminism (1980 – 1990) corresponds also with the appearance of post-feminism. Described as the feminism of a younger generation, third wave feminism was also named “the feminism of autonomy”. If the first two waves emphasized gender differences, the lower condition of woman society and privacy, the third wave points out the differences between women in different social, economic and political contexts. Third wave considers that feminism continues to be an “active and important force in contemporary society” (Budgeon, 2011: 282).

### 1.2 Postfeminism

Feminist media scholars have been writing about postfeminist culture, and labeling it as such, for at least the past twenty years. Inherent in the discourse of postfeminist culture is the indication that something has changed about feminism itself.

Postfeminism even if fundamental as notion is still viewed as a contested notion in the lexicon of feminist media studies and cultural studies. However, after nearly two decades of argument about postfeminism, there is still no agreement as to what it is, and the term is used variously and contradictorily to signal a theoretical position, a type of feminism after the second wave, or a regressive political stance.

Other authors have also supported the idea that postfeminism is a creation of multinational corporations that treat women as their territory and educate them to become Barbie dolls that can have it all: career, family, beauty, youth, sexual satisfaction – and all

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just by engaging in the consumption of the entire network of services and goods that provide such an image (Germaine Greer in Miroiu, 2004: 76).

### **1.2.1 Visions of postfeminism**

When we tried to seek out a definition for postfeminism, two additional problems have occurred: first, the difficulty of specifying with any rigour the features of postfeminism, and secondly the problems with applying current notions to any particular cultural or media analysis.

The most visible concepts in literature are (Fien, 2009) (1) a ‘political / epistemological position’ seen as a historical shift with feminist and (2) a backlash against feminism. But if we take into account what Brooks said in 1997 that “post feminism is not against feminism, it’s about feminism today” (Brooks, 1997), we have to establish that postfeminism must be situated in a contemporary context, in a “consumer culture, characterized by individualism, postmodernism and a decreased interest in institutional politics and activism”. Postfeminism has no fixed meaning; it is a contradictory, pluralistic discourse. But it is sure that postfeminism is not a simply response to feminism but a sort of sensibility structured by the current increase of individualism. As a political vision, postfeminist can be attached to neoliberalism as entrepreneurial, independent, self-governing subjects. A kind of call of self-management is the way that postfeminism understands to articulate the women’s life.

“Post feminism is a new form of empowerment and independence, individual choice, (sexual) pleasure, consumer culture, fashion, hybridism, humour, and the renewed focus on the female body can be considered fundamental for this contemporary feminism” (Fien: 2009).

Post feminism can be considered as a critique on what is called ‘second wave feminism’. By focusing on equality, the basic similarity between sexes, universalism and sisterhood, second wave thought uses “binary categorizations, such as man/woman or straight/gay, postulates a fixed unitary identity (‘the female identity’) and employs a monolithic conception of ‘woman’ ” (Genz, 2006: 337).

### **1.2.2 Postfeminism as a celebration of sexuality and subjectification**

Second wave feminists stand for a pessimistic vision on sexuality. They focus on themes as sexual transmittable diseases, sexual abuse and sexual objectification of women in media discourse. Postfeminism rejects this negative tone and pessimistic standpoints and promotes the fundamental female right, the sexual pleasure. It’s all about the personal choice, the freedom of choice, and the mix of identities that occur in every person. As Gill tells to us ‘sexualisation’ “refers to both the extraordinary proliferation of discourses about sex and sexuality across all media forms as well as to the increasingly frequent erotic representation of girls”, women’s and (in a lesser extent) men’s bodies in the public spheres (Gill, 2007: 149-150).

In postfeminist discourse, emphasis is placed on sexual subjectification, as women are portrayed as active, desiring sexual ‘neo-liberal subjectivities’. The female protagonists in the television series ‘Sex and the City’ can be seen as good examples.

## **2. Mix of identities, a kind of sensibility and a critique**

Feminism is not a fixed theory in a certain era, but an extended movement that has changed in many ways the history of the relationships between women and men, between public and private sphere. In the same time, there are many ways in which feminism - both as a political movement and as a scholarly perspective - has changed over time. A primary development in this scholarship has been the consideration of the multiplicity of differences that mark human identities. Matters of class, race, national identity, and sexuality, along with those of gender, are foundational to contemporary feminist research. At times, this recognition of the multiplicity of differences is labeled third wave feminism.

### **2.1 A new sensibility?**

The novelty that postfeminism pleads for is that every woman must recognize her own personal mix of identities. A woman it’s not only a housekeeper, it’s not only a worker, a sex object, a mother, a diva. A woman can be all of these, by time or sometimes, in the same time. The recognition of the fact that women are not only the equal of a man, but a mix of attitudes, of convictions, of possibilities, of options, of sensibility is the way in which postfeminism understands to make peace with genders. Postfeminism is actually made of contradictions, because of the interrelation of the themes: body, sex, individualism, empowerment, independence, family, career, marriage, beauty.

As Dr. Rosalind Gill says in her study about ‘Postfeminism media culture’ (2006) ‘postfeminism is best understood as a distinctive sensibility, made up of a number of interrelated themes. These include:

- \* the notion that femininity is a bodily property;
- \* the shift from objectification to subjectification;
- \* an emphasis upon self-surveillance, monitoring and self-discipline;
- \* a focus on individualism, choice and empowerment;
- \* the dominance of a makeover paradigm;
- \* and a resurgence of ideas about natural sexual difference’.

All these are elements of a new sensibility. A sensibility that can be called postfeminism and which characterizes an increasing numbers of films, television shows, adverts and other media products. These themes are actually features that coexist with inequalities and exclusions that relate to class, age, sexuality, disability and of course gender.

### **2.2 Power femininity in media discourse. What is power femininity?**

This paper discuss the idea that postfeminism is best understood not as an epistemological perspective nor as an historical shift, and not (simply) as a backlash with pre-specified meanings. Rather, postfeminism should be conceived of as a sensibility. An analytical perspective should be replace with an inquiring one, from this perspective postfeminist media culture being our critical object.

The main part of my talk will deal with the relevance of the postfeminist in a time that is becoming an increasingly representations of women in the media is no longer weak or submissive but quite the reverse, as self-determined, autonomous, active, powerful.

But why do we need a feminist critique? Postfeminism expresses a critique, objects of critique being second wave’s binary thinking, essentialism, ideas on sexuality, vision on the relationship between femininity and feminism and body politics.

### **2.3 Media Discourse in Specialized Romanian Magazines**

Media discourse is representing for Romania a very special discourse because of the influential power. Knew as a very powerful way of transmitting messages, the media - the television, and more and more the online, the social media, the online news and the online versions of different magazines and newspapers – has adapted his discourse to the necessities of entertainment and violence of the population. It is a measured characteristic that the Romanian public expectations about media are to make pleasure and to fulfill a necessity of social tragedies (often implying women and kids, rape and violence, death and accidents). On this road, specialized media like financial magazines and newspapers, women’s magazines try to make a balance and bring into light good examples of women, of children that are examples for their communities and their worlds. Often, the origin of these persons are quite obscures but they fight with inconveniences and resist through life experiences and finally they become examples to follow.

When talking about social aspects of language uses, such as the relationship between language and power, we have to show up the non-neutrality of discourse, speakers and writers setting up particularly subjective positions which may influence the views of the world, world views that can be disrespectful, offensive and exclusionary. It is the task of critically educators and of the scholars therefore to help learners become aware of how patterns of linguistic and semiotic choices can structure this subject positions, to question their own attitudes and consider alternative perspectives.

The new femininity deals with women empowerment. Postfeminist representations is power and empowerment, so that if we take a look to the headlines of the online magazines about economics and so called women magazines, we will realize that a change is about to produce, because the word “woman” is associated with millions (money), with career, with business, with beauty, and power in the same time, we will give here some examples found on [www.businessmagazin.ro](http://www.businessmagazin.ro): “The story of the most easy life Romanian woman: she has 40 years, a fortune about 700 million euros and lives on an island”. This kind of portraits are made in each number of the online magazine, story that can portray women, insisting on their as economic power, on their studies and on their general preoccupations.

### 3. Today’s Women Values and Media Discourse (cross themes)

Last century women were limited to the roles of wives and mothers, working close to home or in the household, once with the entrance in the labor market and, subsequently, in the public field women strengthened the interest for the financial independence.

#### 3.1 Power (via the Model of the Business Woman) and Beauty

In our study, we have numbered 15 articles about women on [www.businessmagazin.ro](http://www.businessmagazin.ro) in two months of observation (June and July 2015) and another 15 on [www.one.ro](http://www.one.ro) (in the same period). The two online magazines have different manners of surprising the women – the financial perspective and the good life that can come together and compose a superwomen, more powerful, more empowered and also a woman who cares about her and then about her family. The results show that career (as a theme and as word in the title) is present in more than half the issues analyzed (8 titles on 15 seen).

So, considering the number of feminine career perspective reported in articles on [businessmagazin.ro](http://businessmagazin.ro) and the fact that always women are viewed in a business area, we can say that no more than men, but in a positive manner, women are seen as capable to make money as men are. The domains can be related to those in which men are recognize doing businesses: winery, factories, cars, real estate. So there are no limits for women.

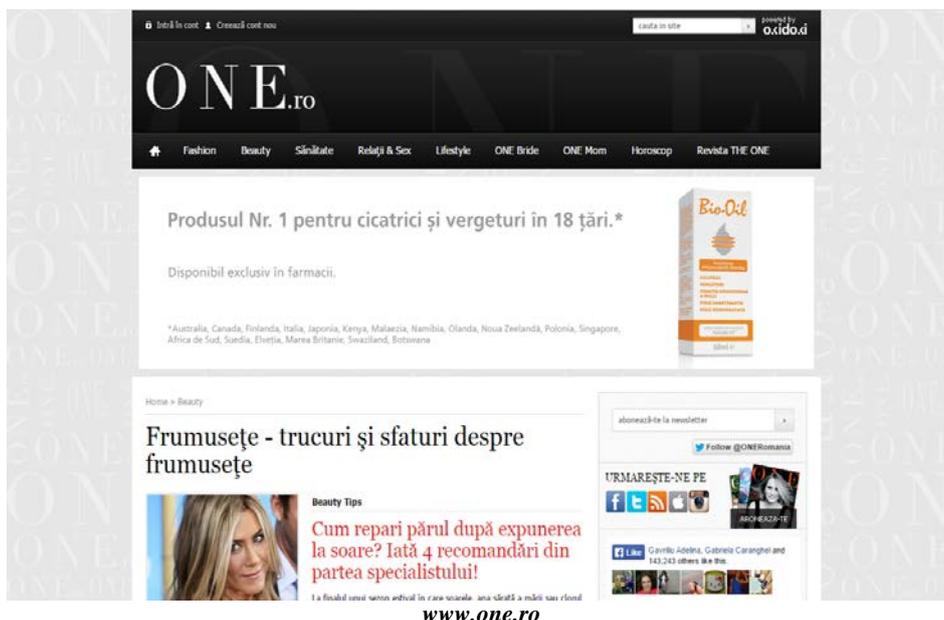


#### 3.2 Power and Consumerism

Almost always, the social empowerment is turned into a sign value attached to the consumption of brands of global capitalism: so if you wear this perfume, if you do this or that it looks like powerful. This way it is able to recycle gender stereotypes dressed up into socially progressive talk. Only that everything now has become individual, personal and we have lost the social in a second place. Consumption is a way of becoming more powerful. Consumption within a postfeminism context is a tool to achieve power and pleasure, an alternative route for self-esteem; women construct their **identity** and receive societal appreciation through consumption, even if consumption has often been criticized by second-wave feminists, defining consumers as victims of commodification. Supporting this view, Mihaela Miroiu also states that postfeminist lifestyle is „the product of the economic independence and sexual freedom of women” (Miroiu 2004:75).

As McRobbie underlines, the feminine consumer culture has three main pillars: career success, glamour and sexuality (McRobbie, 2009:28). Now ‘consumption, youth and beauty are new obligations for women’ (Lipovetsky, 2000: 163), as long as fun, independence and confidence.

On the other side, [www.one.ro](http://www.one.ro) don't treat theme like money, but the power femininity is seen through beauty, fashion, health, relationships and sex, lifestyle tricks. Also marriage and motherhood are two distinctive sections of the online magazine. Celebrities have a very important place in the economy of the magazine headlines.



### 3.3 Career and sex life

Both themes presented in the two online specialized magazines are representing fundamental elements in the era of freedom. Relationships and beauty also are frequently found associated with career, supporting the independence model promoted by ads and mass media. Although marriage is not treated intensively in ONE magazine, the high percentage of the term 'relationships' shows that postfeminist media does not promote an independent and self-sufficient woman. On the contrary, the magazine launches the woman into a quest for happiness through partners, achieving orgasm or by finding the soul mate. These can be the traces of a "new-traditionalism" where women are urged to focus on the private sphere, on emotional life, but not in the family.

Comparing the two magazines we can easily say that these themes are separately treated, so that money, career and power even if they go with femininity, the beauty and fashion discourse is a distinctively media discourse and makes the difference between power (seen as money, career, recognition in social area, in the public sphere) and femininity seen as preoccupation or a sort of sensibility for beauty, for relationships, for sex life, for fashion.

### 4. Final Remarks

The main focus of the article is to identify the trends that postfeminist media discourse promotes as the new values of today's women.

The research confirms the first hypothesis, **One** (online) magazine comprising a large number of terms related to the cult of the fashion and beauty. The sensibility of postfeminism is made of contradictions: autonomy, self-improvement, strong self-surveillance (and not only self-surveillance), discipline and action while their bodies are powerfully re-inscribed as sexual objects. A new issue emerged from the analysis of the high values of contingency of all titles including terms regarding beauty (beauty tricks, fashion, slim body, improved sex life) and popular culture represented by the stars of the film industry, television, fashion and music. Celebrities promoted in all units analyzed are the attributes of postmodern society, replacing the models promoted in the past.

Themes that emerged: empowered beauty, beauty brands and products are empower agents that help women to achieve a beauty potential transmitting a message like "You have the power to be what you want to be", "Today I decide to stop being fat, is my decision". We can remark also that the choice of verbs is all positive so there is no constructive transformative actions: make, shape, change. Only volition is present there: I decided. Women were told that they are unstoppable, they can have and do and change anything, if they desire. The most titles are around the idea that the magazine is a very good friend that can give you the best tricks, the best "how to" ideas, the best advices for you to be better, to become better or even the best. So, we can easily see that in the title a need is identified and a solution is given so that the reader (a woman) become a better option.

The conventional images of gender are now changed by the new feminist signifiers, postfeminism assumptions as they are mixed together to produce a deep power femininity. The conventional manners of articulating femininity – such as lipstick, high heels or glamour – do not conflict with female power anymore.

We can even say that one of the most striking aspects of postfeminist media culture is its preoccupation with the body which implies a huge contradiction with earlier representational practices. It appears that femininity is defined as a bodily property rather than a social, structural of psychological one.

The specialized Romanian online media has a major concern about the image of beautiful bodies, pop culture celebrities and models who exemplify a good life and that besides looking flawless are also surrounded by the latest consumer goods - images of a carefree life, of bodily pleasures and excesses, of narcissistic pampering.

Fashion has a special place in every women's magazine because helps women to be 'sexy' and therefore they are more likely to find a partner. Fashion is also a primary theme because it gives you a certain status in society.

The hair, the lips, the heels, the pants - all these can transform the woman into a seductive, provocative and sexy one. What happens is that the scenarios now involve resexualisation of women, the reposition of women as passive sexual objects now we have

a shift towards representing women as sexually autonomous, active and desiring subject. Sometimes it is he who is naked and she is clothed, he is the one who is desired one, but she knows very well her place, her trumps, her advantages.

Our second hypothesis was that women are called upon to exercise to self-management and self-discipline. The language in the context of gendered and sexual relations between women and men constructs women as agentive structures, assertive even aggressive and in charge. This self-surveillance and discipline required of women can be seen in women's magazines in which bodily shape, size, muscle tone, attire, sexual practice, career, home, finances, etc are rendered into 'problems' that necessitate ongoing and constant monitoring and labour (Gill, 2007: 15). But this continuous work must be understood as 'fun' or 'pampering'. The translation for this perspective is made in magazines by the total amount of tips, of 'how to', **One** magazine being a very good example in this way. These tips offer to girls, to young women and woman of all ages, the possibility of a confident appearance: 'DO' and 'DON'T' is a very present heading as if you always have to know how to act in a certain circumstance, how to dress or how to use make-up. All these tips are meant to create a social empowerment of the girls.

Feminine entitlement is characterized by a focus on pampering and pleasuring the self; being confident in one's gender identity; and embracing youthfulness as an attitude. Feminine entitlement is really an entitlement to consume. The assumption is that a lifestyle (and identity) based on commodity consumption is universally shared and freely accessible to all, when in fact it is a luxury that many cannot afford. Rather, it is the prerogative of privileged middle-class women, who have the means to access retail pleasures and the luxury to focus self-absorbedly on themselves.

Briefly, however, postfeminism can be seen as a sensibility characterized by a number of elements: a repudiation of feminism; an emphasis upon choice, freedom and individual empowerment; a pre-occupation with the body and sexuality; the importance of self-surveillance and monitoring as modes of power; and a thoroughgoing commitment to ideas of self-transformation.

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## INFORMATIONAL SOCIETY: NECESSITY AND ETHICS

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### Abstract

*In the contemporary society, the informational networks have surrounded the planet and are essential when there is need for urgent communication, which was established along with the evolution of technical means. Therefore, communicating through social networks means economical and financial power, as well as respect for the political, cultural or religious choices of the citizen. However, in this conditions, it is questioned if ethics takes priority or does the necessity for transmitting information, relevant to the current situation, take its place.*

*The human existence moved to its virtual reality on the internet; is it required for individual or collective responsibility in order to preserve ethics and deontology in this communication environment? There are many examples regarding the violation of ethics due to necessity, as well as ignorance, which leads to verbal or physical violence or even death.*

**Keywords:** *informational networks, necessity, ethics, virtual reality.*

### Realitățile societății contemporane

Apariția internetului a determinat schimbări în căutarea, primirea și distribuirea știrilor, drepturi fundamentale ale cetățeanului secolului XXI. Social media este un termen care se referă la utilizarea tehnologiilor bazate pe web și mobile pentru a transforma comunicarea într-un dialog interactiv. Activat prin tehnici de comunicare omniprezent accesibile și scalabile, social media schimbă substanțial modul de comunicare între organizații, comunități, precum și persoanele fizice, și poate lua diferite forme, inclusiv reviste, forumuri, bloguri, micro-blogging, wiki-urile, podcast-uri, fotografii, videoclipuri etc. Nu există o delimitare clară între mass-media sociale și rețelele sociale, ele intersectându-se. Astfel, serviciile de Facebook sau Twitter servesc atât ca instrumente de rețele personale, dar și ca platformă de știri. Serviciile Google+ sunt utilizate mai mult pentru comunicarea între instituții sau distribuție de știri. Utilizarea rețelelor sociale este în continuă creștere, nimeni nu se mai gândește la revenirea mijloacelor clasice de comunicare.

Christian Möller, raportorul special al ONU [1] în 2012, face un studiu în acest sens, privind promovarea și protecția dreptului la libertatea de opinie și exprimare, aplicabil inclusiv noilor tehnologii de comunicare, cum ar fi internetul. În *Declarația comună* asupra libertății de exprimare pe internet, reprezentanții ONU, OSCE, OAS și ACHPR au căzut de acord în această privință și s-a impus aplicarea dreptului la libertatea de exprimare și obligația statelor de a promova accesul universal la Internet. Social media și rețelele sociale sunt forme noi de comunicare, neimaginabile până în urmă cu câteva zeci de ani. Ele fac uz de tehnologii inovatoare, combinate cu caracteristici deja existente, iar aceste servicii de internet pot fi utilizate atât de jurnaliști cât și cetățeni, deopotrivă. Facebook, Twitter & Co. propagă informația mai ușor și mai repede decât oricare mod de comunicare clasică. Prin internet se primesc știri, se discută, se comentează, se fac planuri. Acest fenomen a determinat apariția "blogging-ului", sau a cetățeanului-jurnalist, cu drepturi la liberă exprimare prin mijloace specifice mediului de dezvoltare, în conformitate cu drepturile omului privind libertatea de opinie.

În urma unui studiu [2] din noiembrie 2011, rețeaua socială Facebook a avut mai mult de 800 de milioane de utilizatori activi, 75 în afara Statelor Unite. Mai mult de 50 la sută din acei 800 de milioane de oameni sunt conectați la Facebook zilnic. Internetul și tehnologiile mobile se află în centrul preocupărilor zilnice, iar importanța rețelelor sociale pentru știri sau consum, este în creștere, 75 la sută din SUA consumă știri online, transmise prin e-mail sau mesaje de pe site-urile de rețele sociale. Internetul este în creștere pe piața țărilor democratice, fiind receptat ca un produs al libertății. Una din țările cu cele mai multe interdicții, însă, în această privință este China. Potrivit mai multor site-uri de presă [3], au fost blocate mii de servicii online și rețele sociale. Autoritățile chineze au făcut numeroase controale privind activitatea desfășurată pe internet și au dat legi care să întărească gradul de control al internetului. În ultimii ani au fost arestați mai mulți jurnaliști și bloggeri, pe motivul că au răspândit știri false în mediul virtual. Așadar, problema implicării masive a politicului în libertatea de exprimare există, ea fiind semnalată prin diverse acte oficiale. La mai puțin de un an de la atentatul asupra redacției *Charlie Hebdo* a urmat atacul din 13 noiembrie 2015, la Paris, ceea ce a condus imediat la blocarea a mii de conturi ale unor cetățeni din lumea arabă. Conform unei știri de pe *The Independent*, preluată de *Mediafax* [4], hackerii de la *Anonymous* [5] au început o acțiune de "curățare", numită "Operațiunea ISIS", prin publicarea datelor personale ale suspectilor care ar fi făcut parte din organizația teroristă, iar detaliile referitoare la teroriști au putut fi citite cu hashtag-urile #opISIS și #opParis. Un exemplu de amploare a comunicării informatice este transmiterea unor mesaje de interes național sau internațional, din partea unor șefi de state. Astfel, după atentatele de la Paris din acest an, Regina Elisabeta a II-a a Marii Britanii a transmis condoleanțe familiilor celor uciși, pe contul său de *Twitter*. Aceeași rețea de socializare au folosit-o și David Cameron, premierul britanic și Victor Ponta, fostul ministru al României. Ambasada României din Franța a făcut, de asemenea, anunțuri pe rețelele de socializare

Motivele cele mai frecvente pentru care unele țări impun cenzura sunt ideile extremiste promovate în mediul virtual. Mai mult decât oricând, secolul XXI este marcat de tensiuni masive și măsuri extreme. Apartenența la o comunitate religioasă devine suspectă și condamnată. Se pune întrebarea dacă este etică sau nu luarea unor hotărâri precum cele ale *Anonymus*, în situații similare. Răspunsul nu mai ține de etică, ci de urgența luării unor decizii în situații limită, când cetățenilor le este amenințată integritatea fizică și morală.

### Neticheta vs politica

Două din cele mai importante coduri de etică elaborate la nivel internațional sunt: PRSA [6] (Public Relation Society of America) și IPRA [7] (International Public Relations Association), dar adevăratul cod după care funcționează lumea virtuală este cel al moralei fiecărei persoane. Rețelele se răspândesc atât de repede încât este foarte greu de controlat un cod al eticii pe internet. În câțiva ani s-a impus o conduită virtuală cerută de chiar rețelele respective de socializare. Blocarea contului este cea mai utilizată formă de sancțiune a postărilor imorale. Cenzura pe internet, numită și *cybercenzură*, a început să fie practică imediat ce s-a constatat că puterea internetului este comparabilă cu cea a unei armate dotate cu tehnologie modernă de luptă. Guvernele pot bloca unele conținuturi neagreate, dar în aceeași măsură pot promova ceea ce constituie un avantaj pentru politica economică sau socială. În Buletinul cu nr. 40/ian., feb., 2010 [8], privind libertatea de exprimare în mass-media (scrise, virtuale), între cele zece pericole-cheie pentru libertatea de exprimare, se vorbește despre: a) influența politică sau controlul mass-media publice, așa încât acestea să

servească drept portavoce a guvernului și nicidecum ca organisme independente care funcționează în interesul public; b) cerințe de înregistrare pentru mass-media scrisă, precum și pentru utilizarea sau accesul la internet; c) controlul direct al guvernului asupra licențierii sau reglementării radiodifuzorilor, sau supravegherea acestor procese de către un organism care nu este independent față de guvern din punct de vedere juridic sau practic d) abuzul de publicitate din partea statului sau de alte împuterniciri ale statului pentru a influența politica editorială; e) deținerea cu titlu de proprietate sau controlul semnificativ al mass-media de către liderii sau partidele politice; f) cauze deferite justiției inițiate din motive politice contra organismelor mass-media independente; g) menținerea reglementărilor juridice depășite – de exemplu, legilor privind reprimarea rebeliunilor sau regulilor de prevenire a publicării noutăților false – care sancționează criticile în adresa guvernului. Nu mai este un secret pentru nimeni faptul că internetul înseamnă putere și cine îl folosește în interesul său iese câștigător. În lume, este frecventă cenzura în mediul virtual, folosindu-se o tehnologie complicată, care diferă de la țară la țară. Mișcările extremiste, pornografia, discursurile ce instigă la ură, sunt blocate în mai multe țări din lume.

Problema eticii crește pe măsura dezvoltării rețelelor virtuale, astfel că devine din ce în ce mai greu de controlat comportamentul online. Începând cu discuțiile de pe *Facebook* sau *Twitter* și continuând cu mesajele transmise prin diverse site-uri, se impune un control al modului în care postarea poate să agrezeze pe cineva sau să-l manipuleze. Există numeroase forme de manipulare, fără a se descoperi cu ușurință autorii morali ai acestora. În urma mai multor studii [9] asupra factorilor care determină cenzura, luată adesea ca o măsură etică, s-a constatat că această nouă formă de control este răspândită într-un mod difuz, greu de identificat. Se ține seama de riscurile politice ale monopolului asupra internetului. Etica online presupune respectarea normelor de decență, limbaj clar, coerent, asumat. Din cauza mai multor agresiuni scrise, de conduită, atitudinale, s-a impus un cod de etică în spațiul virtual numit *netichetă* prin care se educă utilizatorul de internet.

Câteva din regulile elementare adresate utilizatorilor de rețele sociale se referă la modul în care te identificei în spațiul virtual, ce identitate folosești, cum te adresezi, limbajul utilizat, corectitudinea limbii în care te adresezi, seriozitatea sau neseriozitatea cu care-ți tratezi prietenii virtuali. Au apărut numeroase articole [10] care îndrumă primii pași spre comportamentul civilizat, se urmărește, în general, o conduită normală, semn al personalității : ”Nu vă ascundeți în spatele anonimului când doriți să criticați !”, ”Nu folosiți caps lock când scrieți un mesaj, lăsați impresia că țipați !”, ”Nu plagiați !”, ”Atenție la greșelile gramaticale !”, ”Atenție la mesajele care nu au nicio legătură cu subiectul !” Se urmărește ”eliminarea limbajului ofensator sau obscen, discriminările și rasismul. Discuțiile în contradictoriu nu trebuie să degereze în certuri însoțite de jigniri, iar o opinie diferită trebuie argumentată fără violență verbală. De asemenea, sunt interzise atacurile la persoană, amenințările și șantajul”.

Difuzarea masivă de informații în mediul virtual reînnoiește problema acută a eticii informaționale. Jurnalismul este un motor formidabil în vederea cultivării libertăților, permițând și anumite excese publicitare, de manipulare a populației. Internetul lansează provocări majore în mass-media, cu consecințe economice și sociale considerabile. Din acest motiv, se cer luate măsuri de precauție, profesionalism și o anume igienă, învățată în mediul educațional, care să protejeze împotriva capcanelor mediatiche. Etica jurnalismului online ține de etica jurnalistică, în general. Problemele frecvente sunt cele de respectare a deontologiei profesionale și cele determinate de funcționarea sistemului mass-media, de respectare a dreptului la opinie. ”Păcatele” frecvente și vizibile sunt derivate din goana după rating și publicitate, astfel că obiectivitatea are de suferit. Subiectele pe tema unor dezastre sau crize continuă să fie dezbătute chiar și atunci când nu mai este cazul, iar vânătoarea după senzațional continuă, ieșind adesea din aria deontologiei profesionale. Rapiditatea cu care se propagă o informație în mediul online determină o mare presiune pe trusturile de presă în transmiterea știrilor proaspete. Intervalul de timp petrecut între eveniment și transmiterea informației este din ce în ce mai mic, astfel că apar erori de exprimare sau de raportare la momentul respectiv, care pot fi corectate facil, față de cele din presa tipărită. Responsabilitatea editării unei știri îi revine în totalitate editorului, responsabil de legăturile pe care le face sub formă de link-uri. Posibilitatea unei manipulări a opiniei publice este mult mai ușor de realizat în comparație cu știrea unui ziar tipărit. O altă problemă etică apare când fotografiile suferă modificări digitale fără a exprima adevărul sau fără a fi specificat că este o parodie. De asemenea, lipsa unei explicații, la subsolul pozei, locul de unde a fost preluată, numele fotografului etc. Aici intervine problema plagiatului, considerat tot o lipsă de etică. Apariția în mediul virtual a miilor de articole pe aceeași temă a dat posibilitatea oricui să preia orice, fără un control asumat de autor. Lumea informațională determină dezvoltarea în continuare a unor abilități în descoperirea unor adrese, link-uri, adrese de email sau URL. Este la îndemâna oricui să descopere adresele de email ale angajaților unei firme sau URL, așa cum s-a întâmplat în cunoscutul scandal dintre *Reuters* și *Intentia*, o companie suedeză de software [11]. *Intentia* a pregătit un raport pentru câștigurile salariale și a pus acest raport pe site-ul său web, la o adresă URL "ascunsă", cu circuit închis. Un reporter *Reuters* a ghicit URL-ul, a accesat raportul de venituri și a publicat o știre despre el, înainte să apară public. *Intentia* a dat *Reuters* în judecată, acuzând că a accesat computerele sale ilegal și fără autorizație. O altă situație de lipsă a eticii poate fi reinterpretarea cuvintelor unei persoane în timpul unui interviu. În 2013 [12], premierul României, pe atunci, Victor Ponta, a acordat un interviu în limba engleză, aceleiași agenții străine de presă *Reuters*, în care a dat răspunsuri privitoare la Roșia-Montană. Declarațiile premierului au fost scoase din context, iar agenția a alăturat două fraze din momente diferite ale interviului, ceea ce a determinat Guvernul României să dea o replică lămuritoare.

Atâta timp cât nu violează drepturile fundamentale ale altor persoane, fiecare persoană are dreptul inviolabil să se exprime liber. Posibilitățile de comunicare în online sunt multiple și necesare, însă credibilitatea se poate pierde mai ușor decât în mass-media tradițională. Se observă adesea lipsa unui moderator în situația unor dispute pe rețelele de socializare, rezultatul fiind atacuri la persoană, insulte sau comentarii de calitate îndoielnică.

Legislația română [13] conține reglementări care interzic simbolurile cu caracter fascist, rasist sau xenofob, deoarece serviciile internet permit publicarea unor agresiuni verbale de acest tip. Având în vedere aceste realități, statele membre ale Consiliului Europei, împreună cu celelalte state care au aderat la Convenția Consiliului Europei pentru combaterea criminalității informatice au încheiat la Strasbourg, în ianuarie 2003, un Protocol Adicional la Convenție [14] privind incriminarea faptelor de natură rasistă și xenofobă, săvârșite prin intermediul sistemelor informatice.

## Plagiatul sau nonetica

*Copy-paste* este o funcție a tastaturii calculatorului care din cauza fraudei pe care o determină, folosită nonetic, a primit un înțeles peiorativ. Cel care copiază/fură textul altuia nu este decât o emanație a societății contemporane în măsura în care internetul permite accesul la numeroase articole și date. O situație acută de lipsă a eticii în România este problema referatelor, a tezelor de licență, masterat, doctorat etc., apărută imediat după 1989, când abilitățile tinerilor s-au adaptat rapid la noua formă bibliografică, preluând mai mult decât un titlu, materiale întregi. Au trecut ani buni până la sesizarea profesorilor, mulți dintre ei, nefiind utilizatori de internet, ba, mai mult, ignorând acest pericol. S-a uitat că tânărul trebuie învățat să se construiască prin propria valoare și propriile

norme, preluate de la modele de calitate. Universitățile importante au realizat necesitatea elaborării unei alte abordări academice în privința utilizării corecte a informațiilor online. În 2008, Universitatea din Geneva a realizat un raport în cadrul Comisiei de etică și plagiat, unde este specificată abordarea problemei în cunoștință de realitatea virtuală și expansiunea internetului: "Nous intégrons l'étudiant à sa réalité sociale, économique et technologique. Nous ne pouvons pas faire semblant de croire que l'étudiant est, à l'université, dans une bulle isolée qui autoriserait le système éducatif à fonctionner comme si la révolution Internet n'avait pas eu lieu. Avant de constater ce qui diverge par rapport à notre vision académique, et donc ce qu'il conviendrait de circonscrire, il semble important de préciser que l'étudiant d'aujourd'hui, en tant qu'acteur social, doit être considéré selon ses propres normes et ses propres valeurs [15]." În România nu există nici în momentul de față un îndreptar, o metodologie de utilizare a internetului în învățământul preuniversitar. Majoritatea tinerilor români s-au adaptat din mers normelor nescrise, dar la fel de importantă ca "cei șapte ani de acasă". În majoritatea universităților au apărut programele antiplagiat, mai mult sau mai puțin folosite, deoarece din 1990 până în prezent au fost mai multe scandaluri pe această temă (cazul Victor Ponta, fost prim-ministru al României) [16]. Pe parcursul etapelor preuniversitare s-a încercat un sistem de evaluare românesc care să nu implice fraudă [17].

## Concluzii

Rețelele sociale oferă un instrument excelent pentru utilizatori prin aducerea lor în mijlocul realității și informarea rapidă asupra evenimentelor. Luarea măsurilor de etică în mediul online se dezvoltă în paralel cu libertatea de exprimare a individului. Din această cauză, manualul de etică nu va putea fi actual prea mult timp, iar utilizatorii vor fi obligați de diversele situații să-și dezvolte abilitatea de a verifica sursa de știri, de a face diferența între lumea reală și cea virtuală, de a-și cunoaște drepturile și obligațiile. Puterea internetului determină controlul informației de către anumite trusturi de presă, patroni, firme puternice, instituții, iar manipularea devine un obiectiv permanent, care se insinuează începând cu publicitatea și sfârșind cu link-urile care fac trimitere spre subiectul dorit. În același timp, circulația informației vine în sprijinul cetățeanului, atunci când este întrebuințată corect.

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## “SENSE AND SENSIBILITY” AT AN EVENT IN DIGITAL MEDIA

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### Abstract

We are talking about the emotions, for thousands of years, from the theories of Plato and Aristotle till Ellis's cognitive theory. Plato believes that emotions disturb the mind and Kant argued that emotions are diseases of the soul. Darwin integrates them into valuable adaptive behaviors and evolutionary species and JP Sartre consider them a way of living consciousness. The theory underlying the research is the rational emotive behavioral (REBT - Rational Emotive Behavior Theory) developed by Ellis (1955). From the perspective of this theory, the emotions are controlled and determined by cognition or we give interpretation of events (internal or external) that trigger these beliefs (Ellis, 1962). This theory is based on the idea that emotions and behaviors arise from cognitive processes, specifically the interpretation that individual man is giving statements, and not as a result of the events. The theory behind these principles states that it is possible for people to change emotions and behaviors they have, altering their thoughts and ideas.

The emotions themselves are processes in which consciousness functions are activated. They are the effect of the confrontation between the individual and the actual needs/presumptive environment. The emotions are pluritonal, they are gradually developed. They are situational; frequently occur as a result of satisfying unmet or biological trends. The emotion is experienced only in the cognitive context. Thus we distinguish the provoked emotions, the evoked emotions and the looking emotions. Rarely the man is surprised by the course of events. Normally he tries various methods to determine the course of the events, expecting what might happen. Depending on how adequately he predicts and how close it is to reality in progress, he builds his optime screenplay for the situation. The affective element is essential (attraction or repulsion, fear or fear of domination, feeling mobilizing or blocking effect).

How the brain processes the emotions? The information processing of emotional stimuli involves two types of roadways. The primary circuit is the bearer of superficial information, such categorical about stimulus receptors. They are unconscious. The secondary circuit more laborious convey information more complex and accurate input as a result of analyzes of the cerebral cortex.

The hypotheses of research: 1. High intensity emotions adds to the importance of a press event. 2. The press events calls quick and irrational thinking, to the detriment of slow, analytical and comparative thinking. 3. The stronger the emotion, the faster and irrational the thinking is and the press event records greater effects.

The methodology of research: It applies psycholinguistics dynamic-contextual method using the content analysis. Dynamic – The communication is tracked during the event. Contextual - reporting is performed at levels of contextual communication.

**Keywords:** cognitive theory; emotions; rational emotive behavior; media.

### Introduction

For thousands of years, people have been talking about emotions, from Plato and Aristotle's theories till Ellis's cognitive theory. Plato believes that emotions disturb the mind and Kant argues that emotions are *diseases of the soul*. Darwin integrates them into valuable adaptive behaviors and into evolutionary species, while JP Sartre considers them a way of keeping consciousness awake.

Emotions constitute a significant component, dynamic-human energy of the psychic system. It reflects the subjective internal experience through social behavior, how to adapt to objective reality in which man lives. Current Man lives in a dense, predatory media environment, its adaptation to the objective reality is decisively influenced by the proximity media system. Reality of Media is contained in both the cognitive system, and in displaying the emotional and volitional, motivational symptom.

Emotions themselves are processes in which the functions of consciousness are activated. They are the effect of the confrontation between the individual and the actual/presumptive needs of the environment. Emotions are pluritonal and they develop gradually. They are situational and they frequently occur as a result of satisfied or unsatisfied biological needs. Consequently, emotions can be experienced only in the cognitive context.

Thus, we distinguish between provoked, evoked and anticipatory emotions. People are rarely surprised by the course of events. Normally, they try various methods to determine the course of events, without expecting something in particular to happen. Depending on how adequately they predict and how close they are to the reality in progress, they build their optimal scenario for each situation. The affective element is essential (attraction or repulsion, fear or fear of domination, a motivating feeling or a blocking effect).

Perception, representation or thinking is images of the objects. Affective processes reveals the suitability / opposites between the data subject and the external world needs. It reflects the relationship between the individual and ambience events.

#### 1. The Theories of Emotions

During the time they have emitted the various hypotheses about the workings of the emotional human psyche in the perspective affected. Trigger mode and operation of emotions was formulated during the period ancient philosophy. Each element has its importance and role in the whole emotional process. Thus they have outlined five categories of theories of emotions: intellectualist theories, theories peripheral physiological, physiological theories central cognitive-physiological theory and cognitive theory.

Some researchers have given priority to the cognitive or affective aspect. Each gave the arguments most relevant to research time. If the 1899 James and Lange maintained that emotion always occurs as a result of a transformation or reactions behavioral the intellectual theory by Herbart 1925 invalidate and propose a new interpretation: the emotion is generated by tension and clash mental representation of different situations (memory - representing the death of a dear beings we produce emotional pain). Later there was disjunction between psychological and physiological explanations, because today be seen in relation of complementarity.

Thus, we distinguish between provoked, evoked and anticipatory emotions. People are rarely surprised by the course of events. Normally, they try various methods to determine the course of events, without expecting something in particular to happen.

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Depending on how adequately they predict and how close they are to the reality in progress, they build their optimal scenario for each situation. The affective element is essential (attraction or repulsion, fear or fear of domination, a motivating feeling or a blocking effect).

Emotional state may be preparatory accompanying and final operators, determined by close of business, the evaluation result. They can be positive, negative satisfaction or dissatisfaction, mobilizing or demoralizing subject.

The theory underlying the research is called The Rational Emotive Behavior (REBT - Rational Emotive Behavior Theory) and was developed by Ellis in 1955. From this perspective, emotions are controlled and determined by cognition. People can also give internal or external interpretations of events which trigger these beliefs (Ellis, 1962).

This theory is based on the idea that emotions and behaviors arise from cognitive processes, especially as a consequence of the interpretation each individual gives each situation, and not as a result of the events. The theory behind these principles states that it is possible for people to change the emotions and behaviors they have, by altering their thoughts and ideas.

Emotion appears when the adaptation is hindered for various reasons. Affective processes are viewed from three perspectives: what the individual feels directly (six basic emotions: anger, disgust, joy, sadness, fear and surprise), as expressed through behavior and what construed as a personal experience. We can distinguish: a) primary emotional processes: organic provisions and impaired; b) actual emotions; c) affective disposition; d) sentiments.

## 2. How does the brain process emotions?

And the individual feel emotions and I felt like that as we feel does not feel any other person, it seems that our emotions are processed by the brain in a similar way. A new study demonstrates that the brain translates the emotions into a standard code that is similar to all people.

While happiness and sadness could be feel quite different to each person, in fact, the brain is these emotions in a way remarkably similar. It remains unclear, however, how the brain is objective external sensory events alongside our subjective impressions related to those events.

The information processing of emotional stimuli involves two types of access routes. The primary circuit, short embodies superficial categorical information, about stimulus receptors. It is a few synapses shorter than the indirect connection. For the walking it needed less than 20 milliseconds. It is characterized by "quick and dirty". These emotions are unconscious.

**emotional stimulus** → *thalamus* → *amygdala* → **emotional response**

The secondary long, laborious circuit, handle more complex and accurate categorical information about the the input as a result of analyzes of the cerebral cortex. For the other emotions, emotional processing are mostly conscious (Lazarus's theory). Independently of their nature contemporary psychology could not separate the emotions of cognition.

**emotional stimulus** → *thalamus* → *cortex (sensory, associative)* → *hippocampus/amygdala* → **emotional response**

## 3. The hypotheses of research

1. Newspaper articles, infused with strong emotional elements, calls for quick thinking, irrational, heuristics, to the detriment of slow thinking, rationalization, analysis, comparison, synthesis, generalization, abstraction. Ex. irrational manifestations of thinking: "The availability bias" - the tendency to judge based on what comes to us easily in mind; "The anchor effect" - the effect of anchor - a "shortcut" of thinking.

2. Media events infused emotion easier triggers reactions, measurable behaviors: comment links, shares, street mobilizations ... Emotional phenomenon translates into behavior. Emotional states has a relative power. Each emotion possess a high energy, a tension manifested in behavior. The feelings are motivational vectors of the behavior. The reaction is generated by emotion and result is of higher number of likes, comment links, shares, meetings, protests and street movements.

## 4. The research methodology

The content analysis follows several levels of analysis: the social environment to be selected the basic expressions, developing some and inhibiting others. The meaning of words and their significance is given by the positive connotation, negative or neutral receives the text and the frequency of their occurrence in the unit analyzed text and occurrence (distance between words) that is situated. The word order is governed by the dynamism of communication.

The propositional analysis analysis of the significance of of a sentence (sense spelling and sense logic) comply with certain stages of analysis: idiomatic expressions, the context that resolves the ambiguity of the structure of a sentence, the semantics factors that occur in the parallel interpretation of the syntax, the progressive introduction of information (sentence - stimulus = new information and variation information for sentence - context = previous information); the role of title, the text as a verbal unit.

Thematic headings facilitates understanding and retention of of the essential information of a well-structured and understandable text and structure of the text easy disturb. The title operate as an anchor point for the integration of cognitive structures enabling the information of text. The title mobilize the necessary knowledge and to make the understanding process move forward by comparing new information with an internal model provoked by title. The effect of titles on the essential information is dependent upon what the reader knows about the subject and the attitude already formed.

Content analysis related to specific aspects: the three elements of the triad of communication (sender, message, receiver) can not be omitted from the analysis of discourse; psychological perspective and linguistic analysis gives a complete picture of text; the message is analyzed in its context (macrocontext and microcontext); contexts can be found both at issuance (the message structure) and the reception (message context).

## 5. Study Application: *The fire at the club Collective*

Last time brought public opinion in our country and around the world an intense emotional state. A too full of pain and suffering, that the media is trying to color in as strokes thicker and more visible. Year 2015 brings for Bucharest for Romania another as October / November bloodied. Almost 150 young people were affected fatally injured in the blaze or just one day of Friday, October 30, 2015 at a rock music club in the capital.

The emotional impact of the event is greater, as the connotations day (Day of the Dead) and listening to the rock music that young people were associated with divine punishment. If the victims of Christians in Syria, Christians (and others) across the world

cry and pray to God with the belief that they will be heard if the death of an accident his crying relatives, friends, thinking of divine consolation the idea of of divine punishment for these young aroused frustration, anger, rebellion, that man, in his infirmity, did not refer to a Divinity, but to the earthly authorities.

The websites were monitored *Libertatea*, *Agerpres*, *Mediafax*, two weeks after the accident. Through analysis of the content was compared the news about the fire in the *Colective Club*. The program sentiment analysis to centralized data referring to the positive, negative or neutral connotations of the emotional words.

Site [www.libertatea.ro](http://www.libertatea.ro) presented the event as follows: *30 October 2015 A large fire broke out Friday night club in the capital Collectively, the Tanners street no... It's incredible, a total misnomer space... Hundreds of people laid flowers and lit candles at the place where the fire took place Friday night at the club collective...*

**5 entities**

Extracted entities	Evidence	Sentiment
President Klaus Johannis	7	-1.28
30 October 2015	5	-1.59
Professor Ioan Lascar	5	-0.06
"I wanted to see where the tragedy happened. It's incredible, a total misnomer space. (...) It is unimaginable that the space could be so many people (...) have been ignored simple rules"	5	+0.04
Tanners street	4	-2.11

**6 themes**

Extracted themes	Evidence	Sentiment
total misnomer space	7	+1.05
laid flowers	7	-0.30
lit candles	7	+0.13
large fire	7	-2.08
night club	7	-2.05
press statement	4	-0.07

**Auto-categories**

	Score
▼ Fire	1.00
Wildland_fire_suppression	0.52
Fire_prevention	0.00

**Mediafax** presents such situation: *Claudiu Bogdan Istrate was only 22 years old and was hospitalized in serious condition, intubated Hospital "Bagdasar-Arseni" from Bucharest... He had burns on the body and respiratory tract burns, according to medical sources... On Wednesday died two injured who were transported abroad: Alexandru Pascu, who was transported by aircraft of the Ministry of Internal Affairs to be transferred to a hospital in France who died at the airport in Paris, and Roberto Vlăduț Andy, who was hospitalized the night of Sunday to Monday in a hospital in Chelmsford, UK...*

**10 entities**

Extracted entities	Evidence	Sentiment
France	7	-0.83
Paris	7	-0.83
Roberto Vlăduț Andy	7	-3.85
Alex Pascu	7	-1.03

Germany	5	-0.74
October 30	3	-0.55
Bucharest University	3	-0.55
Elena Nitu Tudor Golu	3	+0.38
UK	3	+0.38
"Bagdasar-Arseni"	1	0.00

#### 6 themes

Extracted themes	Evidence	Sentiment
risk complications	7	-4.50
serious condition	7	-1.70
difficult surgery	7	-2.00
respiratory tract burns	7	-1.05
Floreasca Emergency Hospital	7	-1.30
medical sources	4	0.00

#### Auto-categories

	Score
▼ Health	0.98
Intensive_care_Health	0.51
Health_Problems	0.48

The site has been submitted event [www.agerpres.ro](http://www.agerpres.ro) : November 13, at 10:32 p.m. - two weeks after immolation Team: 55 people have died and dozens are still hospitalized. The fire was triggered by fireworks used during the concert, at 22:32:16, and the ceiling premises located on Tanners was engulfed in flames violent in ten seconds as described later in a statement of prosecutors Prosecutor High Court of Cassation and Justice (GPO)... After tens of seconds, ceiling surface completely burned and people thronged in large numbers to leave the club, a dense smoke containing whole club... Carbon monoxide poisoning, smoke and toxic gas was the main cause of death of fire victims of October 30, the club Collectively, according to preliminary results of autopsies. In the next two weeks after the tragedy killed 28 other people, the number of deaths reached Friday at 55...

#### 10 entities

Extracted entities	Evidence	Sentiment
October 30	7	-3.77
Facebook	7	+0.40
Prosecutor High Court	4	-2.43
GPO	4	-2.43
Loredana Dărescu	3	+0.02
November 10	3	-0.85
Germany	3	-0.85
November 13	1	0.00
"Donate to Loredana Dărescu"	1	0.00
autopsies.In	0	0.00

#### 10 themes

Extracted themes	Evidence	Sentiment
Carbon monoxide poisoning	7	-6.00
toxic gas	7	-5.39
main cause	7	-5.44

preliminary results	7	+2.70
fire victims	7	-5.39
dense smoke	7	-3.23
whole club	7	-2.34
hospitalizedThe fire	7	-5.54
ceiling premises	7	-4.15
Madalina Strugaru	7	-0.37

**Auto-categories**

		Score
▼	Fire	1.00
	Fire_protection	0.55
	Fire_prevention	0.51
▼	Energy	0.74
	Fuel_gas	0.59
	Synthetic_fuels	0.51
	Coal_technology	0.47
	Chemistry	0.62
▼	Atmosphere	0.54
	Smoke	0.52
	Smog	0.49

The most frequent words reveal how to argue the analysed statement. The program *Sentiment analisys* reveal to value of the positive, negative or neutral news.

<i>Libertatea</i>	<i>AGERPRES</i>	<i>mediafax</i>
<ul style="list-style-type: none"> <li>• injured</li> <li>• tragedy</li> <li>• patients</li> <li>• many people</li> <li>• dead</li> <li>• officially announced</li> <li>• hospitalized</li> <li>• incredible</li> <li>• broke</li> </ul>	<ul style="list-style-type: none"> <li>• preliminary results</li> <li>• victims</li> <li>• death</li> <li>• large numbers</li> <li>• toxic</li> <li>• thronged</li> <li>• hospitalizedthe</li> <li>• poisoning</li> <li>• burned</li> <li>• tragedy</li> <li>• killed</li> <li>• dense smoke</li> <li>• violent</li> <li>• deaths</li> </ul>	<ul style="list-style-type: none"> <li>• risk</li> <li>• years old</li> <li>• emergency</li> <li>• critical</li> <li>• last week</li> <li>• complications</li> <li>• worsened</li> <li>• patients</li> <li>• hospitalized</li> <li>• injured</li> <li>• difficult</li> <li>• serious condition</li> </ul>
document is negative (-0.153)	document negative (-0.510)	document negative (-0.399)

*Libertatea* to convince using strong negative words, of the semantic family of the word death: tragedy, death, ... Injured - 0.153 coefficient which measures capitalization is obviously negative. 491 people recommend this.

AGERPRES uses, in addition to the specific terms of death, many words of semantic sphere of medical, to argue the seriousness of the situation and induce the idea tragic, the imminent and inevitable end . Suffering is scientifically explained Because achieved a record of deaths each day from 30 October 2015 document is negative (-0.510). The story of freedom has the most detailed presentation during the first two weeks of the event. It has 556,529 accesses.

Mediafax keep the medical register to accentuate and explain convincingly, argumentative, the tragic situation (-0.399). The story on this site is visible emotionally charged, despite trying to present as objective and impersonal each victim. Details are provided on the surface of the body affected by burns, age and occupation everyone. The account has 4,999 hits, 19 photographs and one comment.

It's a real assault of death of terms. The receiver can not remain insensitive. Their repetition, the hit that appear in the text, which explains the significantly negative with is correlated each news-story that offers three public media receiver.

In the avalanche of terms great affection, the reason works by a short rapid, irrational circuit, . These shortcuts thinking lead public opinion to adopt extreme behavioral decisions after the event. It is when people take to the streets accusing the state forces of incompetence and corruption. It calls for the resignation of Prime Minister Ponta (will resign) and mayor Piedone (resigning, too), the mayor in charge of the event occurred. The young people take to the streets placards that are scriseacuze of the state, administrative and even church authorities.

These manifestations are relevant to the forms of rational thinking - "The availability bias" which tend to judge based on what comes easily to mind. The easiest accuse the available subjects that could turn to frustration, pain, hatred, anger, were the authorities. Under "the anchor effect" - the "shortcut" of thinking trigger a movement of the masses. The solution offered in this context - only solution, own evolution - comes as an argument to slow thinking, because that young protesters find salvation.

## 6. Conclusions

A word role is vital not only in the development of human cognitive system, but especially in the onset and progression of human emotions and behaviors event. If poetic expression word suggests first mental images and feelings with resonances deep, often unpublished journalism - in digital media - both the cognitive, affective and comportamentalul is based on common elements, known by most of the users in order to any confusion and the safely and directly influence. Goethe's Werther appearance at the time trigger a wave of suicides. The articles on the net today mobilized the masses, changing governments, shaping consistent, persuasive, user identity from cyberspace.

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## INTANGIBLE HERITAGE UNDER THREAT? VALUES AS GROUND FOR THE OBJECTIVITY OF HISTORICAL DISCOURSE

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### Abstract

The methodological problems within the cultural sciences generated, after 1880, an important controversy known as *Methodenstreit*. It started as a debate between historians from German area (represented by Gustav von Schmoller) and the economists and utilitarianism followers from Vienna (through Carl Menger). The central task towards focused their efforts was to research the possibility of an objective discourse adequate to *Geisteswissenschaften* (the sciences of spirit), different from that of natural sciences, but also who could overcome what they considered to be the rigid rationality of German Idealism.

In this controversy, the Baden Neo-Kantian School brought substantial contributions. And that, at least for three reasons: 1. its representatives were raised inside de classical German philosophical school and possessed, thereby, substantial knowledge concerning its promoted methods, required in order to formulate a rigorous critique. 2. Their solution was meant to distance itself both from the Enlightenment historical method, promoted in France by authors like Montesquieu or Voltaire, and from the opposed one, which Herder and others *Sturm und Drang* movement members conceived in Germany. Moreover, they rejected also the speculative comprehension of historical reason, by witch Hegel tried to understand the providential side of history, considered to be, until then, unknowable. 3. This method is intended to avoid the positivist paradigm, in which only the empirical data can lead to historical truth.

The solution they proposed was to reinforce and reformulate the axiological theory of knowledge, in which the values should offer a theoretical ground for the problem of objectivity. Herman Lotze tried already to develop an axiological comprehension of the human word, based on esthetic judgments concerning the value of beauty. The authors of Baden Neo-Kantian School decided, however, to adopt only the idea that a philosophy of values could solve this methodological issue, giving up completely the esthetic component.

The aim of this paper is to provide a founded critical answer to the question if values, in our digital and global era, still should constitute a valid ground for an objective historical discourse

**Keywords:** axiology, values, objectivity, *Heinrich Rickert*, *Wilhelm Windelband*, *Max Weber*.

Rickert's researches start on the philosophical soil of his teacher, Wilhelm Windelband. It is appropriate, therefore, to insist a few moments upon his doctrine.

Windelband opposes itself, from the position of neo-Kantianism to the new positivist direction for which only the empirical can be considered as being truth and the only valid methodology is that built by following the model of natural sciences. However, in spite of his considerable separation from Hegel, it is, unlike his successors, very attentive to the philosophical directions indicated by him. Speaking, for example, about how the philosophy must proceed, he agrees that it must reveal the necessity of the evolution of human thought, beginning with the naive ideas about the world and life and surpassing them, after perceiving their internal contradictions, alike as in the *Phenomenology of spirit*, but without resorting to the "mysterious explanation by which he [Hegel] envelop this change" [1]. Also, as for the concrete evolution of history, it is agreed that behind the individual actions there is a universal order:

*All great actions of historical personalities, as excellently has said Hegel, are based on the fact that the passionate energy of their desires is directed to exactly the same purpose as the driving energies of collective life, but which, however, have not been fully understood* [2].

This progress is, just as for Hegel, the progress toward the objectivation of freedom:

*Since the self-formation of humanity is, for us, the ultimate goal of the progress of history and if this self-formation also means self-determination, we can adopt Hegel's formula that the history of the progress resides in the consciousness of freedom. In this idea we encounter the end without which it is impossible to speak about progress* [3].

In his paper *History and Natural Science* as well, he accepts the idealist model, which state that the truth is not something as the *adequatio rei et intellectus*. In contrast he defines the truth as a value that is assigned to sentences, refocusing thereby the logic towards the axiology logic: "because truth is a value, logic itself is subordinated to the theory of value" [4]. At the same time, his doctrine challenges, from these positions, the problem of the individuality, that the German idealism (understood in the light of this new philosophical direction) did not properly resolved. Since we have as central problem the value, its object must be regarded in its uniqueness. The value is carried by an individual object: "In the uniqueness, in the incomparable character of the object are rooted all our feelings arising from values" [5]. If instead of this object we would have to deal with a recurring historical event, we could not assign it an axiological meaning.

According to Windelband, none of the natural sciences can provide a genuine path toward the particularity of the unique event. They seek the common properties of a class of objects while we need a glance that would highlight its particular character. Subject to the methodology of natural sciences, it would be reduced, mechanically, to an entity mere abstractly understood by the instrumentality of a general concept. In order to clarify this Wilhelm Windelband differentiates the nomothetic sciences from the ideographic ones. The first aim to develop a system of abstract principles and rules from which could be derived the properties of objects. For the second class of sciences, essential is not the discovery of a unifying general law but to perceiving the singularity of the phenomenon. History, for it is a part of this, should always pursue this goal. In a speech pronounced in 1894 in front of the general meeting of University of Strasbourg, Windelband insists vehemently on this thing:

*The knowledge obtained through the nomothetic thinking allows to be produced the tools by which the domination of man over nature never develops increasingly more. But it doesn't matter in a lesser extent neither the fact that any activity directed toward a goal within the human community is connected whit the experiences of historical knowledge* [6].

History should focus to research those aspects of society that cannot be deduced from the general laws but which, in their individual character, must be understood in a connotation of value. This, however, cannot be exhaustive accomplished. After all,

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admits Windelband, in everything that is experienced historically and in an individual manner, remains a residue of incomprehensible facts, in other words, something that is "inexpressible and undefinable" [7].

As for Rickert, he is closer (alike his teacher Windelband) to Lotze's metaphysics (which state the *ideal validity*) than to Nietzsche (and his relativism) or Franz Brentano (to whom the phenomenology of Edmund Husserl owns the idea to extract the objective value from the immediate).

Having as central pillar the critical idealism of Immanuel Kant, Rickert develops a theory of knowledge which aims to overcome what was labeled in Kant's doctrine, by his followers from Königsberg, as subjectivism. This is the gnoseological goal which Rickert proposes itself in his work *The object of knowledge*. Following the methodological development of this standoff regarding the problem of knowledge, he comes to define its own theory of values. Rickert observes that the process of knowledge is not, in reality, a purely intellectual activity: it cannot be separated from the judgement. This implies the presence, within it, of the auxiliary human activities, like the will or the excitability of feelings. If, before, the values were regarded as belonging to the intellectual acts aimed exclusively toward the praxis, after we can no longer overlook the fact that they shape the knowledge, for that any judgement is, in Husserl words, an intentional act and involving the human will or, in other words, a subjective act of recognition of the value of truth [8]. This manner of recognizing the truth continues Windelband's theory according to which the value objectively valid is the one that supports the objective validity of judgments, including of those relating to the topic being. The truth should not be understood as *adecvatio* but as value, located on a different plane than that of existence (sensitive or suprasensible).

The values are independent from the real (which constitute only their support). They cannot be identified with the purposes or objectives. We cannot put the sign of equality between the value and validity (as it did Lotze). They may be valid, but continue to exist even when they are not recognized. The values found the first being, at the same time, independent of them. The criterion by which we can differentiate them from the domain of existence is a negative one. By negating the existent results the non-existent; by negating the values may result the nothingness but also a negative value: "This criterion we can acquire using negation. The negation of an existential concept has only one meaning, the nation of a value concept has two meanings" [9].

However, it is necessary to set, from the beginning, an operational distinction - i.e. that between the theoretical values and non-theoretical ones, the last including those moral, religious or aesthetic. We have already seen that Lotze reduced all values to an aesthetic form, particularly to that of beauty as central value of his axiological theory. He regarded all other judgments in terms of it. Rickert reject this thesis. The judgments are connected whit the first of these two categories, the second causing only subjective acts as those connected with the will and the emotional ones. "The theoretical values can be demonstrated logically and founded rationally *rational begründet*" [10], the others can be only observed. The first are general and have a monistic tendency, the latter belong to the domain of singularity, having a pluralistic tendency and being in a continuous change and transformation. This character obliges us to begin their approach whit empirical data. For the cultural sciences they do not come from elsewhere than from the history - that science whose method, claims Rickert, must target the individual. "The philosophy of non-theoretical values cannot operate, consequently, otherwise that in an empirical manner and the system of values, now differentiate and established by philosophical analysis can only remain always open" [11].

In this open system (*offenes System*), even if the starting point is empirical and the values occurs on subjective side, some of them can claim an objective validity. These include: those whit an individual subjective character, in other words, those attached to particular individual preferences; the economic and vital values whose character is of the generalized subjectivity type as well as those raised within the community but recognized as objective - the ideal values (ethical, aesthetic and religious). Rickert observes, in science of culture, the existence of the opposites, which he seeks to understand in their mutual influence. Each of them is defined starting from its contrary (heterology) [12]: the transcendental self - the experimental reality; subject - object; sensitive / observable - intelligible; general - individual; value - non-value; natural - cultural. This resembles the Hegelian dialectics but only in terms of form. And that because we are dealing, here, with the resolution of opposites in a superior synthesis, having, in its turn, its negative and another superior moment in which it is overcome and, in the same time, preserved. Rickert did not propose such kind of resolution but, on the contrary, the preservation of dichotomies.

The natural sciences differ from the cultural ones because there are two distinct methodologies by which data derived from the sensitivity can be processed. For the first, the general laws as well as the links between them constitute the purpose of knowledge. They are more relevant as they rises above the various empirical facts, their achievement implying the in finding a unique universal principle. This direction, translated in the sciences of culture, would make to lose the individuality of the event and its multitude of qualities that circumscribes it. Therefore, in their case, we must leave the domain of general laws. The sensible infinity cannot be surmounted, here, otherwise than organizing it into a singular becoming by selecting the materials according to its reference whit the values [13]: "the real problem is therefore not to build a science that brings together the singular data or neglects the physical element, but to determine a scientist which, with the aid of general instruments, could conserve, from singular reality, something more than the natural sciences" [14]. This is the reason why Rickert decide not to use anymore the term *Geisteswissenschaften*, replacing it with *Kulturwissenschaft*. He justifies his choice, in the preface of the work, *Kulturwissenschaft und Naturwissenschaft* by the requirement, which he considers to be essential, to seek out and reveal the individual aspects of society in order to be able to obtain, afterwards, a proper comprehension of it. That's why says him that cultural life, through the particularity of its content, should be presented in individualizing manner, fact the term *spirit* (*Geist*) seems not to inadequate adequately [15].

For an object to be included in the field of knowledge, one should establish a concept meant to represent it. Windelband, as we have already seen, has rise the questioning regarding the ways in which the concepts are built. They should be able to express the individuality of the phenomenon within the ideographic science, and not to reveal only a general property, common to a set of objects. For Windelband, however, between the concept and reality remains a *hiatus irrationalis* [16]. In order to be able to capture the reality in its particular character, the act of conceptualization must be done by continuously reporting the targeted elements to values; in other words, by researching their value relevance. Applying this gnoseological theory to the philosophy of culture, we observe what possess value relevance are the *historical centers* i.e. those people who passes their values over the entire plurality of historical phenomena from that period. The values may be used only for revealing their individuality and not for constructing appreciative or depreciatory judgments.

Rickert's attitude regarding the philosophy of history is a critical (in the Kantian sense). He tries to explain how the reception is possible the reception and understanding of the past in a scientifically manner. In other words, without resorting to a metaphysical and dogmatic system whose conclusions cannot be rigorously validated. That's why he has conceived, in the first instance, a logic of knowledge focused on the process in which the concepts are build (*Begriffsbildung*) and on the concert manner in which we use them in our judgments. On this axiological ground the history can be, later, reconstructed in order to be able to surprise

the individuality of the event. "History has, as its research target, the individuals and selects its material by reporting the phenomena to values" [17]. They function similar to the laws of science helping us ourselves in a multitude of qualities, people and objects. In order to include in our research field the process of history, two conditions should be fulfilled [18]: first, to clarify the historical content, through its characteristic notes (of its actors, period, etc.); second, to relate them to a value (*Wertbeziehung*) which may confer them the status of phenomenon of cultural sciences (for those from the natural sciences are neutral from the axiological point of view -*Wertfrei*). Thus reported, they are not longer evaluated or judged, but only is perceived the historical fact. Also, although the value is a general one, it can, unlike the concepts from *Naturwissenschaften*, individualize the object which carries it, by highlighting its particular and not the common element of the class it belongs.

The historical research based on values is not concerned with the moral aspects of society. At the same time, considers Rickert, it is neither focused on a metaphysical unity which should explain the becoming. On the contrary, it aims to separate and gradually reveal the individual moment and locate it within the general course of historical evolution. The selection of the research area is guided by the particular interest of the historian and the right choice of necessary data from the multitude of connotations involved implied by the event is governed by the imperative of relate them to a determined value. In other words, if we are concerned, for instance, with the unity of German nation (understood as value), we should search, first, those events that have contributed to the realization of this goal, and then to pursue their causes [19]. This process must be focused on those historical centers that lived the values. The researcher must transpose itself in their contemporary era in order to understand their way of thinking and empathize with their specific values (although, in present, they were replaced by others). The values are dominant if they are mutually accepted by the historical centers. Otherwise, if they are not supported by the empirical data, they prove to be arbitrary.

Rickert, however, opposes himself to the psychological understanding of history. He also does not agree with the special psychology which Dilthey claimed to facilitate the comprehension. For him, the intuitive understanding that emerges from the literature is more suitable for the historical sciences than the last. And that because the act of comprehension involves two steps [20]: the understanding of the singular followed by the reconstruction of the state of mind expressed by it, with the aid of all the knowledge that we have. Therefore, it is not about an artificial construction of values but about observing how they appear in the past cultures, being accepted by all members of the cultural community. For that reason it is not necessary an external principle meant to explain or unifying them. Rickert comes very closely to the Hegelian idealist doctrine when he decides to follow Windelband's idea according to which the historical becoming involves the gradual achievement of human freedom.

On the other hand, given the fact that the system of values is limited to a human society, namely to a particular moment within the universal becoming, the historical science can attain its ideal of objectivity only partially. The historian attempts to retrieve the values of the community that he studies and to obtain an opening on the past. But it cannot appeal to a strict universal system of values. That's why, the universal history is "a philosophy of becoming, it is not a knowledge of reality but an interpretation of the past in the light of its ideas" [21].

All this does not fully elucidate the problem of objectivity of knowledge (and the process of selection of the essential dates on which it depends). Raymond Aron observed, rightly, that this approach of history is incomplete [22]. For it does not provide concrete indications for understanding the historical becoming nor he precisely clarify on which objects it should be applied.

The solution offered by Max Weber to the problem of methodological objectivity rests on Rickert's theory of values as well as on his researches concerning the logic of sciences. Taking them as the starting point, Weber examines how the empirical reality determines the process of concepts formation in order to be able to clarify, afterwards, the questions regarding the objectivity of concepts, the connection between them and the subjective values as well as the conditions that an object must fulfill for being a genuine object of knowledge. Summarily, the question he is trying to answer is: by virtue of which can we select those important and significant phenomena of cultural becoming?

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## SCIENCE AND RELIGION IN EDUCATION: DOGMA AND MYSTICISM VERSUS FREEDOM OF THINKING

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### Abstract

We can identify three principal reasons for what people have even a necessity for religion. First it's a deep thanatophobia, the people don't accept that personal life will end in one day and the idea of finishing of all what he was became unsupportable. So, people imagine illusory, imaginary worlds where he can have an illusionary future, even in eternity. A second problem it's the fear to be alone. People don't accept easy the idea to be alone. This can create big mental problems, anxiety and sometime can be a base for a suicide. Religiosity can offer the illusion that someone it's permanently with you, even talking to you, offering an easy way to endure your loneliness. A third big problem it's the nonsense of life, of existence in general. People refuse to accept the ephemerality of life. On cosmic point of view a man, even the entire Earth, it's irrelevant, insignificant. Religions offer the idea that someone take care of us and offer us a special destiny and make a sense in our existence, our personal life becoming justifiable.

The big problem it's the double message that the pupils, even students received in education. On the one hand they learn about the dogma and mysticism that dominate the religiosity way of thinking and on the other hand, but not mandatory, they have the opposition of the scientific method for understanding our world. Religion it's based on revelation of truth. In science the best way to understand something it's to put under question everything. A real man of science doesn't have any dogma and his mind must be free for accepting almost everything (not so easy...). Maybe the biggest problem it's to accept the place of the human in nature. For now it's easy to accept the cosmic, geological, geographical, historical, cultural evolution but when we speak about the biological evolution and especially about the evolution of man we still have a big problem in the front of pupils. It's not so easy for many people to accept the animality of man and its natural place in nature.

**Keywords:** Science, religion, education, scientific knowledge versus revelation of truth by gods.

Primitive men maybe had a sentiment of fear in front of nature. His knowledge about the world was so limitative and he use imagination in understanding the nature. He venerates big animals (bears, lions, big herbivores etc.) and other natural elements that influence his life like the sun. This was the first step of the birth of magic thinking. In this phase the man was in a close relation with nature, having a respect and veneration for it, even a mystic, ritualistic adoration of some animals and natural elements. The second phase of this mystical way of thinking was the apparition of myths in struggle to explain the origin of all what surrounding us and to understand the sense of existence in general. Unfortunately later the “civilized” man was not in so close relation with nature and the religiosity even make a rupture between man and the knowledge of nature using his primary perception by physiological senses and the power of rationality. We can identify three principal reasons for what people have even a necessity for religion. First it's a deep thanatophobia, the people don't accept that personal life will end in one day and the idea of finishing of all what he was became unsupportable. So, people imagine illusory, imaginary worlds where he can have an illusionary future, even in eternity. A second problem it's the fear to be alone. People don't accept easy the idea to be alone. This can create big mental problems, anxiety and sometime can be a base for a suicide. Religiosity can offer the illusion that someone it's permanently with you, even talking to you, offering an easy way to endure your loneliness. A third big problem it's the nonsense of life, of existence in general. People refuse to accept the ephemerality of life. On cosmic point of view a man, even the entire Earth, it's irrelevant, insignificant. Religions offer the idea that someone take care of us and offer us a special destiny and make a sense in our existence, our personal life becoming justifiable.

A pupil, a student it's a person that try to understand the world. Religion offer the “way” of understanding the world, the nature, using the revelation of truth by gods or supernatural ways in a mystic “method” of thinking. Religion it's based on dogmatic thinking. Science offer an opposite way to understanding the nature, the world and natural phenomena using the scientific method based on empiric observations, formulating, analyzing and testing hypotheses. The scientific knowledge can't be final; we don't have ultimate answers in understanding the Universe. Religion offers “definitely” answers to our questions about the knowledge of Universe, nature, man. Science and religion have distinct, opposite, incompatible ways of understanding our world, being methodologically different. The big problem it's the double message that the pupils, even students received in education. On the one hand they learn about the dogma and mysticism that dominate the religiosity way of thinking and on the other hand, but not mandatory, they have the opposition of the scientific method for understanding our world. Religion it's based on revelation of truth. In science the best way to understand something it's to put under question everything. A real man of science doesn't have any dogma and his mind must be free for accepting almost everything (not so easy...). Maybe the biggest problem it's to accept the place of the human in nature. For now it's easy to accept the cosmic, geological, geographical, historical, cultural evolution but when we speak about the biological evolution and especially about the evolution of man we still have a big problem in the front of pupils. It's not so easy for many people to accept the animality of man and its natural place in nature.

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# THE DOMINATION OF SCIENCE AND THE END OF ONTOLOGY

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## Abstract

**Background:** In the present context of expansion and domination of science on all areas of beings, it is necessary more than ever a reflection especially on the essence of science, but also on the condition of ontology. **Aim:** The main purpose of our research is to explore the essential aspects of "domination of science" and "end of ontology" concepts. **Method:** To achieve the purpose of our research we perform an hermeneutical investigation on two main texts of Martin Heidegger: *What Is Metaphysics?* and *The end of philosophy and the task of thinking*. **Results:** In the analysis of existential concept of science, resumed and developed by Heidegger in *What Is Metaphysics?*, the science is defined as a freely chosen possibility of existence, through which *Dasein* (and only him) relate in cognitive and revealing way to beings themselves. Though and prescientific and extrascientific activities also are related to beings, but the science is exceptional in that, in a way peculiar to it, it gives the matter itself explicitly and solely the first and last word. Following Heidegger's analysis performed in *The end of philosophy and the task of thinking*, we can confirm the expansion and the domination of science on all areas of beings, and also an end of ontology, but as a fulfillment of its, because the ontology is forced more than ever to identify and honor its task.

**Keywords:** domination of science, end of ontology, Martin Heidegger, task of thinking, essential thinking, calculative thinking.

## 1. Introduction

In the present context of expansion and domination of science on all areas of beings, it is necessary more than ever a reflection especially on the essence of science, but also on the condition of ontology. The main purpose of our research is to explore the aspects of "domination of science" and "end of ontology" concepts, and implicitly the relationship between science and ontology.

Although there are many scientific somites who approached the issue of the fundamentals of science, still not reached the lucidity that reveals the relationship between science and ontology. Therefore we consider the approach from a philosophical perspective is more appropriate for the analysis of this relationship. In this sense, to achieve the purpose of our research we perform an hermeneutical investigation on two main texts of Martin Heidegger. Although the German philosopher addressed the issue of science and its relationship to ontology in several books or essays (such as *Being and Time*, *Phenomenological interpretation of Kant's "Critique of Pure Reason"*, *The Question Concerning Technology or Science and Reflection*), we chose to focus our attention on the two texts which are also relevant for the issues addressed: *What Is Metaphysics?* and *The End of Philosophy and the Task of Thinking*. Of course, we make brief references to and other books mentioned.

## 2. The ontological fundamentals of science

### 2.1. The existential analysis of science

In *What Is Metaphysics?*, Heidegger resume, at first, the existential analysis of science, analysis which it had already carried out in *Phenomenological interpretation of Kant's "Critique of Pure Reason"*, then adding new terms.

The science is defined as a freely chosen possibility of existence, through which *Dasein* (and only him) relate in cognitive and revealing way to beings themselves. To understand what is science as "free possibility of human existence", we must first to know what is meant by "existence". Neither stone, nor plant, nor animal does not exist; only man there. "The essence of *Dasein* lies in its *existence*". And this implies two determinations: the *fact-of-being-in-world* and the *freedom*. So, only man can maintain this kind of relation with the beings. And this, in its turn, implies science as one of the possible cognitive and revealing relating of beings itself. Heidegger concludes: "The itself and single task [of science] is now bringing to light beings themselves". What happens to us, essentially, in the grounds of our existence, when science becomes our passion?

The fields of science are quite distinct, and their respective methods for investigating objects are fundamentally different. Nowadays the only thing that unites the expanding array of disciplines and gives them some coherence is the technical organization of universities and their departments, along with the practical goals set by each discipline. But even so, the sciences have lost their rootedness in their essential ground.

From the existential analysis of science we can distinguish three essential aspects of scientific knowledge:

1. *Relation-to-the-world*. Nonetheless, when we follow the inner trajectory of any given science, we always relate to things. In the view of science, no one field has priority over another – not history over nature or nature over history – nor does any one method for investigating objects take precedence over another. Mathematical knowledge is no more rigorous than philological-historical knowledge. It merely has the character of "exactness," which is not the same as rigor. To demand exactness from historical studies is to violate the idea of rigor that is specific to the humanities. The *relation-to-the-world* that governs every science *qua* science lets the sciences pursue things and make them, in their whatness and howness, an object of research, definition, and grounding. The ideal of the sciences is to help us achieve an approximation to the essence of all things.

2. *Orientation (attitude)*. Sciences special relation to things is sustained and guided by a freely chosen *orientation* on the part of human existence. Our pre- and extra-scientific activities are also ways of relating to things, but science is unique insofar as it gives the subject-matter, and it alone, a basic, complete and explicit primacy. This focus on the subject-matter in scientific questioning, defining, and grounding involves a unique and specific submission to whatever is, in order that it might appear as what it is. Scientific research and theory are beholden to their objects, and this is the reason why the sciences are able to assume a proper, if limited, role of leadership in the whole of human existence.

3. *In-break*. The way to fully understand science's special relation-to-the-world, as well as the human orientation that guides it, is to understand what happens along with this orientation and its relation-to-the-world. Human beings – one kind of being among others – "pursue science." What happens in this "pursuit" is nothing less than the *inbreak* of human being into things, with the

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result that this in-break “breaks open” things as what and how they are. In its own way, the in-break that breaks-open helps things become themselves for the first time.

These three elements that characterize the science – *relation-to-the-world*, *orientation (attitude)* and *in-break* – always sending “to the beings themselves”. Each time the beings appears to be the term that ends existential concept of science.

## 2.2. The science and the nothingness/the metaphysics

Taken in its radical unity, this trinity of relation-to-the-world, orientation, and in-break brings to our scientific existence the clarifying simplicity and rigor of human being. Once we explicitly grasp that clarified scientific human being, we have to say:

- our relation-to-the-world relates only to things that exist – and to nothing else;
- every orientation is guided by things – and by nothing besides.
- in the break-in, our research activity confronts things – and nothing more.

It is remarkable that as scientists stake out their own territory, they speak about something else. They investigate only things, and *nothing else*; just things that exist, and *nothing besides*; only things that are, and *nothing more*.

What about this “nothingness”? Is it just an accident that we speak so naturally in this way? Is it a mere turn of phrase? Why trouble ourselves about this nothingness? Science rejects it, dismisses it as “just nothing”. However, by giving up the nothingness in this way, do we not concede the nothingness? Yet how can we talk of “conceding” when in fact we concede nothingness? Maybe all this back-and-forth is just word-play. Science must now reassert its hard-headed seriousness and insist that it deals only with things. Science views the nothingness as nothing, a ghost. But how to recognize something that is absolutely the opposite of beings? Something like this would mean ignoring the most elementary laws of logic. In the logical space, nothingness is only a side effect of denial: it does nothing to accompany the “not”, the thing denied, negativity.

If science is right, this much is sure: science wants to know nothing about the nothingness. In the final analysis that is the scientifically rigorous conception of the nothingness. We know it only by wanting to know nothing about it.

Science wants to know nothing about the nothingness. Yet it is equally certain that when science tries to express its own essence, it appeals to the nothingness for help. It makes a claim on what it rejects. What kind of double valence is showing up here?

By reflecting on our factual existence – an existence determined by science – we find ourselves caught up in a controversy in which a question has already unfolded. That question merely needs to be directly asked: What about the nothingness?

Heidegger assert that “the nothingness is more original than the «not» and negation”. And moreover, meeting with the nothingness can be achieved based on a certain *affective disposition (the anguish)*, that is not “affects” or “feelings” or “state of soul,” but pre-determines the entire perception, understanding and outlook on the world and ourselves, and which it is one that provides, in the first instance, matching the *Dasein* with his being. “In the clear night of the nothingness of anguish the original openness of beings as such arises: that they are beings - and not nothing. But this «and not nothing» we add in our talk is not some kind of appended clarification. Rather it makes possible in advance the revelation of beings in general. The essence of the originally nihilating nothingness lies in this, that it brings *Dasein* for the first time before beings as such”.

If the being that delivered to science contradicts the Nothingness (science “wants to know nothing about the nothingness”), the nothingness of metaphysics not only that not contradicts the beings, but makes it entirely possible. Ignoring the nothingness, the science ignore their own conditions of possibility, ignoring its “rooting in basis of own essence”. Thus, science does not know that can not be understood itself outside of metaphysics, outside the “engaging in Nothingness”. “Interrogation that goes beyond being” and accede to nothingness is the ultimate foundation of science, the one that makes it possible.

In his turn, the scientific *Dasein* is only possible through “transition” of human being to his *Dasein*, by discovering his preliminary placement in nothingness. As it the condition of possibility for beings is nothingness, so also the condition of possibility for science is metaphysics. Alleged lucidity and superiority of science become ridiculous if it does not understand to take seriously the nothingness. Since only because the nothingness is manifest, the science can make the beings themselves the subject of its research. Only to the extent that there is starting from metaphysics, science has the power to find ceaselessly the mission conferred upon it by its very essence: no accumulation and ordering of knowledge, but permanent opening of the entire space of truth of nature and history.

## 3. The domination of science and the end of ontology

In his late essay *The End of Philosophy and the Task of Thinking*, Heidegger sums up his entire message for philosophers and posterity, the one that had him broaching the question of Being since *Being and Time*. He tells us that Western philosophy since Plato has overlooked one simple fact: *that* beings show themselves to us. Heidegger identifies philosophy as metaphysics, which thinks beings as being in the manner of representational thinking which gives reasons or “grounds”. In metaphysics, ever since its inception and in its constitution as a project, the Being of beings has been represented as the “ground” from which beings are what they are and in virtue of which they can be known. In the history of philosophy, this ground or “presencing” has itself been represented in several different ways: as the “ontic causation of the real” (Plato and subsequent Christian theology); as the “transcendental making possible of the objectivity of objects” (Kant); as the “dialectical mediation of the movement of the absolute Spirit” (Hegel); as the “historical process of production” (Marx); as the “will to power positing values” (Nietzsche) etc. What generally characterises metaphysical thinking, according to Heidegger, is that it departs from “what is present in its presence” (ie the Being of beings themselves), representing it as something else - namely, “its ground as something grounded”. It is this project, which Heidegger conceives as a forgetting of the question of Being, that Heidegger asserts as having “entered its final stage” in the sense of attaining its completion.

The end of philosophy is marked by several features. First of all, it has been brought about by the reversal of metaphysics in the work of Marx and Nietzsche. Following this reversal, any attempt at metaphysical thinking has managed only an “epigonal renaissance”.

Secondly, it manifests itself also in the transformation of metaphysical thinking into an empirical science of man, in the sense that these sciences, which developed within metaphysical thinking, have now established their independence from that thinking. As Heidegger points out: while this development appears to be the mere dissolution of philosophy, it is in truth its completion, the fruition of the forgetting of Being by Platonism.

Thirdly, the end of philosophy is reflected in the current determination of man as an acting social being. The forgetting of the question of Being culminates in what Heidegger describes as “the new fundamental science of cybernetics”, which is the theory which informs “the steering of the planning and arrangement of human labour”, the transformation of language into an exchange of

news, and the transformation of the arts into “regulated-regulating instruments of information”; in other words, the metaphysics of what Adorno and Horkheimer refer to as “administered life”. The end of philosophy lies in its own fruition as “representational-calculative thinking”, a sort of thinking which - moreover - liquidates any attempt to question its own metaphysical origins.

So, in this situation - in the end-days of classical philosophy - what is the task of thinking, “a thinking which can be neither metaphysics nor science”?

It is, according to Heidegger, a task “which has concealed itself from philosophy since its very beginning, even in virtue of that beginning, and... has withdrawn itself continually and increasingly in the time to come”; a task “which includes the assertion that philosophy has not been up to the matter of thinking and has thus become a history of mere decline”. The task of thinking in the end-days of philosophy is, furthermore, “only of a preparatory, not a founding character. It is content with awakening a readiness in man for a possibility whose contour remains obscure, whose course remains uncertain”. The task of thinking is to recall us to the question of Being in a scientific-technological world; it is not to speculate on, let alone anticipate, any answer which might be forthcoming to that question. It is to “lighten” or “open” a “clearing” (phenomenologically speaking) into which the Being of beings - what it means to say that something (anything) 'is' - can reveal itself; a process in which thinking itself is transformed from the representational-calculative/metaphysical to the meditative/edifying, to a thinking which attends with care and solicitude to the Being of the beings themselves rather than to their representative or instrumental value alone.

The task of thinking is not eschatology (it “does not wish and is not able to predict the future”); and it is certainly not metaphysical speculation about the “ground of Being”, since “our investigation [of the meaning of Being] does not then become a «deep» one, nor does it puzzle out what stands behind Being. It asks about Being itself insofar as Being enters into the intelligibility of Being-there”.

#### **4. Conclusion**

Although Heidegger claimed that “*Philosophy will be terminated as soon as merging to sciences*”, however that does not mean that German philosopher is anti-science. He does not think that one can replace science by philosophy or another way of thinking (religion or spirituality or whatever way you might want to characterise it). On the contrary, science only works because it limits nature to a sharply defined model that can be tested by an experiment. Heidegger’s worry is when we confuse this necessary limitation with the totality of nature and even more so when we think of ourselves in this way. But what is true of science is also true of religion in the medieval age or philosophy in the ancient one. What such an inflation of science conceals (that science describes nature as it is), is the political and ethical dimension of scientific and technological world view, where nature becomes only something that is to be consumed and used up. In the age of climate change and ecological catastrophes we might wonder whether such a relation hides a danger we have failed to foresee.

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## LE CORPS, LIEU ET ENJEU DE L'EXPÉRIENCE RELIGIEUSE

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### Abstract

*The distinction between the soul and the body, so emphasized especially by the Christian tradition, has banished the latter from the act of redemption, reducing it to the image of the lustful flesh. As in this hierarchy of Salvation the soul is the core of any sacred experience, the body can be subjected to all kinds of mortifications that should exorcize the flesh of all sinful thoughts and desires. Since the individual body is a thrall for demons, a harsh discipline, meant to crush any human weakness, is systematically enforced upon the flesh. The fact that the Son of God “became flesh and dwelt among us” (Jn, 1:14) not only did not change the treatment inflicted to the body, but even managed to justify it, by using the Passion of Christ as a model for the existence of every human being on their way to salvation: now, the suffering and tortured body of the believer recalls the Body of Christ, being sacrificed and redeeming humanity's sins.*

*In this work of Salvation, the individual body must remain silent, while the Body of Christ, and, by extension, the collective body of the Church, give a new meaning to the human existence in an everlasting repetition of the sacrifice. As a reaction to this absolute silence imposed to the individuals, Anne Hébert places the booming voice of the flesh in opposition to the distorted image of the sacrificed body of Christ, in an attempt to encompass and rediscover the human being in its entirety. For the author, the body is at the center of every human experience, a privileged space where human beings carve their own history. Anne Hébert evokes those sacred experiences in which the human body becomes a landmark in a subtle communication network that acts as a bridge between the individual and divinity.*

**Keywords:** *body, Salvation, mortification, human experience, sacred.*

Dans son Grand Catéchisme (publié à Vienne en 1555 sous le titre *Summa doctrinae christiana*) le jésuite Pierre Canisius décrit la prière comme : *un pieux mouvement de notre âme vers Dieu, pour lui demander avec foi ce qui peut être salutaire à nous-mêmes ou aux autres, pour lui rendre grâce de ses bienfaits, ou enfin pour rendre un hommage quelconque à cette suprême et éternelle majesté : de sorte qu'on peut rapporter à la prière non seulement les demandes faites à Dieu, mais encore l'adoration, l'oblation ou le sacrifice, l'invocation, le louange et l'action de grâces* [1]. Élément essentiel dans le culte dévotionnel, la prière est vécue comme une communion totale avec la divinité, représentant, à la fois, un moment d'épreuves spirituelles et physiques. La fusion avec Dieu, moment glorieux qui couronne les souffrances du croyant, ne peut être envisagée que sous ce nimbe de sacrifice, le dévot faisant au Seigneur le don de son profond amour et de sa chair meurtrie. La prière se fonde ainsi sur l'économie du Salut (au sacrifice christique, témoignage suprême de l'amour du Créateur pour l'être humain, le fidèle répond en consacrant son corps et son âme à la divinité), et s'articule sur la logique des mouvements spirituels (sentiment d'humilité, de ferveur religieuse) et physiques (postures corporelles, gestes rituels, mortifications). Le corps en prière porte de cette façon les marques visibles de l'adoration : le croyant aspire non seulement à recevoir la chair et le sang du Rédempteur par la communion eucharistique, mais aussi à participer physiquement à Sa Passion, à revivre, dans son corps, le mystère du Salut et à découvrir la source de la vie éternelle. Le corps de Jésus est aliment d'immortalité et son assimilation, par ingestion ou réitération de Ses souffrances, marque l'appartenance du croyant à l'Église du Christ.

Puisqu'il se trouve au cœur de ce mystère du salut et de la communion par le sacrifice, le corps occupe une place de choix dans le discours chrétien. Un double mouvement anime les réflexions des mystiques, des pères de l'église et des apôtres : d'un côté, c'est le corps sacré dans sa dimension rédemptrice, corps mystique de Jésus immolé sur la croix; de l'autre côté, c'est la chair, dans sa dimension humaine, concrète, soumise aux péchés et aux désirs inassouvis. Terrible contradiction qui réduit le corps à l'œuvre du Salut d'un dieu fait homme, ou à l'œuvre de chair, qui enchaîne l'âme dans le gouffre de l'Enfer. Au corps glorieux du Sauveur s'oppose le corps avili du pécheur. À la vie sanctifiée, placée sous le signe du Salut, la lente dégradation de la chair et, finalement, la mort. La présence obsédante de la chair hantée par le mal provoque à une réévaluation du statut du corps dans l'œuvre du Salut. Pour lutter contre la désordre de la chair qui succombe devant le péché il faut infliger au corps une discipline féroce, qui puisse dompter, voire annihiler, tout mouvement instinctuel contraire à la volonté divine. L'idéal serait le corps purifié, purgé des pulsions charnelles, un corps aseptique, exempt de tout germe de malice. Cette hygiène physique et spirituelle qui met l'être humain à l'abri des assauts du monde extérieur consiste en des prières et des méditations, des jeûnes extrêmes, des humiliations, des mortifications.

*Notre corps*, dira l'apôtre Paul aux chrétiens de Corinthe, *est pour le Seigneur : le corps n'est pas pour la débauche, il est pour le Seigneur, et le Seigneur est pour le corps ; et Dieu, par sa puissance, a ressuscité le Seigneur et nous ressuscitera nous aussi* (1Co : 13-14). Cette extraordinaire promesse de vie éternelle dans le Christ implique l'idée d'assimilation du corps christique dans le corps du fidèle et, inversement, d'une incorporation du croyant dans le Sauveur. L'être humain ne fait ainsi qu'un seul corps et un seul esprit avec Dieu : *Ne le savez-vous pas ? Vos corps sont les membres du Christ. Vais-je donc prendre les membres du Christ pour en faire les membres d'une prostituée ? Absolument pas !* (1Co 3 : 15). C'est ainsi qu'il faut fuir le péché, garder jalousement la pureté de la chair, se montrer impitoyable envers son propre corps pour le dompter. Des supplices corporels naît le véritable amour pour Dieu et l'efficacité du Salut dépend entièrement de ces préparations pour la réception de la grâce divine. Vivre dans le Christ signifie le suivre dans sa démarche pénible vers le mont du Calvaire, un message qui retentit dans les sermons et surtout dans les représentations de la Passion et de la crucifixion : le corps maigre de Jésus, dans la nudité de sa souffrance, le sang jaillissant de ses plaies, hante l'imaginaire des fidèles. *Le christianisme*, considère Michèle de Certeau, *c'est institué sur la perte d'un corps, la perte du corps de Jésus* [2]. Il ne s'agit pas seulement des souffrances physiques et spirituelles du Christ dont le parcours terrestre s'achève en effet par l'anéantissement corporel, mais aussi d'une rupture entre l'être humain et son corps, entre l'âme et la chair.

### 1. Le corps de la femme et la piété inefficace

Les croyants se vouent ainsi à l'ascétisme, forme de vénération privilégiée. Entre les murs des couvents, les visions se multiplient, les dévots se nourrissent de l'hostie seulement, les coups de fouets, les cris et les gémissements (de douleur ou d'extase mystique) résonnent à l'unisson avec les Ave et les Pater. Ce sont surtout les femmes, les religieuses, qui possèdent cette vocation de mystiques et qui reçoivent les signes ineffaçables de la fusion avec le corps du Christ : les stigmates.

Comme Marie, mère de Jésus, ou Marie de Magdala, les religieuses suivent le Christ supplicié sur la Via Dolorosa. Ce corps humilié, torturé ne les laisse pas indifférentes : témoins de la Passion christique, les religieuses participent effectivement aux souffrances du Sauveur. Elles deviennent des victimes consentantes et s'abandonnent à toutes sortes de mortifications. Plus qu'une haine à l'égard de la chair, c'est l'aspiration au martyr, incitée par un amour et une dévotion exacerbés, qui pousse ces femmes à des actes et des supplices souvent inimaginables. Sœur Rose de Lima *se voue à la pauvreté, coupe sa chevelure, se frotte le visage avec de la chaux vive pour garder sa beauté uniquement pour l'époux céleste, jeûne à l'eau et au pain, s'applique des flagellations inouïs* [3]. Sœur Catherine de Sienne réduit les heures de sommeil, afflige son corps par des jeûnes extrêmes, se réjouit quand son corps se couvre de pustules purulentes, signes d'une grave maladie qu'elle subit au nom du Christ.

En dépit de ces preuves de piété, l'image de la féminité au sein de l'église ne cesse d'être associée à l'œuvre de chair, à l'insoumission et aux tentations diaboliques. La peur du corps féminin, séduisant et détenteur de délices inouïs, trouve sa justification dans la croyance que la femme, malicieuse et malfaisante, est complice ou esclave du démon et que sa chair est corrompue. L'imaginaire masculin est hanté par la figure de Lilith à la queue de serpent, par des femmes-démon voraces et par des corps lubriques, qui finissent par s'insinuer dans le couvent, espace sacré que l'on croyait à l'abri des forces démoniaques. Sœur Julie de la Trinité, religieuse de l'ordre des Dames du Précieux Sang, tourmente l'esprit des hommes pieux: aumônier, docteur, exorciste, ils sont tous hantés par la présence obsédante de cette femme dont on ignore l'origine. Mais dans le couvent des Dames du Précieux Sang, ce ne sont pas seulement les hommes qui font front commun contre les attaques insidieuses de cette femme : la mère supérieure Marie-Clotilde reproduit l'autorité masculine au sein du couvent, car : *les vœux de religion tels qu'ils ont été fixés au cours de l'histoire, étaient en fait plus adaptés à la réalité vécue par les hommes. Les femmes ont accueilli, comme étant leur expérience, une expérience qui était celle des hommes, et, en certains cas, elles ont été beaucoup plus rigides qu'eux. Comme reproductrices de la tradition, elles ont souvent été, non seulement obéissantes aux pouvoirs masculins, mais elles-mêmes se sont constituées en femmes puissantes et intransigeantes, à l'image de ceux qui étaient leur modèle* [4]. L'espace clos du couvent devient l'espace des mortifications corporelles et d'une quête inassouvie de la divinité. Aucun soulagement pour ces femmes vouées au silence et au désespoir. Dans le couvent des Dames du Précieux Sang, les prières sont inefficaces et le Christ immolé sur la croix reste muet et insensible dans le silence de l'autel, statue de pierre froide et inanimée, tandis que ses religieuses sont consommées par le feu de leurs désirs inavoués.

Ce silence est brisé de temps et temps par les voix qui psalmodient les chansons et les prières rituelles : *Le mouvement et la voix nous sont rendus. Coups de claquoir. Debout. Assises. À genoux. Génuflexion. Un grand signe de la croix sur le front, la bouche et la poitrine. Inclignons la tête. Relevons la tête. Ballet solennel de la messe. Les ornements verts, brodés d'or, du célébrant brillent dans un rayon de soleil.* (ES, 31) Le moment solennel de la prière perd toute signification religieuse. Aucune fusion avec la divinité. Aucune disponibilité spirituelle authentique de la part des religieuses pour communier au miracle eucharistique. Les gestes sacrés sont accomplis automatiquement, comme si le corps, dépourvu d'âme, s'adonne à une danse désarticulé et vidée de sens, s'abandonne à un rythme qui lui est étranger : *s'exprimer par geste. Tel est le règlement (...). Ne pas toucher au silence, le moins possible. Les sourds-muets ont un vocabulaire plus complexe que le nôtre. Espérer atteindre, un jour, la non-parole absolue, tendre à cette perfection.* (ES, 50) Les paroles des sermons prononcés par le prêtre (lui aussi une caricature du véritable sacerdoce) se perdent dans la longue litanie des murmures incompréhensibles. La Parole, la vraie Parole, créatrice et salvifique, que Jésus, en semeur, plante dans la terre, ne porte aucun fruit. C'est que la semence est maintenant mauvaise, la terre creuse et le diable en oiseau de proie se cache derrière l'autel ou derrière la croix du supplice, insinué, semble-t-il, par la sœur Julie, sa complice des maléfices et des commerces charnels.

## 2. L'amour frénétique et la dévotion chrétienne

Dans le couvent des Dames du Précieux Sang, si la prière collective est une caricature des communions chrétiennes, la prière individuelle est réduite au seul tourment physique. Dieu reste indifférent aux supplications des religieuses : *Une trop longue absence. Plus le Christ demeure le seul et l'abandonné, invisible derrière un rideau de pourpre, plus la mélancolie profonde de sœur Julie augmente et le sentiment d'inutilité de son sacrifice.* (ES, 26) Dans ce silence absolu, dans cet abandon de la divinité, au bord du désespoir et de la folie, sœur Julie essaye d'obtenir du Fils de l'Homme un adoucissement de ses tourments : *Que je forme une croix, bien droite, avec tout mon corps endolori ! Que pas une jointure ne flanche et ne craque ! Dieu lui-même ne peut m'en demander davantage* (ES, 26). La prière n'est plus le moment privilégié de la communion avec Dieu, ni le moment d'intense méditation sur la vie intérieure. L'efficacité de la prière tient maintenant d'une comptabilité des âmes qui mesure l'adéquation aux règles du culte et le nombre des mouvements rituel : *Réduite à ma forme de croix, concentrée sur l'effort physique de durer en croix, je n'ai plus le loisir de penser à moi-même, ni au monde, ni à Dieu, ni à mon frère Joseph. Personne. Rien. Mon corps seul persiste. Une comptabilité stricte s'est installée dans ma tête. Bien compter les Pater et les Ave. Surtout ne pas baisser les bras.* (ES, 26) Une complicité s'installe alors entre l'orant (transformé, lui aussi, en statue de pierre) et un dieu indifférent ou impuissant : *Peut-être Dieu me fait-il face de la même manière, caché dans le tabernacle, dans le silence de sa croix à lui, au moment le plus entier de sa solitude et de son abandon. Regarder, bien droit devant moi, la lampe du sanctuaire, signe de la présence réelle de Dieu dans le tabernacle. C'est comme si je regardais Dieu en face, sans cligner des yeux, et que je ne trouvais rien à lui dire. Tant ma pauvreté est absolue, mon dénuement complet. Toutes mes forces ramassées en un seul point. Rester en croix le temps prescrit.* (ES, 26)

D'autres religieuses aspirent à une fusion totale avec le corps du Christ, l'époux bien-aimé qui, de temps en temps, leur apparaît dans des visions et se laisse découvrir dans le pain eucharistique. Elles désirent effleurer la chair meurtrie du Jésus, embrasser ses plaies sanglantes, avoir le cœur transpercé de ce doux amour devenu le noyau de leur existence. La vénération du corps christique meurtri offre des plaisirs inouïs ; la bienheureuse Marie-Marguerite Alaconque raconte : *Il me fit comprendre à la façon des amants les plus passionnés qu'il me ferait goûter ce qu'il aurait de plus doux dans la suavité des caresses de son amour ; en effet elles furent si excessives, qu'elles me mettaient souvent hors de moi-même. (...) si j'avais mille corps, mille amours, mille vices je les immolerais pour lui être asservie* [5]. Pour sainte Angèle de Foligno, la vision du Christ prend la forme d'une rencontre amoureuse, racontée d'une manière qui valorise plutôt le côté sensuel de cette expérience extatique : *il me semblait qu'un instrument tranchant me fendait puis il se retirait. Je fus remplie d'amour et je fus rassasiée d'une plénitude inestimable... Mes membres se brisaient et se rompaient de désir et je languissais, je languissais. L'Amour se rapprocha, il me fit une plus ardente brûlure ; et quand je reviens de cet amour, je suis dans une joie immense* [6].

L'union de l'âme des religieuses avec le Christ est ainsi un mariage sacré, non dépourvu de sensualité. L'adoration du *corpus christi* s'accomplit dans un registre érotique qui rappelle les célébrations des cultes de fertilité. Pendant ces rituels, le corps d'un dieu, souvent soumis à une mort violente et ressuscité, est adoré pour son potentiel fécond, et les participantes s'unissent

rituellement à une représentation symbolique de cette divinité. C’est pour ce Christ qui offre des plaisirs inouïs que sainte Marie Madeleine de Pazzi *tailladait ses vêtements et courrait dans son jardin pour asperger ses seins d’eau* [7], tellement intenses étaient les visions et les transes extatiques.

Dans le même domaine des cultes de fécondité, le corps démembré de la divinité meurtrie était souvent consommé de façon rituelle pendant les célébrations. Les fêtes dionysiaques introduisent des femmes en extase qui se prêtent à des actes sauvages, pendant lesquels le dieu (sous la forme d’un animal symbolique) est cannibalisé et sa chair ingérée. La faim eucharistique, vécue de façon littérale, illustre très bien le type de relation qui s’établit entre le Christ et ses adoratrices : c’est une relation charnelle au sens plein du mot, vu que, par le miracle de la transsubstantiation, l’incorporation des sacrements est une ingestion de la chair et du sang du Sauveur. La faim d’hostie (sœur Catherine de Sienne finit par s’en nourrir exclusivement), est en fait la faim du corps de Jésus, car pour ces femmes mystiques, le pain eucharistique est vivant, et la transsubstantiation n’opère pas à un niveau symbolique, mais à un niveau bien réel. L’hostie devient le Christ, et sœur Gemma du couvent des Dames du Précieux Sang éprouve une joie extrême quand, en touchant l’hostie, elle croit *entendre battre, sous ses doigts, le sang du Christ, répandu sur la croix pour nos péchés.* (ES, 47) L’ingestion du corps du Christ comme aliment sacré est un rite de sanctification qui marque l’apogée de l’ascèse mystique : finalement, le corps de la pénitente est mêlé intimement au corps sacré. Ces femmes entrent ainsi dans un nouveau régime de corporéité, *qui suit l’itinéraire d’une assumption de la chair, d’une transformation d’un corps souillé par le péché à un corps annonciateur de la gloire (...)* Une nouvelle corporéité laquelle est au contraire saturée d’émotions et de sensations [8].

### 3. Le corps souffrant et le corps désacralisé

Pour l’ascète qui s’épanouit en présence d’un Dieu des souffrances et des pénitences, les signes de la maladie sont les marques d’une élection divine : par ces supplices corporels, Dieu soumet le croyant à une purification de la chair tout en fortifiant son esprit. Comme les stigmates ou les cicatrices des flagellations, les pustules purulentes, les nodules, les blessures ouvertes imprégnées de sang séché sont les marques des élus, elles inscrivent sur le corps du pénitent l’espoir du Salut. Le corps malade est ainsi un corps béni, car toute forme de supplice qu’on consacre à Jésus rapproche du Seigneur.

Dans le couvent des Dames du Précieux Sang, le corps malade se montre avec insouciance, en accord parfait avec le corps meurtri du Christ, réfugié sur le crucifix qui trône dans l’église. Confinés d’habitude dans l’espace clos de l’infirmerie, les corps malades des religieuses affluent partout dans le couvent comme le sang d’une plaie ouverte dès que le démon répand partout le miasme pestilentiel de la corruption. Ici, la maladie est signe de vieillesse et d’impuissance, de dégradation et d’humiliation. Les cris des religieuses agonisantes s’élèvent dans le couvent comme les cris des suppliciés dans le gouffre de l’enfer. Le couvent sombre dans la folie et le désespoir : *vous avez eu tort, ma révérende mère supérieure. Il ne fallait pas retirer les calmantes aux pauvres malades, lâcher les plâtres de dents, les jurons et les blasphèmes, la douleur toute crue et l’horreur toute nue. In pace. Le secret du désespoir était bien gardé.* (ES, 76-77)

Le corps – membre du Christ est désacralisé, profané. Touché, piqué, ouvert par les instruments du chirurgien, cousu, décousu, plaie ouverte, le corps s’offre au regard de tous, son mystère, souillé, devenu : *une litanie dégoutante qui parle d’urine et de sang, d’excréments, de boyaux éclairés par le baryum, de squelette visible à travers la chair et la peau, de crâne scalpe, dénudé jusqu’à l’os par les rayons x.* (ES, 13)

La maladie n’a aucune action curative sur les âmes des religieuses. Le corps faible, rongé par les souffrances, implore le pardon du Seigneur : *Sœur Sophie, qui est pleine de plaies purulentes de par tout le corps, répète, toute essoufflée : « Que votre volonté soit faite » et « Mon Dieu, ayez pitié de moi. » Parfois elle ajoute, après un hurlement plus prolongé : « Pardon, mon Dieu, pardon pour mes péchés et ceux de toute la terre.* (ES, 77) Les supplices incitent aux injures, aux exhortations contre la divinité car il est inconcevable qu’un Dieu qui a aimé les hommes au point de sacrifier son Fils unique soit consentant à une pareille cruauté : *mais le plus dur à supporter, c’est sans doute le cri de sœur Constance de la Paix, qui est aveugle et à demi paralysée, rauque, inhumain, un grognement plutôt, répète jusqu’au matin, rythmé, saccadé, comme frappe sur une enclume : « Mon Dieu, pourquoi m’avez-vous abandonnée ? Pourquoi ? Mon Dieu, où êtes-vous ? Où êtes-vous ?* (ES, 77)

L’étrange économie du Salut qui s’installe dans le couvent fait de Dieu et du Diable des complices : l’un, par indifférence ou impuissance, l’autre, par pure malice. Abandonnées aux pires mortifications, dans le silence absolu du Créateur, les religieuses se demandent : *Quel Dieu barbare, lui-même victime et complice, cloué sur la croix, ose proclamer que la souffrance est précieuse comme l’or, bonne comme le pain et qu’elle seule peut sauver le monde, l’arracher aux forces du mal et le délivrer des griffes du péche ? Le salut éternel. Son prix exorbitant.* (ES, 77).

### 4. Le corps féminin comme espace de liberté et de communion avec le sacré

Dans l’univers hébertien le corps acquiert sa véritable valeur seulement dans les rituels transgressifs, loin de l’espace clos du couvent, dans la montagne de B. La sorcellerie pratiquée par sœur Julie de la Trinité s’alimente des transgressions : homicide, contact avec les cadavres ou le sang. Parmi toutes ces transgressions, l’inceste est l’une des plus graves ; il peut prendre la forme d’une initiation, ayant comme finalité la transmission de certaines connaissances sacrées. Ce sont les quelques coordonnées des rencontres sabbatiques que Julius Evola évoque : *dans le rendez-vous diabolique, la reine du Sabbat apparaissait comme une jeune fille nue, d’une beauté particulière, portée par un bélier noir (...)* Le bouc initiait la vierge par une suite de sacrements (...), elle était ointe et puis violée sur un autel. (...) Sur son corps étendu, comme sur un autel palpitant, le bouc, qui s’est transformé en figure humaine ou semi-humaine, officie. Une orgie générale, pandémique, suivait [9]. Le rôle de reine du Sabbat est assumé par Julie, nue et adorée comme une déesse vivante, tandis que le bouc, c’est son père, le démon Adélard, portant des cornes sur la tête. L’initiation de Julie porte la marque de la transgression : c’est par la sexualité incestueuse et violente qu’elle est intégrée dans un réseau de connaissances sacrées qui lui permettront de remplacer sa mère, la terrible Philomène : *au plus profond de son premier sommeil, la petite fille fut réveillée par quelqu’un qui la poussait du pied, assez rudement, dans le dos et sur les jambes. Une grande ombre d’homme cornu était là debout devant elle, le visage plein de sueur, la poitrine noire soulevée par une respiration oppressée.* (ES, 44). *L’homme ajouta qu’il était le diable et qu’il fallait qu’il prenne la petite fille. (...) Puis il mordit la petite fille très fort à l’épaule, afin de la marquer à jamais comme sa possession.* (ES, 45)

Le sang joue un rôle essentiel : si les rites d’initiation se finalisent par une seconde naissance de l’être humain, le sang comme symbole de la vie sanctifie cette nouvelle existence. Plus encore s’il s’agit du sang d’une vierge, celui-ci ayant des propriétés numineuses remarquables. La victime du sacrifice sabbatique doit être premièrement sanctifiée, avant d’être sacrifiée. Julie est ointe par ce sang du sacrifice et par la violence subie par son corps : *Il prit dans sa main son sexe tout gonflé et la mit de force dans le petit sexe de la fillette qui hurla de douleur. Le diable, de ses mains velues, étouffa les cris de la petite fille. Il lui promit, d’une voix à*

peine audible, de lui accorder tout ce qu'elle voudrait. Comme la petite fille saignait beaucoup, le diable, en la quittant, lui dit que c'était le sang du petit cochon égorgé qui lui coulait entre les cuisses et non son propre sang. (ES, 45)

Le corps de Julie est un corps violenté et voué au mal, car : *dans la tradition de nombreux peuples le principe féminin a été associé non seulement au principe d'une séduction mais aussi à l'élément démoniaque. Selon la Kabbale, le démoniaque procède précisément de l'élément féminin* [10]. Le corps de la sorcière de Julie ne subit pas tout simplement le déchaînement du mal, il en est le géniteur. Le démon occupe donc un rôle secondaire, d'initiateur, la femme-sorcière représentant en fait une incarnation des déesses primordiales de la fécondité qui présidaient à la naissance et à la destruction du cosmos. Les réunions sabbatiques de la montagne de B. valorisent ce corps, matrice universelle et ventre nourricier. C'est toujours à travers ce corps et à travers la sexualité que Julie acquiert ses pouvoirs : *je suis nue sur la table de la cuisine, couchée sur le dos, la tête sur les genoux de ma mère. Il y a un cercle de craie blanche dessiné sur le plancher, tout autour de la table.... Consentante et livrée, je serai le cœur de leur extase. (ES, 66) (...)* *Une couronne sur ma tête, le manteau de pourpre sur mes épaules, pieds et mains liés, Philomène et Adélarde me prennent dans leurs bras et me font faire le tour du cercle de craie, appelant, à voix basse et rauque, les Puissances de l'Ombre, les Dieux du Nord, de l'Est, du Sud et de l'Ouest. Ils offrent leur fille consacrée et brûlée. (ES, 69).* Le corps de Julie devient ainsi un axis mundi, le centre, point d'origine absolue, d'où jaillissent toutes les forces créatrices de la nature.

Le sabbat devient de cette manière une reconstitution des rites et des cultes de fertilité, qui réussissent à harmoniser l'être humain avec son corps. Un témoignage des participantes aux réunions sabbatiques est révélateur : *elles déclarèrent avoir tous les jours des rapports charnels avec le diable ; qu'elles se rendaient aux sabbats et aux réunions ou elles mangeaient, buvaient et commettaient débauches et sensualités diverses. Chacune connaissait le diable sous la forme d'un homme... elles n'avaient d'ailleurs pas le moins du monde envie de changer, de quitter ces plaisirs abominables comme l'une d'entre elles avoua : « Non, je ne veux pas devenir autre chose que ce que je suis, je suis bien trop contente de ma condition. On ne cesse de me caresser. »* [11]

## Conclusions

Dans l'univers hébertien, le corps comme lieu de l'expérience religieuse est un corps souffrant. Plus que l'âme, c'est la chair qui est atteinte, ravagée par le contact avec le divin ; peu importe s'il s'agit d'un ravissement mystique ou d'une initiation sabbatique, les marques de l'acte sacré sont à jamais inscrites dans la chair.

Les mortifications physiques, les infirmités et les difformités sont le témoignage d'une dévotion au corps supplicié du Christ, pratiques mutilantes et dérisoires, car le Sauveur reste insensible aux souffrances et aux prières des pénitents. Dans le couvent des Dames du Précieux Sang, les supplications des religieuses en proie au désespoir et à la folie restent sans réponse et, délaissées par l'Époux Céleste, elles cherchent refuge et consolation auprès du démon et de sa sorcière, Julie. La chair purgée des péchés n'est pas une chaire sanctifiée, au contraire, elle est abandonnée aux maladies et aux souffrances, destinée à une soumission perpétuelle aux règles strictes du Salut. Le corps supplicié du Christ n'est qu'une parodie du corps glorieux de la Résurrection. Il n'est plus annonciateur d'une vie nouvelle, mais de l'abandon à la souffrance et à la mort.

Le corps de la femme rappelle les déesses primordiales de la fécondité. Sœur Julie de la Trinité est l'une des incarnations de ces divinités ambiguës, possédant, à la fois, des puissances génésiques et destructrices. Soumis à l'autorité masculine et mutilé par un discours religieux qui l'identifie au mal et à la tentation, le corps de la femme trouve son épanouissement seulement dans des pratiques et des rituels transgressifs qui s'opposent à la morale chrétienne.

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**SECTION IV**

**“ONE REPUBLIC OF LEARNING: DIGITIZING THE HUMANITIES”**

*(Armand Marie LEROI, February 2015, New York Times)*

TRENDS IN DEALING WITH TERM BASES

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**Abstract**

It is common knowledge that the turn of the century faced dramatic changes in technology. Once we accept that we can speak about a revolution of technology, it is obvious that it has had an invigorating effect upon all fields, including translation studies. As a result, the revolution of translation led from “paper and rubber assisted translation” (PRAT) to computer-assisted translation (CAT) in the 21<sup>st</sup> century, as Daniel Gouadec correctly observed it in 2007.

Furthermore, today there is no more translation as such, but we have instead translation projects full with all cutting edge technology: machine translation (MT), translation memories (TM) and term bases (TB). The present article tries to summarize a POSDRU project lasting for 18 months, a period during which we were focusing on creating a TB based on the published dictionaries in Romania over a period of fifteen years (1999–2014). The starting point for the research was the fact that in order to remain competitive on the translation market, the present day professional translator needs an extended set of competences, particularly focusing on technical skills. The debate whether MT will take over human translators has somehow lost importance, due to the emergence of CAT-tools, which simply ‘embedded’ MT as an add-in option, which can be set active or not. Thus CAT-tools really assist human translators in creating better quality translations ‘here and now’, in case translators are familiar with the possibilities of importing–exporting TMs, TBs, etc.

We are primarily concerned with TBs, as terminology research for translators is vital in providing high quality translations that MT will never be able to achieve. Although our initial claim was that printed dictionaries offer by far a better quality than unreliable online sources (dictionaries and term bases), we tend to rephrase that claim. On the one hand, printed sources contain many errors, presented in a couple of articles, whereas the combination of online sources seems to surpass in number all the entries from the printed dictionaries.

It is also important to revise another deeply rooted concept. In our case, we started from Romanian–English, English–Romanian dictionaries of legal terms, but we soon discovered that a clear-cut set of terms is not possible. Legal terms are often combined with economics, geography, IT, history, etc., and the major advantage of online term bases derives from this fact: these TBs do not promise a legal or economical list of entries, they offer them as is. Furthermore, their set of entries is not set in stone, it can grow day by day, and serious translation errors are fewer and fewer.

Professional translators may be reluctant to use them, but the trend is obvious: better and better quality online TBs will take over, and human translators should learn the way how to use and embed them in CAT-tools to their benefit.

**Keywords:** machine translation, computer-assisted translation, term bases, quality assurance, Romanian–English, legal dictionaries.

**1. Introduction**

The dramatic changes towards the end of the 20<sup>th</sup> century resulted – among others – in the revolution of technology, and the spread of computers led to the existence of a “global village” envisaged by McLuhan (1962, p. 21), even if he develops the concept from the point of view of the media. Interestingly, after the Second World War research on machine translation (MT) also started, although somewhat delayed due to the infamous ALPAC report in 1966 (Hutchins, 2003). Although there were many allegations that MT would eventually replace human translation (cf. Imre, 2013, pp. 223–230), this is still thriving, partially due to the emergence of computer-assisted translation (CAT) tools. Daniel Gouadec predicted (2007, p. 109) that “paper and rubber assisted translation” (PRAT) was about to disappear, and it would be replaced by CAT, a statement we cannot deny in the 21<sup>st</sup> century.

As a result, there is no more translation as such, but we have translation projects instead, packed with all cutting edge technology, under the hood of CAT, which encapsulated MT, translation memories (TM) and term bases (TB) as well. The basic idea of CAT is “never translate the same thing twice”, meaning that once we have a translation of a sentence (technically speaking: segment), the translation is preserved in a database, which can be reused when a similar text is translated next time.

As translators specialize in various fields, it is obvious that they must have a collection of specialized terms, which may be preserved within a CAT tool (.csv format), or separately, for instance in an Excel file (.xls or .xlsx format). The larger the database, the more matches translators will have during the next translation project, which contributes directly to quality assurance combined with shorter processing / editing time, exemplified in the list below:

Romanian	English
<i>abandon</i>	<i>abandon</i>
<i>abandon</i>	<i>abandonment</i>
<i>abandon</i>	<i>dereliction</i>
<i>abandon</i>	<i>desertion</i>
<i>abandon</i>	<i>renunciation</i>

**Table 12. Terms for the Romanian ‘abandon’**

Table 1 shows the possible English translations for the Romanian *abandon*, which may be easily found either in printed dictionaries or online databases (online dictionaries or term bases). A professional translator specialized in legal translations will soon realize that this entry is important in legal texts, thus it is vital for a TB to be modified: new entries should be added, older ones completed or even deleted when they are not suitable any more. But this already leads us to the next section.

**2. The project**

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Seeing the obvious (r)evolution of translation industry, we consider it important to have reliable collections of specialized terms in various (major) fields, such as technology, medicine or law. We applied successfully for a POSDRU postdoctoral research in 2014, setting the goal of creating a Romanian–English legal term base, relying on the bilingual dictionaries published in Romania between 1999 and 2014. Professional translators on ProZ.com often complain about the poor quality of existing Romanian–English legal term bases, and it seemed a reasonable choice to start with.

During the project we were able to browse through more than a dozen dictionaries, and checked about 330,000 entries. As a result, we could create a collection of around 50,000 entries, and in the case of the Romanian *abandon*, we can offer further possible translations: *cession* (Lister & Veth, 2010, p. 315; Hanga & Calciu, 2009, p. 7; Botezat, 2011, p. 3; Voroniuc, 2011, p. 203), *surrender* (Dumitrescu, 2009, p. 3) or *waiver* (Lozinschi, 2008, p. 1), but it is obvious that further entries for the Romanian term are necessary.

First of all, expressions containing *abandon* are needed: *abandon de domiciliu* (abandonment of domicile), *abandon de familie* (family abandonment), *abandon de mărfuri* (abandonment of cargo), *declarație de abandon* (notice of abandonment), *abandonul vasului scufundat* (abandonment of a sunken ship), *abandon definitiv al domiciliului conjugal* (obstinate desertion – US), *abandon prin efectul legii* (surrender by act and operation of the law), terms which are found in the previously mentioned dictionaries. Although some of them belong to commercial terms. What is more, the Romanian term must be completed with a synonymous noun (*abandonare*) with somewhat different translations and expressions. To make matters worse, there is also a verb (*a abandona*) associated with the noun, which results in further entries. Thus the set is completed with new entries, such as *discontinuance* or *nolle prosequi*, hoping that during translation at least one match will be suitable. We created a TB with the Romanian *abandon* and created a project in *memoQ* CAT tool, which is an integrated translation environment, being able to handle MTs, TMs and TBs. Figure 1 below shows how these entries come up during translating a segment containing *abandon*:

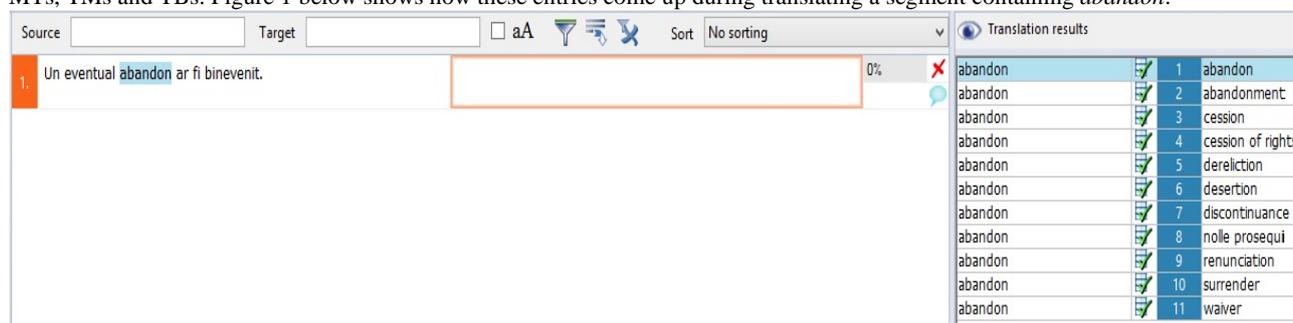


Figure 30. Matches for *abandon* in *memoQ*

Figure 1 presents a translation project in *memoQ*, when only one segment should be translated, containing *abandon*. The right side shows the *Translation results*, eleven in number, out of which one is supposed to be the correct one, and an expert translator can obviously make the right decision based on the context. In the long run, the database will grow, thus better and better matches will be shown, offering another advantage: one term will always be translated the same way, if needed (in the case of specialized translations). Yet, a question arises, namely whether we need TBs or we can handle translations in the traditional way.

### 3. Trends in dealing with term bases

There are many articles and books written regarding the competences of the 21<sup>st</sup> century translator, and their technical skills are highlighted (e.g. Bowker, 2002; Anderman & Rogers, 2003; Kis & Mohácsi-Gorove, 2008), without which a translator will disappear from the translation market. It is also interesting to observe that the debate whether MT will take over or not human translators has somehow lost importance, as CAT-tools use MT variants as an ‘embedded’ option, which can be set active or completely ignored. For instance, *memoQ* can activate eleven MT tools, some of which are illustrated below:

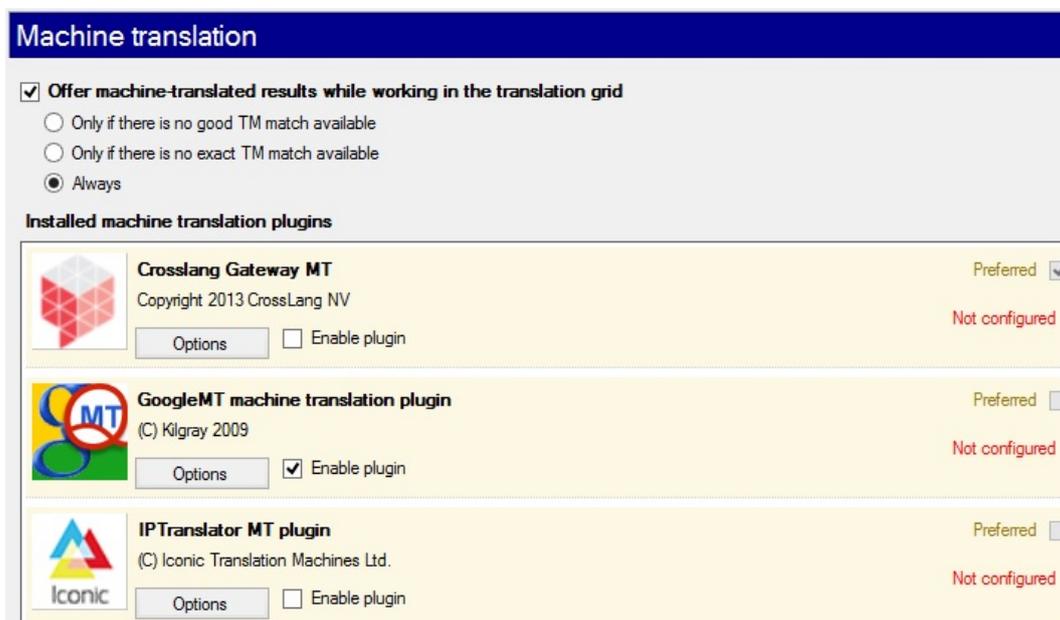


Figure 31. MT in *memoQ*

More than that, there are companies hiring professional translators who translate in a cloud-based system and their translations are stored in secured company storage systems in the form of TMs and TBs. The IATE database (<http://iate.europa.eu/SearchByQueryLoad.do?method=load>), which is the EU’s multilingual term base, is a fortunate exception to this company rule, but *Quest* is only accessible for employees. CAT tools having access to large collections of TMs and TBs will produce high quality matches, fulfilling the promise: they really *assist* human translators in creating better quality translations ‘here and now’. The two conditions for the translator are to have access to these databases and to be familiar with the possibilities of importing–exporting TMs and TBs. As more and more freely accessible TBs emerge, we are primarily concerned with TBs, as terminology research for translators is vital in providing high quality translations.

Although our initial claim was that printed dictionaries offer by far a better quality than unreliable online sources (dictionaries and term bases), we tend to rephrase that claim. On the one hand, printed sources contain many errors, presented in a couple of articles (Imre, 2014a; Imre, 2014b), whereas on the other hand the combination of online sources seem to surpass in number of entries all printed dictionaries taken altogether (<https://glosbe.com/>, <http://ro-en.gsp.ro/>, <http://hallo.ro/>, <http://www.activ-traduceri.ro/>, or <http://www.dictionarromanenglez.ro/>).

At this stage, it is important to revise another deeply rooted concept. In our case, we started from Romanian–English, English–Romanian dictionaries of legal terms, but we soon discovered that a clear-cut set of terms is not possible. Legal terms are often combined with economics, geography, IT, history, etc., and the major advantage of online term bases derives from this fact: these TBs do not promise a *legal* or *economical* list of entries, they offer them *as is*. Furthermore, their set of entries is not set in stone, it can grow day by day, and serious translation errors are fewer and fewer. Hence, we predict that the common distrust towards online resources will soon evaporate, as they are constantly better. Even *Google Translate* – one of the leading MT sources – is getting better and better. For the time being professional translators may feel reluctant to use them, but the trend is obvious: online TBs are constantly fed by previous translations carried out by human translators, and these search and match machines are capable of finding parallel corpora in multiple languages (cf. the EU’s database). The CAT tool we are familiar with (*memoQ*) has a *LiveDocs* function, which can pair two parallel texts and reuse them in offering matches for completely new segments that are connected to this pair of texts.

#### 4. Conclusions

It is worth mentioning that policies regarding TBs change. Although there is a trend for specialized companies to try to protect them, TBs become freely available online. Search engines may be used for the benefit of everybody, and TBs will offer us more and more reliable matches based on probability (number of occurrences). Professional translators can make the difference between poor results and quality ones, but we have to agree that improvements are fast. A few years ago a segment was interpreted from full-stop to full-stop, which meant that all abbreviations, date sections (day, month, year) counted as separate segments; today CAT tools can interpret both dates and abbreviations, thus segment boundaries are more realistic. Furthermore, first and last names are hardly translated (e.g. *Frunză* tends to be preserved instead of *Leaf*), and even longer combinations of words (the majority of specific terms) have correct variants.

Certain refinements are still needed. For instance, best results are obtained only when one of the languages involved (source or target) is English, and specific fields seem to be better covered (e.g. medicine, probably due to common Latin terms and its importance in human life).

We also estimate that free online TBs will soon overwhelm us, and a further challenge of translators will be the selection of proper matches out of a bulk of hits. After all, the cycle of struggle for better and better quality in translations should be kept up combined with ever shorter deadlines. Once we even lacked basic writing and translation tools, then half a decade ago automated translation emerged. Today we handle thousands of pages of texts in unified files, extracting relevant matches out of them, hoping for improved quality. McLuhan’s global village brought about a McWorld and the McLanguage of American English (Snell-Hornby, 2006, p. 132), which is not a menace to all other languages – partially, at least – due to professional translators striving for proper translation of terms and their CAT tools capable of preserving terms and segments in TBs and TMs. If our approach is correct, then human translators should have no reservations about modern translation tools and should focus on handling them effectively to their benefit.

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## TRANSLATION STRATEGIES APPLIED TO CULTURE-SPECIFIC REFERENCES IN THE SUBTITLING OF HUMOUR

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### Abstract

*The main purpose of this research is to analyse and exemplify how culture-specific references are dealt with in a particular and peculiar text type, namely the audiovisual text, with a special view on the production and reception of humour. In this respect, translation is first and foremost seen as a mediation between cultures, as the translator’s continuous effort to make use of those strategies, tactics, techniques, methods and norms that best fill in the cultural gaps between the source and the target texts.*

*A focus on linguistic translatability with disregard to the cultural issues might result in too harsh a judgement of the translator and, in many particular cases, in the acceptance of untranslatability.*

*While a whole range of elements and factors add to the meaning of the audiovisual text (reinforcing and contradicting the message of the spoken dialogue), another series of factors, some depending on the translator and some way beyond his/her reach cut out from the body of the text, fragment and even distort it. This is precisely why any taxonomy of translation strategies that apply to the audiovisual text (as deduced by researchers comparing the source language text with its final subtitled target text) needs to be validated by a secondary process in which all the co-textual, para-textual, contextual and pragmatic parameters influencing the translation process should be carefully weighted.*

*Some of these parameters are related to the specific nature of the text, some others are connected to the technical nature of subtitling, some are skopos-related, while some are simply pragmatic matters.*

*In the particular case of audiovisual translation, the translator’s choices are conditioned, motivated, encouraged or restricted by the target audience from a double perspective: first of all, the profile of the target audience is one of the most important parameters a subtitler has to consider when making an active translation choice, and secondly, the target audience is constantly exposed to the original source text, which makes the translation ‘vulnerable’. In the particular case of subtitling humour, taxonomies cannot be applied prescriptively, as subtitling deals with an extremely complex type of text and each ‘translation crisis point’ challenges the subtitler in a unique way. Although restrictive by nature, the process of subtitling can incorporate the whole range of translation strategies described by scholars, from the most domesticating to the most foreignizing ones.*

**Keywords:** *culture-specific references, audiovisual translation, subtitling, translation strategies.*

### 1. Introduction

The very title of this paper reunites a series of concepts extensively dealt with by translation studies researchers and scholars in the past decades. When analysing or attempting to draw a chart of the translation strategies used in subtitling and more specifically in the subtitling of humorous instances / utterances, a number of questions should be addressed in order to prevent the whole research from becoming futile: What are the most useful classifications or taxonomies of translation strategies in terms of appropriateness for the specific case of audiovisual texts? Do subtitlers consciously employ a certain type of strategy when translating culture-bound references? Are certain strategies constantly employed / preferred or constantly avoided in subtitling due to the specific nature of the text? Which are the textual, co-textual and extra-textual elements influencing the translator’s choice of one specific strategy over the other?

The audiovisual text is, paradoxically, more than a text (as it incorporates several codes and extra-textual elements) and less than a text at the same time (as it is constrained and restricted by its technicality and the policies of the broadcaster, while being shaped and adapted to the profile of the audience).

### 2. Parameters related to the specificity of the audiovisual text

First of all, subtitlers deal with a polysemiotic text with a triadic structure: image, words, sounds. What is heard is only a part of the message. The image and the soundtrack complement it. Diaz Cintas (2010:344) remarks that “all subtitled programmes are therefore made up of three main components: the original spoken/written word, the original image and the added subtitles. Subtitlers are expected to come up with solutions that create the right interaction among these components (...).”

The audiovisual text is made up of several codes that function simultaneously to produce a single desired effect. In addition, the captions represent the transition from the spoken to the written code. Several issues are to be addressed from this perspective. On the one hand, there is the need for textual condensation (between 40 to 75% of the spoken dialogue is supposed to be lost in subtitling). This is only normal, since the subtitled dialogue is subject to space and time restrictions. On the other hand, orality must be preserved, for both credibility and ‘commercial’ reasons (audiovisual products need to sell). The orality, or “prefabricated informality” (Chaume, cited in Valdeon 2008:118) of the source text has to be transferred to the target text in a manner that will ensure that the target audience gets as much as possible of the illocutionary effect as the ST audience. It consists mainly of interjections, greetings and farewells, attention signals, hesitations, politeness formulae, etc. In order to preserve naturalness in the TT, the subtitler should render the same degree of informality in his/her translation. In order to enjoy a film, sitcom, TV programme, etc. the target viewer should be practically unaware that s/he is making a conscious effort to read the subtitles. This basically means that language needs to be simplified, the grammatical structure of the phrases should allow proper segmentation of the titles, sentences should be made shorter or longer so that they follow the camera movements from one character to another. The paradox with the feature of orality is that the very elements that should make the captions read as if they were spoken are the ones that are usually omitted because of the time and space constraints governing the process of subtitling

Audiovisual translation works with a dynamic text-type, a text that literally moves across the screen with a certain speed (the maximum duration of each caption is around six seconds). The target viewer is not given a second chance to read the caption in case the message was not clearly perceived. If the humorous effect is compromised at one specific moment, there is a good chance that the follow-up joke would be compromised as well.

The written text is obviously shorter than the audio version because the viewer needs time to read the captions. Moreover, reading the captions should be an almost effortless activity for the average reader who should be practically unaware that he or she is actually reading, in order to be able to enjoy the cinematic experience. Although subtitles are inserted in order to be seen, read and understood, they must be of an unobtrusive style and positioning, so that they do neither distract or overstress the viewer. Pauseline

Merten and Valérie Vanden Dunghen, from ISTI- Université Libre de Bruxelles recommend that “subtitles should always be ‘discreet’ and respectful of video aesthetics. As a result, their colour should be neutral (white preferably); they should be placed at the lower part of the screen (with a maximum of two rows); they should be centred (easier to read); font and character size should be chosen carefully (reading slows down with unusual fonts); subtitles that overrun shot changes should be avoided (they cause perceptual confusion)”.

In order for the target viewer to effortlessly watch and enjoy a subtitled product the subtitler (and team of technicians backing up / supporting / amending the target text produced through translation must have a deep knowledge of the target audience’s profile. Elements as diverse as the age range, educational and cultural background, previous exposure to the same type of programme, social status and so forth should be carefully considered. As well as this, pragmatic matters related to deadlines and financial remuneration of subtitlers are responsible for the quality of their translations and their ability to make full use of the time consuming interventional strategies.

### 3. Overviews on translation strategies

Traditional classifications of translation strategies range them on a scale going from the most domesticating to the most foreignizing. This dichotomy is seemingly pertinent if we consider the cultural dimension of humour. Verbal humour travels badly between cultures apparently because, despite of its universal nature, its production is conditioned by language mechanisms that function differently in different language communities and consequently in different cultures. Puns and wordplay offer endless examples in this respect. The subtitler’s mission is to get the joke across and reach a foreign audience. The first choice would thus be a domesticating approach that would produce a target text able to trigger an effect on the target audience similar to the one the original joke had on the source audience.

The taxonomy of translation procedures proposed by Vinay and Darbelnet (1958, cited in Dimitriu, 2002:35) can be successfully applied to the audiovisual text with the aim of establishing which strategies are more appropriate, which are preferred by subtitlers of a particular programme genre and which (if any) are actually rejected by the very nature of the text. Further on, the discussion should be centred upon concepts such as dynamic equivalence and *skopos*. In the specific case of subtitling humour, the main problematic categories that are of interest for this research are culture-bound references and taboo language.

#### 3.1. Culture-bound references in audiovisual translation

Translation, seen as mediation between two languages and cultures, often faces the translator with problematic issues derived from the different natures of the two languages in which a certain message is encoded / decoded and the cultural gap between the SL and the TL readers. The translator is there to identify these problems / gaps / clashes and to find solutions for them. Thus, “translation can be explained as a decision-making process and a problem-solving task”. (Zohre Owji, 2013).

One of the taxonomies that best fit the purpose of this research is proposed by Jan Pedersen who describes a model wherein seven translation strategies available to the subtitler are listed, with a special view on what he terms *extralinguistic culture-bound references* (ECRs). According to Pedersen (2005:2) an Extralinguistic Culture-bound Reference (ECR) is “reference that is attempted by means of any culture-bound linguistic expression, which refers to an extralinguistic entity or process, and which is assumed to have a discourse referent that is identifiable to a relevant audience as this referent is within the encyclopaedic knowledge of this audience.” The list of strategies proposed by Pedersen apply to what he calls “translation crisis points” (puns, poetry, quotations, allusions) which correspond to Leppihalme’s “culture bumps” (Pedersen, 2005:2). On a Venutian scale, the strategies range from the most foreignizing to the most domesticating ones, although Pedersen prefers using the more neutral terms *source-language oriented* and *target-language oriented*.

Pedersen classifies translation strategies into ‘minimum change strategies’ (SL oriented, foreignizing), namely Retention, Official Equivalent and Direct Translation, and ‘interventional strategies’ (TL oriented, domesticating), namely Specification, Generalization and substitution, with “omission sitting on the sideline, as being neither.” (2005:9)

Pedersen leaves aside Intralinguistic Culture-bound References (idioms, proverbs, slang and dialectal features) admitting, however, the possibility that the model could be adapted or modified for the study of these elements, as well. Intralinguistic Culture-bound References (ICRs) deserve special attention, especially when it comes to the translation of humour in subtitles, and the issue will be developed in a further stage of this research. It should be mentioned that their analysis is often approached in terms of loss. Idioms and proverbs are often subject to domesticating strategies, since in the translation of humour the main purpose is to obtain the perlocutionary effect, to get the joke across to the target audience. The constant exposure of the target audience to the original dialogue often leads to credibility gaps whenever SL ICRs are rendered by TL monocultural ICRs. Dialectal and slang features are also notoriously difficult to render in subtitles, due to the fact that captions are meant to be as unobtrusive as possible and use the standard, easily readable language. Besides risking lack of credibility, any attempt to render them graphically or grammatically would burden the target viewer and slow down his/her reading pace. Target viewers with a fairly good command of the source-language can pick them up from the original dialogue.

3.1.1. **Retention** is the most source-language oriented strategy, in which an element from the SL enters the TT. Although retention is by far the most common solution for a translation crisis point, its success depends on what level of *transculturality* it is placed. Pedersen (2005:10) makes a very useful distinction between three methodological relevant levels of transculturality, explaining that “the degree of transculturality of an ECR deals with how familiar it is to the ST and TT audiences”. According to these distinctions, an ECR can be *transcultural* (i.e. not bound to the source culture, but retrievable from the encyclopaedic knowledge of both ST and TT audiences), *monocultural* (bound to the source culture and less identifiable to the majority of the TT audience; these ECRs represent translation crisis points) and *microcultural* (bound to the source culture, but too specialized or local to be within the encyclopaedic knowledge of both the ST and TT audiences).

#### 3.1.2.

Original dialogue	Subtitles	Observations
Rachel (trying to find an excuse for not drinking wine at dinner, as she doesn’t want her date to know she is pregnant): So what do I say? I’m a recovering alcoholic? I’m a <b>Mormon</b> ?	Deci ce să-i spun? Că tocmai am ieșit de la dealcoolizare? Că sunt <b>Mormon</b> ?	transcultural ECR; retrievable from the encyclopaedic knowledge of both ST and TT audiences;

Example 1: *Friends, The One With the Red Sweater*

Original dialogue	Subtitles	Observations
Phoebe: You're like <b>Ed McMahon</b> except without the big check.	Ești ca <b>Ed McMahon</b> , dar fără cecul ăla mare de tot.	Monocultural ECR Ed McMahon is an American comedian, game show host and announcer;

Example 2: *Friends, The One With the Red Sweater*

It should be noted that, in the age of globalization, monocultural ECRs do not necessarily stay monocultural for a long period of time. Take the following example:

Original dialogue	Subtitles
Rachel: Whole summers at <b>TGI Friday's</b>	Vara mergeam la <b>TGI Friday's</b>

Example 3: *Friends, The One With the Red Sweater*

The ECR was definitely monocultural a few years ago, when TGI Fridays, an American restaurant chain focusing on casual dining was unknown to the Romanian audience. However, today it is more familiar, as TGI Fridays restaurants are opened in Romania, as well. Whether the average Romanian target viewer does know that the initials stand for “Thank Goodness It’s Friday” is probably more difficult to predict, but they are fairly likely to know it is a restaurant chain. However, in the last example above, retention without meeting the TL conventions (retention of the genitive in Friday’s) might indicate that the subtitler dealt with the ECR only superficially and retention was used not solely for the sake of foreignization, but because it was the easiest option.

Recent American and British sitcoms seem to be targeted at a more ‘international’ audience, with microcultural ECRs occurring more and more seldom. Punch-lines rely sometimes on references that could be called ‘intratextual’ (i.e. references to specific events, characters, places which are familiar to the fans of the series, regardless of their belonging to either the source or the target audience). In *Friends*, for instance, Joey does the ‘Chandler talk’, countless references are made to Ross’ three failed marriages, etc. These references are different from what Pedersen (2005:11) calls text-internal ECRs, in that they are not actually culture-bound, but are restricted to the ‘culture’ of the movie (the movie-watchers community, sharing common knowledge about that particular series/production). It is not uncommon for these text internal neutral references to become (via intertextuality) ECRs in other productions, since they are readily assimilated by audiences due to their success in humour production. The *Smelly Cat* song performed by Phoebe in *Friends* has turned into a hit; retention would be thus the ‘recommended’ strategy if the subtitles for the series were to be updated.

3.1.3. **Official equivalent.** The ECR has actually entered the target language as a standard translation version and since it comes as a pre-fabricated solution to the problem, it does not even represent a ‘translation crisis point’ (for example *Laurel and Hardy* is rendered in Romanian by the *official equivalent Stan și Bran*).

3.1.4. **Specification** leaves the ECR untranslated, but adds information that is not present in the TT. The strategy involves either:

- a) **explicitation** (The text is expanded. The added material is latent in the ST, the ECR is disambiguated. This is often the case when acronyms or abbreviations are spelled.)

Extratextual element	Subtitles
A depleted, exhausted Carol approaches her home. She is suddenly wary as she sees a car at the curb (camera moves closer) with an <b>MD</b> license plate. Carol breaks into a run.	The extratextual element is actually not rendered into captions; an explicitation of some sort would have been needed (even in between brackets); otherwise, the target viewer who does not understand the acronym cannot understand the reason for her panic.

Example 4: *As Good As It Gets*

or

- b) **addition** (The translator intervenes to give guidance to the target audience. The strategy might work well for the target viewers who perceive the ECR as either microcultural or monocultural, yet in the case of ECRs that are perceived as transcultural, the strategy can be regarded as patronizing besides being space consuming).

Original dialogue	Subtitles
Melvin: (...)if it's election night and you're excited because some fudge-packer you dated has been elected the first queer president of the United States... and he's going to put you up in <b>Camp David</b> , and you just want to share the moment with someone...don't knock (...)	... sau daca e seara alegerilor / și vrei să sărbătorești // pentru că a fost ales / primul președinte poponar al SUA // și o să te invite la <b>reședința de la Camp David</b> // și tu vrei să împarți bucuria / cu cineva // nici atunci să nu bați (...)

Example 5: *As Good As It Gets*

3.1.5. **Direct Translation**, where no effort is made to transfer connotations or guide the target viewer results in:

- a) **calque** (literal translation which appears exotic to the target audience)

Original dialogue	Subtitles	Observations
Rachel: Ross and I were going to <b>Disneyland</b> and we stopped at this restaurant for <b>tacos</b> .	Eu și Ross mergeam la <b>Disneyland</b> și ne-am oprit la un restaurant pentru <b>tacos</b> .	transcultural ECRs; erroneous preservation of the plural in <b>tacos</b> ;

Example 6: *Friends, The One With the Red Sweater*

b) *shifted* (required by the differences between the SL and the TL)

Original dialogue	Subtitles	Observations
Okay, so <b>The Plaza!</b> Okay, we'll get us some <b>Mai Thai's</b> .	Bine, mergem la Plaza si bem Mai Thai.	transcultural ECRs are preserved, slightly shifted to meet the TL requirements (the definite article and the plural morpheme are dropped);

*Example 7: Friends, The One With the Red Sweater*

3.1.6. *Generalization* consists in replacing an ECR that refers to something specific by something more general and usually involves hyponymy.

3.1.7.

Extratextual element / original dialogue	Subtitles
Rachel is a barista at <b>Central Perk</b> coffee-shop, where her friends meet regularly. In many instances, the name of the coffee-shop is rendered by the Romanian equivalents for <i>bar, restaurant, coffee-shop</i> ;	<b>bar, restaurant, cafenea</b>

*Example 8: Friends, The One With the Red Sweater*

3.1.8. *Substitution* involves removing the ST ECR and replacing it with a different ECR or a paraphrase

a) *Cultural substitution* involves the replacement of a SL ECR with a TL ECR or with an ECR which is more familiar to the target viewer.

As stated above, in the process of translation several variables should be considered. One of the most important elements that motivates the translator's choice is the profile of the target audience. In rendering an ECR through cultural substitution the subtitler must remain cautious regarding the credibility gap that might occur when his/her choice implies replacing a mono- or microcultural SL ECR by a mono- or microcultural TL ECR, since the target viewer knows that a particular character is not likely to use a TL ECR in his/her speech. Moreover, when the ECR contains proper names, the credibility gap is even more obvious, as the viewer is permanently exposed to the source dialogue and expects to find in the captions a reference of what s/he has just heard.

However, when it comes to rendering a humorous effect, the skopos should come first, that is to say the target viewer should grasp the joke at the expense of the characters' credibility. A less risky choice would be to replace the SL ECR with another ECR that is familiar to the target viewer, but does not necessarily belong to the target language (unless it has entered the target language as an official equivalent).

Original dialogue	Subtitles	Observations	Suggested solution (s)
Monica: Oh, good, <b>Lenny and Squiggy</b> are here!	Super, <b>Lenny și Squiggy</b> sunt aici!	Micro / monocultural ECR rendered through retention	Super, uite-i pe <b>Stan și Bran / Păcală și Tândală!</b> / Super, au venit <b>Lolek și Bolek</b>

*Example 9: Friends, The One With the Red Sweater*

Rendered through retention, the above ECR, *Lenny and Squiggy*, which is monocultural (Lenny and Squiggy are the upstairs neighbours of Laverne and Shirley, the two main characters who give the name of an American sitcom that ran on ABC from 1976 to 1983) actually fails to produce the intended humorous effect. It could be replaced by the TL ECR *Stan și Bran*, an official equivalent that would function as a dynamic equivalent, as it triggers, at least partially, the intended association in the target viewers' minds. It may come with the slight risk of a credibility gap, since Monica would be more likely to refer to *Laurel and Hardy* than to their Romanian official equivalents. The SL ECR could as well be replaced by another ECR, *Lolek și Bolek*, for instance, if the subtitler is able to determine whether the age segment the relevant target audience belongs to would allow them to comprehend the ECR.

b) *Paraphrase* involves removing the ECR but rendering its sense or relevant connotations through paraphrases. Pedersen (2005:9) distinguishes here between *paraphrase with sense transfer*, in which the ECR is removed, but its relevant connotations are kept and *situational paraphrase*, in which every sense of the ECR is removed and replaced by something that fits the situation.

Original dialogue	Subtitles	Strategy used	Suggested solution (s)
Paul (Monica's boyfriend, recalling their night together): I'm telling you, last night was like all my birthdays, both graduations plus the <b>barn raising scene in Witness</b>	Seara trecută a fost ca toate zilele de naștere, ambele absolviri, plus <b>construirea hambarului din Witness</b>	retention	Pe cuvânt, noaptea trecută a făcut cât toate aniversările mele și balurile de absolvire la un loc, plus <b>cea mai înălțătoare scenă dintr-un film</b> pe care ți-o poți imagina. (paraphrase with sense transfer)  (...) <b>scena construirii hambarului din thrillerul Witness.</b> (specification)

*Example 10: As Good As It Gets*

The whole translation of this particular instance is questionable, but the retention of the ECR in particular does not seem to be the happiest choice. Since the ECR could be considered microcultural for a good part of the SL audience, a paraphrase could have done the job. In case the subtitler regarded the SL ECR as transcultural (*Witness* is a 1985 American crime thriller film starring Harrison Ford; the film was nominated for eight Academy Awards), specification (explicitation and/or addition) would have helped.

3.1.9. *Omission* consists of replacing the ECR with nothing. Pedersen places omission at the sideline between minimum change strategies and interventional strategies. This perspective is valid when omission is regarded as a translation strategy for ECR's. In his model, Pedersen ignores intra-linguistic culture-bound references (idioms, proverbs, slang and dialects), admitting however the possibility that the model could be adapted or modified for the study of these elements as well. In the case of ICRs,

however, omission can often be regarded as an interventional strategy (as in the case of taboo language discussed below). Whenever omission occurs because of the translator’s lack of expertise in dealing with ECRs, laziness or inability to find a solution, omission can be hardly regarded as a strategy; it rather classifies as a translation error.

Another major loss in subtitling is the frequently occurring failure to convey the dialectal and sociolectal features of the spoken language. The viewer with a good command of the source language can detect dialectal features and is able to decode them.

### 3.2. Taboo language in audiovisual translation

Comparative studies in translation have constantly asserted that taboo language is undertranslated. However, some of these prerogatives should be revisited and brought closer to one of the questions initially raised by this research: What do subtitlers actually translate? Labelling a translation solution for a term or phrase as undertranslation immediately places it on a scale where a direct translation procedure or perfect linguistic equivalent would be the best (more or less feasible) option. Why would source taboo language be undertranslated in subtitling? Could it be because Romanian language, for instance, is less creative or productive in this field? Alas, no, on the contrary, it is quite rich, both vocabulary and grammar-wise, and it has been so for centuries. A more down to earth and widely accepted explanation is that the written word is more powerful than the uttered one. The target viewer might feel offended or burdened by captions containing perfect dictionary equivalents of swearwords. Moreover, specific policies of the broadcasting companies might, for obvious reasons, exclude such techniques.

Undertranslation of taboo language and swearwords often results in omitting the problematic element altogether. There are cases in which the swearword is initially undertranslated, rendered by a ‘softer’ equivalent, then omitted in the captions although it is repeated in the spoken dialogue. Numerous examples are provided by stand-up comedy routines that are extremely rich in taboo language and where the rhythm of speech is extremely high. Omission is consequently requested by the need for textual economy, as well as by the fact that the viewer can actually hear the monologue and the swearwords are easily detectable, so there is actually no need to render them in the captions. They are more of a brand, a part of the comedian’s persona, a verbal habit. For instance, Billy Connolly, in a 3:31 minute fragment of a routine on the *Solar System* uses the f-word with a frequency that could match his heart rate (which is probably quite high, considering the amount of body language involved), while Craig Ferguson utters it 52 times in a 2:14 minute fragment of his *Does This Need to Be Said?* routine, where he admits being a very ‘cursy’ person. The humour here is actually triggered by the fact that as the host of a TV show he must comply with the restrictions of the TV company and refrain from using taboo language. The subtitler should actually rely on the fact that the target viewer who is likely to watch a stand-up comedy routine performed by Craig Ferguson has a specific profile and specific knowledge about the comedian and his career, as well as a fairly good command of English, and consequently uses the subtitles only for guidance, to get the more intricate jokes. Taboo language is otherwise easily detectable and comprehensible and does not need to be rendered in the captions.

Swearwords seem to be more problematic and resistant to translation when they appear in isolation rather than when they are used extensively. This is mainly because overuse of profane language diminishes the impact it has both on the SL viewer and the TL viewer who has a certain command of the SL. When used in isolation, swearwords are meant to express a certain state of mind of the speaker, an attitude or a strong emotion. Even in this case, their rendering in the TT seems to be regarded with conspicuous caution. However, this tendency is not to be defined necessarily as undertranslation, but rather as a sort of register calibration.

Nord (2010:123) speaks about intertextual and intratextual coherence, stressing out the fact that “in order to make the target text work for a specific target audience, the translator should produce a text that conforms to the standard of what Vermeer terms intratextual coherence, which means that the addressed audience should be able to make sense of it and that the text should be acceptable for them.”

The use of taboo language is so frequent, so ‘normal’ in American movies, for instance, that it produces no surprise to the source viewer. On the contrary, the Romanian cinema and movie industry has rather stayed away from profane language. This is why translating it bluntly, by means of perfect equivalents, would rather sound like over-translation. When calibrating the register, the subtitler should be careful in choosing a vocabulary range that would make the character sound credible to the Romanian viewer and in placing that character on the social scale originally intended for him/her by the creators of the movie.

Original dialogue	Subtitles
Carol: Do you understand me, <b>you crazy f***?</b> Do you?	Mă înțelegeți, <b>țicnitule?</b>

Example 11: *As Good As It Gets*

In the above example from *As Good As It Gets*, rendering Carol’s words by a more powerful equivalent would have probably have distorted her character. She is a middle-aged waitress who speaks gently and politely to the other customers. The profane language she uses here is meant to express her indignation, fury and contempt as a reaction to Melvin’s cruel remark about her son’s being about to die, to punish him for his lack of empathy. In a calibrated register, ‘țicnitule’ is appropriate and offensive enough, since it also makes reference to his mental condition. In other words, the translation solution meets the *skopos*, as it provides a functional equivalent.

### 4. Conclusions

Analysing and comparing a whole list of taxonomies of translation strategies could at some point seem dull if these classifications were considered outside a range of parameters motivating (or de-motivating) the translator’s and, more particularly, the subtitler’s choices. Lists of do’s and don’t’s can, of course, be drawn, errors can be identified and more felicitous solutions can always be prescribed. Yet, at least as far as ECRs are concerned, each translator’s choice and active decision applies to a unique context. Although audiovisual translation has become a highly distinct branche of Translation Studies, there is a huge gap between theorists and practitioners. On the one hand, globalization and intercultural communication via audiovisual products has proliferated so rapidly that the assumption that the subtitlers have the time to read the literature in the field and apply models offered by translation scholars would be naïve. Practitioners deal with some very down-to-earth issues such as tight deadlines, constraints, policies and censorship imposed by the broadcasters and producers, rapid changes in technology, remuneration, contracts and (repetition intended) tight deadlines. On the other hand, globalization comes in handy when ECRs are at stake. An ECR that was monocultural a few years ago, might easily have become transcultural in the meantime (thus requesting a ‘less’ interventional strategy). The type of audiovisual text being translated matters equally. A sitcom, for instance, addresses a specific-profile audience.

A pact is concluded from the very beginning: the target viewer watches the series in order to be entertained, s/he is expecting the punch-line, which triggers laughter being backed up by verbal and non-verbal extra-textual elements, such as character's gestures, facial expressions, canned laughter and the like. The target viewer is also 'trained' by his/her previous experience (previous episodes of the series, other encounters with sitcoms or comedy movies). This is to say that s/he might have come across the same ECR, or that in decoding an ECR s/he does not only rely on his/her encyclopaedic knowledge.

In the particular case of subtitling humour, taxonomies cannot be applied prescriptively, as subtitling deals with an extremely complex type of text and each 'translation crisis point' challenges the subtitler in a unique way. Although restrictive by nature, the process of subtitling can incorporate the whole range of translation strategies described by scholars, from the most domesticating to the most foreignizing ones.

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## HOLE IN THE WALL

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### Abstract

*This article originates in the frustration and helplessness a teacher experiences when seeing that the present-day educational system is still the result of a lifeless schooling era; standardized curricula, antique pedagogy, and that the traditional essay-written-form-only assessments are vestiges of an earlier time. Hard and fast changes are more than crucial. With this purpose in view, this article introduces the interested reader to an ingenious experiment suggesting new means of teaching conceived by Dr. Sugata Mitra, an Indian Professor of Educational Technology at the School of Education, Communication and Language Sciences at Newcastle University, England. He placed a computer in a kiosk in a wall in a slum at Kalkaji, New Delhi, and children who were passing by or playing around were allowed to use it freely with no instructors' supervision. Thus Mitra proves that children could learn by themselves to handle a computer very easily without any formal training, and even more, that they could explore, collaborate, discover, use new vocabulary constructions, practise and manage peer tutoring.*

**Keywords:** *Hole-in-the-Wall, playground computer, experiment, self-directed learning, Minimally Invasive Education, School in the Cloud.*

### The Experiment

Our educational system, mostly in rural areas still operates as if all knowledge is contained in textbooks, and as if the most important points in books must be stored in each human brain - to be accessed when needed. Thus storage and retrieval are ensured and students are rewarded for memorization, not imagination or creativity. It is commonly acknowledged that it is difficult and expensive to build good schools in remote areas. It is also known that good teachers are rare but at the same time computers are cheaper, smarter and faster. Therefore the use of computers as a pedagogic mechanism should help provide equal opportunity and effective context of learning and achieving basic levels of literacy and education to all children, irrespective of their socioeconomic and cultural background. The old schooling system has nothing to do with preparing children for citizenship, cultivating a skilled workforce, teaching cultural literacy, nor with helping students become critical thinkers. Now, more than ever before, it is critical to find means of teaching that replenish the structure of traditional schooling. It is imperiously necessary to accept that “we need pedagogy free from fear and focused on the magic of children's innate quest for information and understanding”, in other words, “we need schools ... not factories.” (Sugata Mitra. 2013)

But how do we stimulate creativity, motivation and curiosity in children? How might the Internet influence the contemporary answer to this age-old question?

A suggestion that is worth considering comes from Sugata Mitra, professor of Educational Technology at the School of Education, Communication and Language Sciences at Newcastle University, England. He is best known for his Hole-in-the-Wall experiment, and widely cited in works on literacy and education. He describes his experiment as a means of “breaking the traditional confines of a school”, a procedure that “takes the learning station to the playground, employs a unique collaborative learning approach and encourages children to explore, learn and just enjoy.” The potential of this multiple-dimensional concept is practically boundless. “What it offers someone depends on the perspective one is looking from”. (Mitra, 2012).

In an article published by *Edutopia* in 2012, Sugata Mitra explains that in early 1999 he tried an experiment. He placed a high-speed computer into the opening of a wall near his office, in an expansive slum with desperately poor people struggling to survive in Kalkaji, New Delhi, and watched who, if anyone, might use it. The computer (shown in figure 2) had online access and a number of programs that could be used, but no instructions were given for its use. To his delight, curious children were immediately attracted to the strange new machine.

What happened next astonished us. Children came running out of the nearest slum and glued themselves to the computer.

They couldn't get enough. They began to click and explore. They began to learn how to use this strange thing. A few hours later the children were actually surfing the Web. (Sugata Mitra. 2012).

Then the PC was left there available to everyone on the street, and the result was amazing: within six months the children of the neighbourhood learned all the mouse operations, could open and close programs, and were going online to download games, music and videos. Later, when the children were asked how they had learned those “sophisticated maneuvers”, they replied that they had taught themselves, and it was fascinating the way they described the computer in their own terms, often coining words to indicate what they saw on the screen. (Sugata Mitra, 2012)

Set in the playground (figure 1), the computer was equipped with a web camera, a microphone and a caretaker was appointed to turn it on and off every day. The experiment was repeated in two other poor villages in India. The results were the same as in the Kalkaji experiment: the children seemed to learn to use the computer without any assistance. “Language did not matter, and neither did education” (Sugata Mitra. 2012).

Given the diverse locations chosen for the experiments, it is suggested that this ability of groups of children to learn on their own is independent of who or where they are. In other words, economic, social, geographical or other factors do not seem to affect their ability to self-instruct in groups. (Mitra 2005a:79)



*Figure 1. Typical playground computers in village Bishnupur, West Bengal, India*



*Figure 2. The playground computers - shown enlarged.*

This meant a huge innovative step for the development of education as an approach to self-directed learning. Later on, each time the experiment was performed in many other places, in many other countries the result was similar: the children were able to develop deep learning by teaching themselves.

### **Minimally Invasive Education**

After extensive research on the subject, Sugata Mitra decided to call the method of instruction he had developed, Minimally Invasive Education, term derived from the medical term 'minimally invasive surgery'. However, the rest of the world continues to call it the Hole in the Wall. By this method, the learning environment is used to spark children's curiosity and motivation for learning, with none or minimal intervention from a teacher.

It is an approach that promises to bridge the 'digital divide' by helping diverse populations achieve computer literacy. Minimally Invasive Education is also a concept of important consequences to the area of education in general. 'Minimally invasive' refers to the least possible, negligible, or the minimum help required by the child to initiate and continue the process of learning basic computing skills. (Mitra et al 2005, p3)

Mitra proved that any learning environment that provides an adequate level of curiosity can cause learning among groups of children.

Children's desire to learn, along with their curiosity and peer interaction, drives them to explore the environment in order to satisfy their inquisitiveness. As the children explore their environment, they relate their new experience with their previous experience and thereby new learning takes place. (Mitra et al, 2005, p2)

Mitra also emphasized that children's literacy level, their socio-economical background, ethnicity, gender or geographic location seemed to have no relevance with their competence of teaching/ learning by their own. Within almost three months of using the Hole-in- the-Wall programme children managed to do basic computer navigating functions at a basic level (click, drag, open,

close, resize, minimize and menu selection), drawing and painting pictures on the computer, loading and saving files, downloading and playing games, running educational software and other programs, playing music and videos, and viewing photos and pictures, surfing the Internet, setting up email accounts, sending and receiving email, using social networking programs as Skype and Facebook, simple troubleshooting, such as fixing speakers that aren't playing sound, and downloading and playing streaming media. More than that, their own teachers stated that the children proved “improvements in enrolment, attendance and performance on school examinations, particularly in subjects that deal with computing skills; English vocabulary and usage; concentration, attention span and problem-solving skills; and working cooperatively and self-regulation. I believe that MLE should be an important part of every school's curricula” (Mitra, 2012).

Educational researcher Sugata Mitra is the winner of the 2013 TED (Technology, Entertainment, Design) Prize. At the 2013 TED conference, he asked the global TED community to make his dream a reality by helping him build the ultimate School in the Cloud where children, no matter how rich or poor, can engage and connect with information and mentoring online. His wish and efforts toward advancing learning for children all over the world brought him the first ever one million dollar TED Prize award. Therefore, his Hole-in-the-Wall dream went further. In December 2013, the first School in the Cloud lab was placed inside a high school in Killingworth, England and soon after that five labs in India and one more in the UK were opened. Labs-opening was perceived as a means of creating an adequate context of self-directed learning where research, debate and critical thinking would be encouraged and also possible.

As concerns my teaching activity, Mitra's experiment inspired me in many respects for example as long as we do not have the possibility to use computers during my classes, students are allowed to access internet on their phones– which is generally against our school regulations – in order to search for needed vocabulary or other type of information they cannot find in the textbooks and it is critical for a better understanding and development of the topic in discussion. More than that, my students can access my website called “What Makes You Laugh?” where they can share personal opinions, post comments, videos, funny quotes or other ideas related to the subject or to our English classes in general. In addition to this, using a my laptop computer connected to a video projector to my classes has become routine which helps me provide more engaging activities for students, facilitates improving childrens' listening, reading and speaking skills and last but not least it makes the classes more fun.

### **Conclusions**

Nowadays, computer literacy has been playing an extremely important role in people's educational lives, as well as in their socioeconomic development. It is critically imperative that computer literacy and education be part of the curriculum for children everywhere in the world, even in the most underprivileged areas. Mitra's innovative experiment comes as a life breath for the kind of teachers ready to replace the flat, ineffective, rote-memory and drilled-based classes with proper environments of learning designed to enhance children' curiosity and motivation, built on students' energy and desire for participation and learning, as well as on students' needs, where the principle that all students can learn prevails .

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## SYNTAGMA AND ITS NATURE IN THE AZERBAIJANI AND WESTERN SCHOOLS OF LINGUISTICS

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### Abstract

*The article deals with the researching of syntagma and its nature in the Azerbaijani and English languages. At the same time syntagma is researched as a syntactical unit, classified according to its types.*

*In European languages researching the syntagma and its nature has intensified in the twentieth century, helped by scientific advances in the field of not only the humanities but also in psychology, anthropology, psycholinguistics, sociology, various fields of knowledge that explore communication processes. Researching of syntagmas in Western schools of linguistics based on the search for a methodology that promotes the creation of the basic fundamentals of communication of different languages. However, various language schools, often due to the nature of the national language and the scope of its operation, in the approach to research, there are differences that are, in fact, remain controversial in the twenty-first century. The object of study in this article is to review the linguistic theories of Germanic studies, the definition of typological studies which may be used in the development of relative syntagmas (RS) of the Azerbaijani language. The object of our scientific interest is the further development of the theory and its application in consideration of the nature of the Azerbaijani RS - syntagmatic way.*

*RS in the Azerbaijani language is based on a national basis, but it is possible to use the theoretical definitions and approaches to the analysis of functional-semantic fields, in which the RS is considered on the basis of semantic categories of grammar, taking into account the typological and comparative analysis of languages.*

*This work is one of the first attempts in this area. Thus, the theoretical and methodological basis of the origin and development of combinatorial linguistics as a fundamental discipline in which we investigate the RS, it should be regarded as theoretical works of Azerbaijani and foreign (Western European and American) linguists.*

*The American linguists (J.Kats, J.Fodor, U.Vaynraykh) made the greatest contribution to the development of combinatorial linguistics in the twentieth century. They stressed the need of semantics in syntagmatic description. London linguists, headed by J.R.Firth include the need to focus the study of speech is not only its linguistic, but also extra-linguistic features of speech utterances. Despite of the progress of structural linguistics in German studies is still no classification of the forms of verbal means. Thus there is a need for a global description of semiological systems which relate to the same slice in synchronic German studies.*

**Keywords:** *communication, semantics, semantic-syntactic, stylistics, syntagma, syntax, syntagmatic relations.*

### Introduction

Changes in language always proceed slowly, and even more slowly get fixed to the theoretical linguistics. Researching the syntagma and its nature has intensified in the twentieth century, helped by scientific advances in the field of not only the humanities but also in psychology, anthropology, psycholinguistics, sociology, various fields of knowledge that explore communication processes. Researching of syntagmas in Western schools of linguistics based on the search for a methodology that promotes the creation of the basic fundamentals of communication of different languages. However, various language schools, often due to the nature of the national language and the scope of its operation, in the approach to research, there are differences that are, in fact, remain controversial in the twenty-first century.

Problem analysis of syntagmas or relative syntagmas in the Azerbaijani linguistics subjected to simultaneous action of several schools in different directions, a fundamental factor is the aspect that the relative syntagma, which received support from the national linguistic school, was a long time under the influence of Russian theories were created and its own versions of relative syntagma in Azerbaijan studies. The process of globalization in the world brings the world's languages together, the processes occurring in them, regardless of the schools belonging to the language groups. This circumstance is connected to communication problems, the development of dialogue at all levels of linguistics. Nowadays theories of dialogue are most in demand and intensify in all the schools. On the other hand, the Azerbaijani school of relative syntagma reveals the tendency of preservation of national sources, due to the problem of language culture of confrontation absorption overall process of Europeanization and Americanization of language culture. Only now Azerbaijani relative syntagma had the opportunity directly to the initiation of similar processes in Turkic studies. Interference is due to the common language roots, simultaneous multi-vector influences of Eastern and Western theories, belonging to a linguistic tradition, as expressed in literature, oral discourse. In the work special attention is drawn to the existence of relative syntagma in speech and journalism discourse that are more speed. Only now it created the prerequisites objective of structural research of relative syntagma in the native Azerbaijani language. The Russian linguistic theories (V.Scherba, V.Vinogradov) determining syntagma associated with speech acts, with phonetic and rhythmic characteristics of the information unity, interconnected information and tempo of speech. In modern Russian language schools happens paradigmatic shift of research of syntagmas, and similar processes are characteristic of the Azerbaijani language school. This process is explained by a common interest in structural linguistics.

The primary function of language is an act of communication, therefore, it is social, and creates a communication between people. Regulatory of language, its ways of description, the search for patterns of development of languages in the period of globalization is particularly relevant, since the main purpose of the national languages is the possibility and the necessity of conducting of intercultural dialogue at all levels. Modern theoretical linguistics notes the trend towards convergence and cross-language dialogue expressed by the presence of languages in different linguistic groups, the emergence of similar clichés, which, on the one hand, making the language more clear, on the other - are losing linguistic identity, linguistic inevitable forces of globalization. National school of the theory is introduced into syntagmas achievements of French, German, American linguists. This interest is due to the increasing intensity of the theory of dynamic semantics (Kleber). This process manifested in the vector of its multidirectional relations in all linguistic levels: phonetics, pronunciation, vocabulary, morphology, to a lesser extent reflected in the

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syntax. The sentence is a complete unit of human speech, which concluded the unity of semantic and grammatical meaning. That is the basic definition of the sentence. There are other definitions of sentences to the development of linguistic definition systems offer more complicated and differentiated. All these grammatical processes and phenomena are closely linked and have a syntactical nature. The object of study in this article is to review the linguistic theories of Western schools of linguistics, the definition of typological studies which may be used in the development of relative syntagmas (RS) of the Azerbaijani language. The object of our scientific interest is the further development of the theory and its application in consideration of the nature of the Azerbaijani RS - syntagmatic way.

RS in the Azerbaijani language is based on a national basis, but it is possible to use the theoretical definitions and approaches to the analysis of functional-semantic fields, in which the RS is considered on the basis of semantic categories of grammar, taking into account the typological and comparative analysis of languages. The condition and prospects of the Azerbaijani linguistic schools, Russian English, exploring the paradigmatic changes in the theory and practice of syntagmatics, put scientific objectives in the overall context of the introduction of the scientific aspects of combinatorial studies of linguistics, such an approach will serve as a convergence of linguistic practices of European and Azerbaijani languages. At the same time the differential aspects are determined in the theories of syntagmatics that is specific to the Azerbaijani language, thus built a new language dialogue that promotes the conservation of the national aspects of the language and finding equivalents, facilitating modern communicative dynamics of communication.

### **Scientific novelty**

This problem is considered to be relevant and innovative, as it has not only linguistic meaning, and goes far beyond the scope of a particular area. Self-determination of the Azerbaijani relative syntagmas (RS) at the contemporary stage is that the three-side takes effect on the process of its formation: Russian, Western (European), Eastern (Turkic), which required revision, organizing these schools to determine their own linguistic norms of relative syntagmas in the Azerbaijani language. The theory of relative syntagmas has not been studied in the Azerbaijani school of linguistics. Namely this is the innovation of the paper. The syntax as a branch of linguistics is engaged in research of words, word combinations and phrases in this regard is reflected in it the modern paradigmatic tendency to identify the intercultural dialogue at the language level. Syntactic syntagmas in this sense have a special role. Nowadays in linguistic schools, there is conflicting theoretical linguistics to the definition of syntagmas, due to the versatility of the syntagma as a grammatical category.

### **Methods**

The methodological base of the research is an integrated approach to the study of the syntagma and relative syntagma. Here is used historical method, comparative - typological analysis, linguistic analysis of the text. Similar problems have demanded the creation of a methodological complex, in addition to the input linguistic theories and contemporary developments of related disciplines: psycholinguistics, sociolinguistics, discourse receptive theories, culture, and psychology. Entering of mixed theories explain modern integration in the field of language, philosophy, literature, and culture. Since the language is manifested at all stages of the language of the personality as an individual, in terms of the functioning of society (A.A.Akhundov, G.Kazimov, Y.Seyidov, F.Veysalli, F.Aslanov). This methodological approach is due to the fact that is inevitable routinization term of rethinking. Origin of syntagma belongs to the Greek language, in which the theoretical interpretation of the syntagma referred to the rhetorical figure of the language. According to Greek rhetoric, syntagma defined as a word, group of words, and a whole sentence.

Here it is made an effort to identify syntagma in terms of historically, the concept of the term, its functioning in the regulatory field of the Azerbaijani language. Some difficulties in solving of this problem make different approaches to research on comparative linguistics. Its task includes adequate description and interpretation of the operation of the syntagma in the Azerbaijani language, in terms of the specific features of the language, in an effort to explore the linguistic comparative-typological aspect of language universals in comparison with the English language. The difference in languages, especially, clearly expressed in the phraseologisms are reflected in the features of a native speaker of verbal thinking and verbal discourse.

### **Materials**

As we know the main task of the language is the means of communication. It is not realized only by lexical and morphological way. At the same time it is necessary the combination of the words to express views in a sentence. These grammar processes and events are associated with syntax. Here is talking about the nature of syntagma as a unit of syntax. Syntagma is a unit consisting of two members combination used in determined and being determined functions. It is explained as an incident of semantic-syntactic speech. This field of science is busy with the investigation of word combinations and sentences. In this regard, syntax is being understood as the field of science about syntagmatic relations and syntagmas.

The problem of syntagma has not a long history in linguistics. Independent scientific research works haven't been written about this question. But it should be noted that in this area too many ideas have been created and there are serious differences between language specialists and researchers. This provision is expressed in the works of many Russian, Azerbaijani and Western linguists (V.V.Vinogradov, V.N.Yartsev, V.G.Gak, A.D.Raykhshteyn, A.A.Ufimtsev, G.S.Schur, N.Y.Trir, E.M.Solodukho, A.A.Akhundov, G.Kazimov, Y.Seyidov etc.). From the works written about syntax it is known that this field of science is busy with the investigation of word combinations and sentences. In this regard, according to scientists, (F.de Saussure, Sh.Bally, F.Mikush, B.V.Tomashevsky, S.I. Kartsevsky, V.V.Vinogradov, A.A.Akhundov) syntax is a science about syntagmatic relations and syntagmas.

Syntagma comes from Greek-syntagma - literally something to unite. "1) decisive element with the element of meaning and emphasis, appointed by the fact that the combination of words and word parts, for example: Rus. *везущий воду* - водовоз; 2) word or word group; 3) whole syntactic intonation and meaning unit." [2, 13]

Ferdinand de Saussure has described it in word as (re-lire), phrase (de grace) or sentence (il ya), in presence of the members in creating any complex, the combination or junction of two or more signs. [10]. But Badouen de Kurtene has used the syntagma in the meaning of "word". [7]. Some French phonetists (especially, P. Passy) called the syntagma a group of breathing. L.V.Scherba considers the syntagma completeness of meaning of rhythmic groups of words in a sentence. [15]. But V.V.Vinogradov writes: "It is very difficult to find two scientists who understand and give the same meaning to this term". [8]. Thus, it appears that syntagma can be called both phonetic and syntactic unit. Therefore, there are different opinions about the syntagma in linguistics. Some linguists believe that syntagma is a group of words rhythmically combined that expresses a complete thought (L.V.Scherba, V.V.Vinogradov),

and the others (F.de Saussure, Sh.Bally, F.Mikush, B.V.Tomashevsky, S.I.Kartsevsky) called the syntagma not phonetic but syntactic event. Academician L.V.Scherba is the founder of the theory of syntagma, and he named it phonetic event. He shared his clear thoughts on this new sense. L.V.Scherba writes: "In the process of speech-views integrity expressing a single meaning wholeness, consisting of a rhythmic group, including several phonetic units, I call them syntagma". [15]. L.V.Scherba has given the syntagma as "phrase" and "rhythmic group" together with the headlines "syntactical segmentation of the flow of speech". It is obvious that though L.V.Scherba has spoken from the phonetic point of view, at the same time he shows that the syntagma connected with syntax and connects it with phonetics according to the condition of pause and stress in the process of syntactic event. As a result, syntagma is marked as a syntactic and phonetic event. He also notes the syntagma as the idea of integrity as well. And he shows that syntagma at the same time is a semantic-syntactic unit. A.N.Gvozdyev considers the syntagma as L.V.Scherba shows. [9]. Academician V.V.Vinogradov has noted the syntagma as full of syntactic unit, and considered that it should be approached from this point of view. And he says: "Syntagma is the main category of stylistic syntax". [14]. But A.A.Reformatsky has approached the syntagma from the other aspect, and he has given such a definition to it: "Syntagma is the combination of two other members in the relationship of subordination". [11]. While saying two members he has meant two words, namely two members of sentence. A.A.Reformatsky's thoughts and opinions about syntagma coincide with Saussure's ones. A.A.Reformatsky also showed some types of internal syntagma in the Russian language. 1) with derived word generated, for example, syntagma сад - being determined (the root of the word), ик - determined (endings). 2) consisting of compound word, for example, syntagma паровоз, колхоз, совхоз, водовоз, etc. These are simply lexemes. According to the author, it has no importance for syntax. Relative syntagma in the Russian language school of the twentieth century received the description in common sections of syntagmatics and combinatory. Syntagmatics and combinatory focused on the realization of two main language functions: communicative and cognitive. Structural linguistics of the Russian language was formed on the basis of cybernetics and mathematics. In the middle of XX century Russian syntax science studied the "static", but Western linguistics schools studied the "dynamic" syntax. Researches of Russian scientists have prepared the basement for the discovery of Ferdinand de Saussure. Since the opening moment of "syntagmatic association" relationship of language units the importance of studying of linear relations in the language was recognized by the representatives of Russian linguistics and Western language schools of the XX century.

The problem of syntagma is the new one to the Azerbaijani linguistics. So some scholars are generally not talking about it. Syntagmas are analyzed according to the syntactical concerns and types of relationship among the members. Syntagma should not be equated or confused with a word combination. Word combinations are mostly derived by subordination relation, but syntagmas by coordination one. They are mostly binomial. Though syntagmas have similar features with word combinations, but they are different from word combinations according to their usage, circle, and some other characters. Professor Gazanfar Kazimov states that syntagma consists of word combinations and groups being linked by syntactical relationships in a sentence and acting as a single unit. He differs the syntagmas from one another in accordance with the types of relationships, divides them into predicative and attributive types. Also G.Kazimov considers the syntagma binomial. According to Kazimov, syntagmas vary from word combinations in accordance with their similar characters and some features. He mentions that word phrases are analyzed related to the types of syntactical relationships and categorical character of a main component, syntagmas related to the syntactical relationships among the components and relation types. The components of syntagma can be replaced with other words, the meaning remains the same but this process is impossible in word combinations. Some scientists note that word combinations are a static - fact, syntagmas are dynamic being a speech fact. "Word combination is a phrase simulating the static -grammatical combination of two essential units, syntagma is the combination of words taking an active function in speech and a sentence" [12]. Apart from word combinations, syntagmas also have a predicative relation. This relation is fully reflected in A.A.Akhundov's opinions and considerations on syntagmas as above-mentioned. G.Kazimov has dealt with syntagma as a unit of syntax and concluded as in the following: "Syntagma is binomial and incorporates two members. This or other member of syntagma can refer to another syntagma, too; Syntagmas are characterized in related to the existence of subordination between their components" [3]. The last opinion reveals the difference between syntagma and a word combination again. It matches with the scientists' opinions whose names were mentioned above (especially A.Akhundov, Y.Seyyidov and so on). G.Kazimov has not taken a phonetic but syntactic view of syntagma and promoted his considerations over it. Let's look through an example: Young teacher explained the rules thoroughly. - In this sentence we have the following syntagmas: 1) Young teacher, 2) teacher explained, 3) explain /ed, 4) explained the rules, 5) the rules, 6) explained thoroughly. It clearly shows that these syntagmas are built on the bases of the following relations: the first one is in the attributive relation, the second one is in the predicative relation, the third one is in the predicative relation, the fourth one is in the predicative relation, too, the fifth one is in the attributive relation, the sixth one is in the relative relation. These noted two member syntagmas built up in the relationship of subordination. The word *teacher* two times, but the word *explained* four times has been used in the composition of four syntagmas. Based on this example, it can be concluded that the syntagmas differ from the word combinations according to the breadth of their usage area. Here is only one of the syntagmas (young teacher) is the same with syntactical combinations. Predicative combinations and being two member syntagmas once again show that they are like word combinations. And it confirms that syntagma is a unit of syntax. As a unit of syntax the syntagmas are divided into two groups: 1) predicative, and 2) non-predicative syntagmas. The predicative syntagmas are the same in accordance with the sentence. They are, as a rule, communicative. There is one predication. But non-predicative syntagmas cover only word combinations. They are usually nominative (naming) nature. Non-predicative syntagmas are divided into three parts: attributive, objective and relative. "Attributive syntagmas are the syntagmas established by relation of approach. Objective syntagmas are formed by management relation. Relative syntagmas is based on foreign relationship". [1]. Thus, it can be concluded that the predicative relations create the syntagma expressing a certain opinion. For example, It is raining. My friend returned from Bucharest. My father works in the city. They will come to the party etc. Non-predicative relation doesn't denote a predication. This relationship serves to the formation of three types of syntagmas. 1) Attributive - namely, determining word is an attribute. We can give as an example to such syntagmas I (first) type of substantive combinations in the Azerbaijani language. For example; red pen, blue shirt, golden leaves, cold house and so on. 2) Objective - namely, the determining word is an object. For example; to read a novel, to recite the poem, to find the material, to tell a lie etc. 3) Relative - that is the determining member of the predicative (verb predicate) expresses a definite quality. Relative syntagma is the syntagma which is formed of verb and the combination of adverb denoting its manner of action. For example, to speak well, to write correctly, to run fast etc. They are developed as word combinations. For example: to read rapidly, to talk kindly, to smile gently and so on.

Professor Yusif Seyyidov's thoughts of syntagma, almost coincides with the opinion of professor A.Rajably's. According to his mind, syntagma consists of words and that's why it cannot be considered a unit of phonetics. At the same time, he also does not

include the syntagma to the syntax. Y.Seyyidov also as A.Rajably writes that syntax has two investigation objects – 1) word combinations and 2) sentence. He notes that "being in case of the permanent forms developed from the grammatical structure of language of syntactical events syntagma has not such forms and it can provide itself in any form in every chance". [5]. Y.Seyyidov notes that syntagma is mostly connected with rhetoric, art scene and oral speech culture. According to his notes, syntagma can also be organized with words which have no grammatical relations to each other. In this regard, he generally, doesn't want to talk about the relation forms of words in syntagma. He sometimes connects the syntagma to oral speech, but sometimes notes the important role of phonetic and stylistic features along with syntactic features in its creation. Sometimes he considers it (syntagma – H.A.) neither phonetic, nor syntactical unit, and sometimes tells it is odd to deal with the relation forms of the words in syntagma. But as for Y.Seyyidov, syntagmas are parts separated by interval in speech, irrespective of the relations and forms of words and they appear in very different ways. He has generalized these forms as 1) word; 2) auxiliaries; 3) word combinations (in different types); 4) sentence (in different types); 5) two or more free words that do not cover word combinations and sentences. According to the scientist's mind, syntagmas also vary according to their attitudes in sentences and towards the parts of sentence. "Syntagma: 1) Part of sentence, 2) Some parts of sentence, 3) A part of the Composite sentence, 4) Address, 5) Dialect and etc." [5]. After looking through all of them, it is known that A.Akhundov has promoted more all-sided: both phonetic and syntactical opinions than the others, and improved the concept of syntagma in the linguistics of Azerbaijan. Considering what was mentioned we possibly come to a conclusion that syntagma is mostly a unit of syntax. It should be noted that syntax does not only study the syntagma, but also analyzes sentences.

Saussure concludes about continuity of "signifier and signified". [10]. Another basic concept of determining the attitude to the description of the RS, is a statement about the communicative nature of language, the existence of a code set of rules and regulations, which provide speech activity. The code should be clear to all participants of communication. Saussure's teaching allowed us to distinguish three separate areas of linguistics of speech: synchronic, historical, and evolutionary. Speech discourse occupies an intermediate position between the diatonic and synchronic factors. Saussure shared linguistics to linguistics of language and speech, but the main attention paid to the first. Refuting Saussure disputed by some linguists, continued research of syntagmatics based on the concept of structure. The relationship within the RS in this sense (Z.Vetu, Piaget) is based on a structural model, which is subject to three basic conditions: 1 / integrity, submission whole elements and independence of the latter, 2 / transformation - the transition from one to the other sub-3 / self-regulation, internal functioning. French linguists have tried to reveal the internal structure of the phrase, regardless of historical time, the possibility of historical volatility. Structuralist A. Martine examined the principle of combining signs of oral discourse. He regarded to the moneme as a bilateral unit, each of which has its own form and meaning.

Semantic aspects of syntax were developed by French linguist L.Tener. The researcher divides syntax into static and dynamic, opposes the syntax categories to syntax functions. Tener's dynamic syntax allocates stem - materialized structure of sentence, valence - verb property to attract other words, keep them to yourself. [22]. Valence may belong to a word in general, may characterize selected form of a word. In the same ability to attract a word it has and a verb in the Azerbaijani language, so, despite of the theoretical linguistics conflicting views on the essence of the nature of the verb, this theory is applicable in theory and practice of RS in the Azerbaijani language. Since interests in this work are the RS phrases, the valence theory of L.Tener will be considered as aspects of coordination and contiguity as the most characteristic phrases of RS in the Azerbaijani language, of course, the relationship of valence of grammatical forms in the Turkic family of languages and German studies are not equivalent, but there is the similarity of associative features of linguistic units. Meta-scientific introduction method of valence entered by Tener, received the further development in the theory of valence and grammatical dependence in the American linguistics. Such a differentiated approach to the nature of phrases can be used for research of RS in the Azerbaijani language based on its nature. RS is characterized by a pronounced phrases expressed by semantic nature, the existence of a large number of verbs with the semantic valence limited in Germanic and Turkic languages. American structuralism was also characterized by the recognition of the structural nature of the language, but between the American and European schools, there are differences. Western European structuralism based on synchronous description of language, American (descriptive linguistics) relied on the practice.

Combining views of L.Yelmslev and terminology of O.Jespersen delimiting "nexus" (predicative relationship) and "conjunctions" (non-predicative link of words between the main and affiliated member - "adjunct"), another Danish linguist P.Didericsen wrote that there are three kinds of syntagmas united on the principle of the nexus, parataxis and hypotaxis. Nexus refers to them as the syntagma, none of those members can take the place of the whole, but paratagma - like syntagma, each member of which has the same function as the whole, and finally, gipotagma - like syntagma, only one member of which has the same function as the whole. Structure of syntagmas with unilateral dependence is defined as the "selection". Glossematics as a universal synchronic theory of language is a kind of "algebra of language," a way of describing human knowledge in the form of an integrated structure consisting of a non-quantitative functions. Mainly in language is proclaimed the form, not the substance (to the latter refers the sound matter and the semantic matter). The form is represented in terms of expression and in terms of content, which are analyzed separately. It is established dependence between the units which is interpreted as a function of one element on the relation to another. The term "function" is used in the logical-mathematical sense: it is the dependence with one mapping of one unit to another. Language is reduced to a network of dependencies (structure), it is treated as a system of pure relations of three main types: interdependence, determination and constellation.

Theories of Yelmslev occupy a special place of dual understanding of structuralization of its units - paradigmatics and syntagmatics. [20]. However, his theory did not give a specific answer to the question that what kind of relationship is primary. According to him, the functions of language are determined by the system. Value of syntagmatics and paradigmatics remains one of the most complex theoretical issues in linguistics, not only in Western (European), but also Turkic languages. The main feature of the English Functional Grammar (J.R.Firth, M.Holliday) based on the theory of anthropocentrism, such a philosophical approach is aimed primarily at the issues of language functioning in society, in the communicative aspect of the language. In this understanding of RS is considered in the situational context, this approach reveals the dynamics of the changing nature of the phenomenon in the oral discourse. The context of the word is analyzed in terms of colligation (relation to the grammatical form) and collocation (constant lexical compatibility). With respect to the RS the gist of the English theory of "contextual situation" includes both linguistic and extra-linguistic characteristics that are recognized as the most active in the oral discourse and in journalistic discourse.

Particularly, the researches of J.Firth are very interesting and his achievements are acceptable in the relation to the RS of the Azerbaijani language. London orientalist J.R.Firth introduced the notion of the concept of a situation created contextual theory of meaning - contextualism in which the phrase depends on the situation, the values in culture and traditions. He introduces the following definitions: 1). Completed in semantically period of writing (text), which gives the ability to precisely set the individual

included in a word or sentence. 2). Conditions of use of the given language units in speech (language environment, and in a broad sense as the situation of speech communication). [23]. However, Firth says only about a linguistic theory of meaning, but semantic properties of phrases he calls a function that makes sense only in the context of the situation. It should be noted that in the general history of linguistics of the twentieth century for the first time an attempt was made to systematize the principles of structural analysis. The originality of the concept of John Rupert Firth as the neopersian is in the presence of the terms that have been introduced into linguistics by Malinowski: the context of the situation, situational context, and linguistic concept. In the American structuralism, descriptive linguistics (L.Blumfield, G.Glison, Z.Harris) carried out a consistent formalization of the language description. The aim is to study the relations of distribution of individual forms to each other. In addition, during the second half of the XX century, developed the theory of semantic synthesis (J.Katz, J.Fodor, U.Vaynraykh), which presents the rules governing the interaction of the components saying at the semantic level.

Subsequently German studies specialists have come to the conclusion that the development of linguistics, as well as its section of syntagmatics it is impossible without the construction of the two components of speech: anthropocentric and semantic approaches.

These theories of German studies have created the prerequisites for development theories in the compatibility of Russian and Azerbaijani linguistics. This process is outlined from the middle of the twentieth century, but has not received adequate theoretical basis yet. It should be noted that in this way it was made possible on the basis of theoretical assumptions for German studies, Russian linguistic schools and Azerbaijani studies highlight syntagmatics in an independent field of study of linear relations between the signs of language and their classification. RS in the Azerbaijani language all continue to derive according to the existence in a social context. In this sense the nature of the RS should consider the epistemological nature of language and social context, the latter was reflected in oral speech discourse, which still has not received a proper description and systematization in the Azerbaijan linguistics. Functional linguistics develops its own methods, based on the nature of language in the German language school. Its main idea is based on a synthesis of practical and theoretical grammar. RS according to this linguistic direction should be considered in three aspects: the form, the value, and the function of the interconnectedness of all sides. Thus, each of the areas has contributed to the study of the compatibility of RS, thus served as the basis for creating combinatorial linguistics.

In the analysis of the RS in the Azerbaijani language it is possible to accept the methods of German functional grammar (G.Helbig, V.Shenkel), so in the theories of German linguists the valence is considered as the ability of establishing relationships with the words, draw and thus fill in the "free places", and the approach is based on the relationship between the semantic meaning of words and syntactic analysis. Theorists prove the ability of lexemes syntactically to subdue a word or group of words that corresponds to the semantic load. This approach of description of "free places" is characteristic for phrases of RS, and is possible to use in the Azerbaijani syntagmatics, especially in the position of fixation.

## Conclusions

Syntagma and relative syntagmas are investigated, learned and developed as syntactic, semantic and stylistic features of syntagma as a unit of syntax, classified according to their types, spoken widely of their meanings, and comprehensively highlighted its importance in the Azerbaijani and Western schools of linguistics. The analyses of the given problem give us the following conclusions:

1. The greatest contribution to the development of combinatorial linguistics was made by American linguists (J.Kats, J.Fodor, U.Vaynraykh). They stressed the need to take into account the semantics when syntagmatic description;
2. London linguists' (headed by J.R.Firth) contribution was the need to focus the study of speech is not only its linguistic, but also extra-linguistic features of speech utterances;
3. In German studies is still no classification of the forms of verbal means.
4. Semiological signified can be expressed in a single word or group of words. In this value there is no need to produce a special meta-language. However, it must refer to the semantic classification of natural language, but not the properties of the researching system. The boundaries of semiological signified also have one great feature. These features do not only interact with each other, but overlap each other;
5. There is a need for a global description of semiological systems which relate to the same slice in synchronic German studies. Each language system corresponds to a set of specific techniques. This set requires from recipients the semiological language system of different knowledge;
6. The same set of meaning can be deciphered differently by different individuals within the language. In the minds of one and the same individual can be coexisted some systems of meaning that the fact causes more or less of deep reading.

Consideration of the internal structure of language allows to make a general methodological conclusion: to form a full-fledged linguistic representations of the signs of language, the successful assimilation of studying the native language of the entire system must be the assimilation of knowledge, as a paradigmatic and syntagmatic language system. So syntagmatics and paradigmatics function to all units of language at all levels, and are paradigmatics morphology and syntagmatics syntax. This fact is explained by the fact that the intellectual activities with signs of language (action selection, classification, combination, transformation, and so on.) are based on knowledge of the paradigmatic and syntagmatic relations of elements of the language system. Namely these skills and knowledge provide a component of language as a linguistic process to the use of language in speech activity. This material can be used in the research and teaching activities on the given problem.

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# A STUDY IN NONSENSE: SCRUTINIZING THE UNDERLYING DIFFERENCES BETWEEN CONSTRUCTED LANGUAGES AND IMAGINARY TONGUES

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## Abstract

Over the past few decades, the majority of translation scholars and practitioners have feverishly and painstakingly attempted to prove that the act of translation proper should not be interpreted as a mere instance of mechanically transcoding texts from one language into another, but rather that it rightfully fulfills all the criteria necessary for it to be classified as a genuine act of communication. Thus, the participants in the communication exchange can unreservedly send and receive linguistic, socio-cultural messages. And what better way would there be to reinforce this rationale than to show that, even in the most extreme of cases, where the translation analysis is not conducted on a natural language, but rather on a language artificially constructed for a specific purpose, the principle that translated texts carry communicative value still holds true? But regardless of the fact that conlangs do indeed function as naturally developed languages, constructed languages and nonsensical imaginary tongues are most often wrongfully considered to be entirely interchangeable. By drawing up this paper, I aim at demonstrating that, while the creators of imaginary languages perceive the opportunity to create such structures more as 'blank canvases' for their language engineering creativity, and are not necessarily interested in giving them a functional animus, conlangers design fully working languages which are meant for a specific category of speakers and feature clear-cut operating principles and functioning mechanisms. By following Étienne Souriau's classification of imaginary tongues, as displayed in "Sur l'Esthétique des Mots et des Langues Forgés" (1965), we will show that, unlike conlangs, these linguistic fabrications are mostly meant to satisfy linguistic, stylistic and aesthetic curiosities.

**Key words:** *Constructed languages, Étienne Souriau, Flaminia Robu., Imaginary languages, Made-up languages, Nonsense, Translation.*

## Introduction

As a militant for the conclusiveness that the translation from and into constructed languages is undeniably possible, and even more so, that it meets all the criteria necessary for conlang translations to be considered valid communicative acts, I have often been confronted with questions which could, more often than not, be paraphrased as follows: "Can these structures actually be considered genuine languages or are they mere instances of nonsense?"; "Is it not so that translatability only applies in the case of naturally developed languages?"; "How can we translate texts from a language that is devoid of meaning?" or "How can you guess what the author wanted to convey; do these languages actually have any communicative value?" As a result, it has become appallingly obvious to me that, in general, almost no distinctions are being made between made-up nonsense languages and constructed languages. And since these two categories of invented linguistic codes are so very different, the reason behind conducting this comparative study becomes altogether transparent.

But before we go into further detail on the matter, let us consider, for display purposes only, the following poems: J.R.R. Tolkien's Quenya poem, "Namárië" and Lewis Carroll's famous poem, "Jabberwocky", which is written in plain English but features certain 'nonsense' structures, scribed in a made up language.

Ai! laurië lantar lassí súrinen,  
yéni únótimë ve rámar aldaron!  
Yéni ve lintë yuldar avánier  
mi oromardi lissë-miruvóreva  
Andúnë pella, Vardo tellumar  
nu luini yassen tintilar i eleni  
ómaryo airetári -lírinen.

Sí man i yulma nin enquantuva?

An sí Tintallë Varda Oiolossëo  
ve fanyar máryat Elentári ortanë  
ar ilyë tier undulávë lumbulë  
ar sindanóriello caita mornië  
i falmalinnar imbë met,  
ar hísië untúpa Calaciryó míri oialë.  
Sí vanwa ná, Rómello vanwa, Valimar!  
Namárië! Nai hiruvalyë Valimar!  
Nai elyë hiruva! Namárië!

(Tolkien, 1965:297)

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`Twas brillig, and the slithy toves  
Did gyre and gimble in the wabe:  
All mimsy were the borogoves,  
And the mome raths outgrabe.

And, as in uffish thought he stood,  
The Jabberwock, with eyes of flame,  
Came whiffling through the tulgey wood,  
And burbled as it came!

"Beware the Jabberwock, my son!  
The jaws that bite, the claws that catch!  
Beware the Jubjub bird, and shun

One, two! One, two! And through and through  
The vorpal blade went snicker-snack!  
He left it dead, and with its head

The frumious Bandersnatch!”

He went galumphing back.

He took his vorpal sword in hand:  
Long time the manxome foe he sought –  
So rested he by the Tumtum tree,  
And stood awhile in thought.

“And, has thou slain the Jabberwock?  
Come to my arms, my beamish boy!  
O frabjous day! Callooh! Callay!”  
He chortled in his joy.

’Twas brillig, and the slithy toves  
Did gyre and gimble in the wabe;  
All mimsy were the borogoves,  
And the mome raths outgrabe.

(Carroll, 1999: 8-9)

At a quick glance, one could say that neither of the two texts is entirely comprehensible or, in a best-case scenario, Lewis Carroll’s poem, “Jabberwocky” is far more apprehensible than J.R.R. Tolkien’s poem, “Namárië.” In reality, when we translate this structure from the Elvish language into English, the result is a remarkably stirring lament, carrying a powerful communicative message, more precisely that of finding hope though adversity.

“Ah! like gold fall the leaves in the wind,  
long years numberless as the wings of trees!  
The years have passed like swift draughts  
of the sweet mead in lofty halls beyond the West,  
beneath the blue vaults of Varda  
wherein the stars tremble in the song of her voice, holy and queenly.

Who now shall refill the cup for me?

For now the Kindler, Varda, the Queen of the Stars,  
from Mount Everwhite has uplifted her hands like clouds,  
and all paths are drowned deep in shadow;  
and out of a grey country darkness lies on the foaming waves between us,  
and mist covers the jewels of Calacirya for ever.  
Now lost, lost to those from the East is Valimar!

Farewell! Maybe thou shalt find Valimar.  
Maybe even thou shalt find it. Farewell!”

(Tolkien, 1965:298)

In all likelihood, even without possessing a sound knowledge of the operating principles and functioning mechanisms of these two distinct linguistic categories, the reader should be able to take note of the fact that the communicative value conveyed by the two texts is far from equal. And since I held a strong belief that philologists could make this deduction with much more ease than unspecialized readers, I was surprised to come across Flaminia Robu’s “Lewis Carroll. Jabberwocky: un celebru poem in 70 de limbi care nu există” (Lewis Carroll. Jabberwocky: a famous poem translated into 70 languages which do not exist – *my translation*), only to discover that, while presenting Étienne Souriau’s classification of imaginary tongues (which will be discussed into further detail before long), the author offers J.R.R. Tolkien’s names of peoples and places from Middle-earth as instances of ‘nonsense’ structures and presents his Elvish languages, namely Quenya and Sindarin as examples of nonsensical, imaginary tongues, without differentiating them from, for instance, the nonsense resulting from accidental slips of tongue made by a non-native speaker who is attempting to learn a new language\*.

### 1. Concept-based disambiguation

In view of such circumstances, a concept-based disambiguation is very much needed in order to better understand why it is so important to separate *conlangs* and *nonsense languages* into distinct fictional linguistic classes. We begin, on the one hand, with the general notion of *nonsense*, for which most monolingual dictionaries offer the following suggestions: 1). words or language having no meaning or conveying no intelligible ideas; language, conduct, or an idea that is absurd or contrary to good sense (Merriam-Webster Dictionary); 2.) verse or other writing intended to be amusing by virtue of its absurd or whimsical language (The Concise Oxford Dictionary); 3). something that has or makes no sense, unintelligible language, drivel (The Collins Dictionary); 4). language that cannot be understood because it does not mean anything (Cambridge Dictionary). In a literary context, we may often come across the notion of *nonsense verse*. According to the *Concise Oxford Dictionary of Literary Terms*, it could be defined as “a kind of humorous poetry that amuses by deliberately using strange non-existent words and illogical ideas.” (Baldick, 2001: 183)

But since these definitions do not seem to touch upon the particularities of nonsense as the core concept of nonsensical imaginary languages, we must narrow down the scope of the research and look towards more specialized resources. Accordingly, in his paper entitled “Ridiculous Modernism Nonsense and the New in Literature Since 1900”, Eric John Rettberg provides us with what I consider to be a pertinent definition of nonsensical, imaginary languages: “Through nonsense imaginary language, I mean instances of language in which authors or speakers have radically reshaped the structure of their language tique in such a way that they have defeated forms of reading that depend on normative visions of the sense-making process—or in which readers or listeners rightly or wrongly perceive them to have done so.” (Rettberg, 2012:12). The author also distinguishes between *nonsense languages* and *nonsense literature*, the latter consisting in “a willfully silly literary tradition (which sometimes makes use of nonsense language), generally centered on the work of the Victorian writers Edward Lear and Lewis Carroll. Lear’s nonsense tends more toward the absurd and preposterous, whereas Carroll’s tends to humorously reverse normative logic.” (op. cit., p. 28)

One the other hand, “a *constructed language* is a language whose phonology, grammar, and vocabulary has been consciously devised by an individual or group, instead of having developed naturally” (Libert, 2000:173). It is also referred to as an *artificial* or *invented* language, its creation covering a wide and diverse range of purposes: to ease human communication, as is the

case with Esperanto, to give fiction or an associated constructed world an added layer of realism, for linguistic experimentation, for artistic creation, for language games etc. But even though the investigation of constructed languages has increased significantly during the last couple of decades, any researcher interested in this field of expertise would soon reach the conclusion that, for the time being, there is no standardized term for invented languages, which could explain why conlangs are often confused with nonsense languages. Perhaps, the reason for this lack of monoreferentiality resides in the fact that this branch of languages has not yet received a resolute nod of approval from linguistic specialists.

As to the other denominations used for constructed languages, we may often come across the more widely used cognomen of *artificial languages*. According to Helge Fauskanger, “a simple definition of an *artificial language* is any language whose lexicon and grammar were developed from an individual source for the sake of itself. Individual source refers to either one creator or a select body of creators. Unlike an authentic language, the brunt of it emerges with relative suddenness. A great deal of time might transpire over the course of its development, but when it is released to others, the language must be communicatively functional - i.e. the system can be used to convey many ideas.” (Fauskanger, 2003, <http://folk.uib.no/hnohf/vice.htm>. Last updated on 12 June 2015) We can notice that there is another qualification inferred in the definition: the system is functional before there are any real native speakers. The creator is in almost every case incapable of speaking his or her own artificial language and creates the vocabulary and grammatical systems at a much faster rate than they can be learnt and employed. The definition also implies that, while others beside the creator are capable of learning an artificial language, the reason it is artificial is because it is functional before it is a language.

One first deduction which can be drawn from this stage of the comparison is that the reason why conlangs could be labeled as ‘functioning’, while nonsense languages could not reside in the fact that, in the case of a conlang, “all the properties of human language are accounted for, featuring a form component (whose elements are phonological units), a grammatical component (whose elements are grammatical units), and a meaning component (whose elements are semantic units)” (Saussure, 1998:57). Nonsensical structures similar to the ones we have seen above do not fulfill the same set of criteria. Furthermore, much like in the case of natural languages, conlang grammar is a system of rules which govern the language of a particular speech community. It encompasses sound, meaning, and gestures, and includes phonology, i.e., how sounds and gestures function together, morphology, i.e., the formation and composition of words and syntax, i.e., the formation and composition of phrases and sentences from words. On the other hand, in the case of nonsense languages, we could not possibly consider that ‘nonsense’ structures have a meaning component, although we could account for the existence of grammatical functions. Consequently, if we took the first two verses from the poem “Jabberwocky”, we would find that, even if nonsense words do not carry a semantic value, they could be considered grammatically functional: “‘Twas brillig (past participle), and the slithy (adjective) toves (noun)/ Did gyre (verb) and gimble (verb) in the wabe (noun)”.

## 2. Primary differences in the inventors’ creative rationale

Another set of criteria on the basis of which we could make the distinction between constructed languages and nonsense tongues encompasses the reasons behind the creation of each of these codes.

In the case of conlangs, probably the most important motivation for inventing an artificial, yet fully functional language is that, regardless of geographical positioning and ethnic affiliation, the majority of anthropologists claim that language began as a biological and social phenomenon in prehistory and that all the languages currently spoken around the world have originated from a proto-language. Aside from the anthropological approach, there is also the religious version of this hypothesis, written in the Genesis and known as the Tower of Babel Myth. According to the Old Testament, all of humankind used to speak a single language of one-to-one correspondences between words and things. However, this perfect linguistic harmony was not meant to last because our conceited predecessors angered God by trying to build a tower to the Heavens:

“Now the whole earth had one language and few words... And they said, ‘Come, let us build ourselves a city, and a tower with its top in the heavens, and let us make a name for ourselves’... And the Lord came down to see the city and the tower which the sons of men had built. And the Lord said, ‘Behold, they are one people, they have all one language, and this is only the beginning of what they will do; and nothing that they purpose to do will now be impossible for them. Come, let us go down and there confuse their language, that they may not understand one another’s speech.’ So the Lord scattered them abroad from there over the face of all the earth, and they left off building the city. Therefore its name was called Babel, because there the Lord confused the language of all the earth.” (Genesis 11: 1- 9)

Therefore, we could assume that one of the reasons why people would want to invent new languages is the attempt to rebuild the original *lingua universalis*, in order to unify the peoples of the Earth and reach a perfect human state by means of unambiguous speech and transparent communication.

An additional justification for constructing a new language could be that, for some individuals, natural languages are not always sufficiently well developed so as to incorporate everything that one wishes to express. According to Michael Adams, “a similarity of purpose and motivation drives inventors of all new languages, whether in the real or fictional world. The perceived need for them arises from dissatisfaction with the current linguistic state of affairs. Recognition that language can be used for promoting or changing the social, cultural and political order leads to conscious intervention and manipulation of the form of language, its status and its uses.” (Adams, 2011: 2) Another conlang aficionado, Arika Okrent, notes in her book entitled *In the Land of Invented Languages* that “the primary motivation for inventing a new language has been to improve upon natural language, to eliminate its design flaws, or rather the flaws it has developed for lack of conscious design. Looked at from this angle, invented languages almost seem inevitable. The urge to invent languages is as old and persistent as language itself.” (Okrent, 2010: 11 - 12)

In the case of nonsense languages, however, the creators are motivated by an entirely different set of principles. First, a distinction needs to be made between intentional and unintentional nonsense. The former can be defined as “linguistic instances where the nonsense does not ensue as a result of accidental slips of tongue, but originates from the author’s desire of deliberate artistic expression.” (Souriau, cited in Robu, 2008: 16)

Souriau furthers his rationale by stating that authors of nonsensical linguistic instances may be motivated by the need to make use of an anti-institutional language, as a means of rebellion against certain political regimes and socio-cultural norms: “The author takes the risk of employing anti-institutional language upon himself and does not assign any responsibility to his characters. By doing so, he uses a language that is Baroque, artificial and absurd, so as to achieve a variety of aesthetic and stylistic effects – from picturesque to cryptic, from comical to tragic and poetic – the author assumes the inherent risks, including that of making use of

an anti-institutional language.” (Robu, op. cit., p. 17) Some of the authors that could fit within this category are Lewis Carroll, James Joyce and Jorge Luís Borges.

And since we have already discussed intentional nonsense, it seems only fitting to also have a look at instances where nonsense ensues as a result of unintentional slips of tongue, which can occur in a multitude of circumstances. For example, linguistic nonsense can emerge in situations in which “people with less formal education, who can be uncultivated or even illiterate resort to a very sophisticated type of speech in order to impress their interlocutors, which results in the use of hyperurbanisms and verbal clichés, which, of course, leads to a labored, cumbersome communication” (op. cit., p. 16)

As I have already briefly mentioned at an earlier stage of my exposé, to these illustrations of unintentional nonsense, we can also add the solecisms and barbarisms committed by strangers who are not yet fully familiar with the language in which they have only recently started to communicate, their involuntary violations being very similar to those delivered by children or the ones occurring during sleep, when obscure dream patterns seem to shape the unspoken words in fluid linguistic patterns. According to Robu, “famous writers which illustrate such verbigerations or oneiric versifications are Victor Hugo, with his “Latin” verses or Alfred Tennyson, who recalled that he had “written” entire poems while sleeping, which, of course, he was not able to transcribe after waking up” (ibidem).

### 3. Classification disparities

My attempt at finding clear-cut distinctions between conlangs and nonsense languages would not be complete without mentioning the fact that the two fictional linguistic categories are, under no circumstances, to fall under the same classification. In fact, they generate entirely divergent subcategories of their own. As such, for nonsense languages, Flaminia Robu takes up the classification of ‘made-up’ languages of the French philosopher, Étienne Souriau, as displayed in “Sur l’Esthétique des Mots et des Langages Forgés” (1965):

1. ‘*Baragouin*’ or ‘*gibberish*’ designates “any type of language devoid of meaning, but which is perceived as belonging to a pre-existent foreign language.” (Souriau cited in Robu, 2008:25) Gibberish can encompass “any kind of speech in a foreign tongue whose relatively grotesque phonetic feel bears the mark of a negative connotation” (ibidem). This type of speech is used by Molière’s characters in “Le Bourgeois Gentilhomme” (1670).

2. ‘*Charabia*’ or ‘*balderdash*’ is defined by Souriau as “a dialect or artificial jargon obtained through the deforming or distorting of standardized language” (op. cit., p. 28). Also known as the ‘kékcékça’ language – a brutal phonetic transcription of the highly used French question *Qu’est-ce que c’est que ça?* (translation: *What is this?, What is that supposed to mean?*), this language can be encountered in many famous works such as Victor Hugo’s “Les Misérables” (1862) or Raymond Queneau’s “*Zazie dans le Métro*” (1959).

3. ‘*Lanternois*’ or ‘*rigmarole*’ – the most prominent feature of this type of ‘nonsense’ is “a degree of adequate or implicit intelligibility which is always carefully elaborated, thus lanternois features certain stylistic changes which distort the speech” (op. cit., p. 30). Examples of this imaginary language can be encountered in James Joyce’s “*Finnegans Wake*” (1939) and “*Ulysses*” (1922).

As for constructed languages, they can either be *a priori* or *a posteriori* languages, the grammar and vocabulary of the former being entirely created from the ground up by means of the author’s imagination. In turn, *a posteriori* languages are divided into *schematic languages*, in which a natural or partly natural vocabulary is altered to fit pre-established rules, and *naturalistic languages*, in which a natural vocabulary retains its normal sound and appearance. To give an example, while Esperanto is generally considered schematic, Elvish could be viewed as naturalistic. Fictional and experimental languages can be naturalistic in that they are meant to sound natural, since they try to imitate natural processes of phonological, lexical and grammatical change.

According to the purpose they can fulfill, conlangs can be subdivided into:

1. *Engineered languages*, further subdivided into logical languages, philosophical languages and experimental languages; devised for the purpose of experimentation in logic, philosophy, or linguistics;
2. *Auxiliary languages* devised for international communication (the most eloquent example I could offer here is Esperanto);
3. *Artistic languages (artlangs)* devised to create aesthetic pleasure or to generate an unearthly environment, secret languages and mystical languages being usually classified as artlangs (Higley, 2000:40).

A constructed language could be used to restrict thought, as in George Orwell’s *Newspeak*, or to simplify thought, as in *Toki Pona*. In contrast, linguists such as Stephen Pinker argue that ideas exist independently of language. Thus, children spontaneously re-invent slang and even grammar with each generation. The famous but disputed *Sapir-Whorf hypothesis* is sometimes cited, claiming that the language one speaks influences the way one thinks. Thus, a “better” language should allow the speaker to think more clearly or intelligently or to encompass more points of view. Another reason for using a constructed language is the *telescope rule*, which claims that it takes less time to first learn a simple constructed language and then a natural language than to learn only a natural language.

### Conclusions

By conducting this investigation, I hope I have succeeded in showing that the main difference between these two types of language rests on the fact that, while in a nonsensical, imaginary tongue, the author strives to play a kind of stylistic game, paying very special attention to the formal structure of the text, but without being particularly interested in also designating meaning, constructed languages exist as functioning, usable languages. In addition, given the fact that occurrences of nonsense language are, more often than not, interposed with the natural language spoken by both the author and the audience, and usually consist of proper nouns and toponyms, it is virtually impossible to conduct authentic translation analyses on such linguistic snippets. On the other hand, in the case of constructed languages, translation assays are possible, both at a micro and macro-level. Furthermore, while the “meaning” translators can attribute to nonsense structures could hardly be considered as more than a mere guessing game, their central aim being that of achieving in the target text the same stylistic effect as the one from the source text, conlang translators can gain access to dictionaries, glossaries, glosses and manuscripts, all of which have been especially designed by the language creators, so as to ease comprehension and avoid ambiguity.

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## Notes

\* See Robu, Flaminia (2008) *Lewis Carroll. Jabberwocky: un celebru poem in 70 de limbi care nu există*, Cluj-Napoca: Casa Cărții de Știință, pp. 11-30.

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## TEACHING ENGLISH IN A DIGITAL ERA - USING ICT TO ENHANCE ENGLISH LANGUAGE ACQUISITION -

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### Abstract

The rapid development in digital technologies needs a re-thinking of how those technologies impact student learning, as well as the development of educational institutions. The aim of this article is to provide a systematic and comprehensive overview of the most popular technologies that support English teaching and learning in the primary, but also in the university sector and to investigate the effects of using technologies on language acquisition process. In this presentation, I will also discuss the complexities of digital learning, looking not only at the potential advantages of learning through computer assisted language learning (CALL) or mobile devices, but also outlining the factors which need to be kept in mind when learning through these devices. Several case studies and findings related to digital technologies will be analysed along with their associated challenges.

**Keywords:** digital technology, mobile apps, ICT, language learning, education, challenges, CALL, authentic.

### 1. Technologies - an alternative tool to enhance language practice in primary sector

The range of technologies available for use in language learning and teaching are diverse and the ways that they are being used in classrooms all over the world, have become central to language practice. New technologies such as: overhead projectors, interactive whiteboards, laptop computers and wireless internet create links to the outside world. Many teachers have made a swift in their teaching approach and are now adept at using PowerPoint to present grammar, playing podcasts to practise listening skills, “pulling texts off the world wide web to introduce reading skills and perhaps most ground-breaking of all – empowering students by giving them access to a wide range of web-based tools that allow them to publish work and engage with live audiences in real contexts.” (C. Pim, 2013)

Moreover, technologies have begun to change the way English is learned in the classroom and in many cases we can see that it has enabled teachers to re-think what they are doing. In order to meet the needs of a new generation of young “technocrats”, the teachers have employed innovative methods. The use of technology for English language learning can fit any level and practitioners are increasingly using ICT innovatively within young learners as well. Many children are exposed to a range of technologies from an early age in their homes, so they have the chance to develop some “digital skills”. (C. Pim, 2013) Many teachers have also begun to embrace children’s interest in digital play creating language learning opportunities “through the use of computer games within an educational context.” Beside digital games-based learning, technology can also be introduced to enhance oral practice and also reading and writing skills development. However, ICT proved to be successful when “integrated into project-based language learning, where English can be acquired naturally through themed activities and different subject disciplines.” (C. Pim, 2013) An example may include content-driven, language based activities that will have as practice, an oral presentation where learners might engage in a teacher led question and answer exercises or watch a video.

Education and especially second language acquisition, should be able to provide contexts where learners are exposed to real models of spoken English and various opportunities to practise the target language. From this point of view, technology can be considered a helping tool that enhances the learning process. Technologies, including the internet, can be considered authentic sources (input materials) and teachers should take into account the fact that they “are no longer isolated from the target language or culture and through this medium, they can participate in the socially mediated practices of the (the target language) community. (Kirsch, 2008)

Teaching young learners depends on many factors: age, class, size, teacher’s competency, the availability of the teaching resources and the school context. We are all familiar to the traditional way of developing oral skills which involves songs, rhymes and different stories. Nowadays, teachers can access plenty of electronic resources such as talking electronic books, podcasts that improve the learner’s pronunciation as well as language acquisition and can be easily downloaded from the internet (songs, poems). It can also connect different English speakers from around the world through synchronous solutions like ‘video-conferencing’ (Philips, 2010) and face-to face interactions through online virtual worlds. Video-conferencing is a popular tool that is being used “to bring learners together over distance, so that they can communicate in a common language and share cultural experience.” (C. Pim, 2013)

Research in this field has shown that in Taiwan, some teachers have been using video-conferencing to support English learning. In order to promote picture book reading, many teachers in Taiwan decided to have a “shared platform on which picture book reading and worksheets may be available to them and where more innovative teaching activities can be shared.” (C. Pim, 2013) Various sessions of books reading were organized and classes were connected to experienced primary teachers, in this way the learners had the chance to experience (via VC system) a book reading led by an English trainer. They also had the possibility to interact with the reader by asking and answering questions in their own first language about the plot or the characters of the story. The English teacher was also able to focus on vocabulary and to upload worksheets related to the stories.

This research has proved that young learners were greatly involved in their activity and these sessions were also beneficial for the class teachers, who were able to witness “an effective book reading material modelled by a skilled English speaker and identify techniques for engaging the listener as well as learning how to enable children to think and talk around a story, in order to maximize comprehension.” (C. Pim, 2013)

### 1.2 Computer assisted language learning (CALL) to support oral skills

The range of technologies available to language teachers and learners has increased over the past several years, providing both with a diversity of options that can be both exciting and challenging. As new technologies appear, they bring with them possibilities regarding what can be achieved both inside and outside of the classroom, but it is often difficult to keep up with the range of technologies that become available. In an era of constant change, computers are able to provide instantaneous feedback to the user and learners, who can benefit from “self-directed vocabulary that monitor voice input and assess the accuracy of their pronunciation.” (C. Pim, 2013) Speaking practice in a CALL setting has largely been of two types: “pairs or groups of students speaking to one another as they sit in front of a computer engaged in a task, or individual students using the computer to record their voice, often in the context of pre-determined dialogues”. (G. M. Chinnery, 2006). As far as pronunciation is concerned, there are several types of applications. The simplest is the digital version of the tape recorder, where “learners use the computer to listen to

native speakers' models, and then record and compare their own voices in an attempt to match that model. Another application is using ASR (automatic speech recognition) to "judge how close a learner's speech is to a norm for native speakers". (G. M. Chinnery,2006). Feedback to the learner can be presented in the form of "a meter or numerical score", although in addition to problems with judgemental accuracy there are clear limitations to the value of such feedback since it does not tell the learner where the breakdown is occurring or what to do to improve. A few recent applications such as Carnegie Speech ([www.carnegiespeech.com](http://www.carnegiespeech.com)) have been able to pinpoint specific phonemes within a word or phrase that need work and offer targeted explanations and exercises for improvement. (G. M. Chinnery,2006).

### 1.3 Cell Phones –an infinite educational potential

As mobile technologies become more widely used in our everyday lives, it is perhaps not surprising that they have attracted the attention of language teachers as a means of providing learning opportunities that learners can take advantage of at any given time or place. Mobile learning has the potential to not only increase the amount of time that individual learners spend engaged in language learning activities, but also to reduce the psychological distance that may be associated with more formal language learning situations

First of all, these devices now include Internet access, voice-messaging, SMS text-messaging, cameras, and even video-recording and in language learning, all of these features enable communicative language practice, access to authentic content, and task completion.

One of the first projects using mobile phones in language learning was initiated by the Stanford Learning Lab. (Brown, 2001) and they were able to develop Spanish study programs utilizing both voice and email with mobile phones. These programs included vocabulary practice, quizzes, word and phrase translations, and access to live talking tutors. Their results not only indicated that mobile phones were effective for quiz delivery if delivered in small chunks but they also indicated that automated voice vocabulary lessons and quizzes had great potential. (M. Chinnery,2006) Their tiny screen sizes were deemed "unsuitable for learning new content, but effective for review and practice" (Thornton & Houser, 2002, p. 236). Live tutoring was also effective, but poor audio quality was judged to potentially affect comprehension adversely

Other researches in this field, conducted by Thornton and Houser (2003) were related to the use of mobile phones to teach English at a Japanese university, with the main focus on providing vocabulary instruction by SMS. The students received short mini-lessons on their mobiles (sent via email) three times a day. The lessons included the definition of five words per week, it recycled previous vocabulary, and it used the words in various contexts, including episodic stories. Students were tested biweekly and compared to groups that received identical lessons via the Web and on paper. The final results indicated that the "SMS students learned over twice the number of vocabulary words as the Web students, and that SMS students improved their scores by nearly twice as much as students who had received their lessons on paper. Students' attitudes were also measured. The vast majority preferred the SMS instruction, wished to continue such lessons, and believed it to be a valuable teaching method (...) The authors theorized that their lessons had been effective due to their having been delivered as push media, which promote frequent rehearsal and spaced study, and utilized recycled vocabulary."( Thornton and Houser, 2003)

It can be seen from the case studies and their results that technology has a significant role to play in enhancing the delivery of English language teaching and learning. The range of technologies now available can support teachers in a variety of ways both inside the young learner classroom, but also increasingly in the home environment and while learners are on the move about their daily lives. However, taking into account the endless possibilities offered by the digital devices, English language teachers should ensure their teaching styles genuinely meet the needs of their 21<sup>st</sup> century learners.

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## THE METAPHOR OF THE DUMB IN A WORLD OF THE DEAF

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### Abstract

The analysis of the novel *Los Sordos (The Deaf)* in 2012, written by the Guatemalan writer Rodrigo Rey Rosa transposes us into a world of contrasts, uncertainty and ambiguity through the open ending, the lack of psychological depth of the characters, the ambiguity of the crimes for which no one is guilty, slang and jargon and the lack of concreteness. The portrait of the Guatemalan State, the failure of the legal system or the existence of the indigenous Mayans with their own language introduce us into a world where communication is almost nonexistent, where violence, murders and kidnappings are commonplace and the state takes no action. We talk about a world hard to be imagined in the XXI century, considered the millennium of cybernetics. This quick race of globalization worldwide, the silent cry of the indigenous communities of the former Spanish Colonial Empire, not only from Guatemala, seems to be imperceptible not only to the local authorities, but also to the whole world. In this process of modernization and digitization, we should read this novel in order to discover the depth of the ancient Mayan culture through customs, language, spirit, purity manifested by a great sense of protection of nature and environment that wants to be preserved in this superficial and materialist world, just to keep not only the identity of the individual, but also the national one.

The novel begins with the disappearance of a deaf child in a village in Guatemala and the disappearance of Clara, the daughter of a wealthy banker and helpful Guatemalan tyrant. Cayetano, Clara's bodyguard, creates a bridge between the two disappearances, and even between the two worlds that are represented and translated by the dumb metaphor, played by indigenous Mayans and the deaf metaphor, represented by the state, the authorities and the urban population. Cayetano, convinced that it's not a kidnapping, goes in search of her, revealing a world of violence, the ancient Mayan culture, a hospital where there can be noticed suspicious practices, the relationship between Clara and Javier, her lover and the family lawyer who was married, and the relationship with his own family. From the very beginning, even from the title it can be observed the lack of communication metaphor often encountered in the pages of the novel. The three themes of the novel are: Guatemala's portrayal of violence and the actual sordid environment, the failure of the justice system and the rule of the Mayan world between ancient and current traditions. Rodrigo Rey Rosa uses the dialogue, the monologue, the free indirect style and elements of the epistolary and cop style in shaping the lack of interest of the elite, the state and that they will not listen to the indigenous Mayans, many of them even do not speak Spanish; the increased spread of the corruption and the bodyguards as a social class, the design feelings, mood and fear in Guatemala macrocosm and shaping the nature and fear as characters.

On the background of the violent and divided Guatemalan society, the author puts in front of us antithetical couples that reveal a reality of communication and deeper meanings of what we actually understand by being deaf and being dumb. Among these antithetical binomials there can be noted, for example, the antithesis between indigenous and peasants, between urban and rural areas, between The Western culture and The Mayan culture, between the Western justice and the Mayan one, or the antithesis between the traditional and the conventional medicine.

**Keywords:** Guatemala, contrast, Mayan culture, communication, globalization, identity.

By analyzing the novel *Los Sordos (The Deaf)* written by Guatemalan Rodrigo Rey Rosa in 2012 one can discover a world of contrasts, uncertainty and ambiguity that characterizes/ sums up the portrait of Guatemala today by questioning the Mayan heritage and the social component in the current/ actual context. The author was born in 1958 in Guatemala, and after abandoning the medical studies in 1980, he leaves his native country, in a constant conflict at the time. During the time spent in New York he attended cinema courses and during the first trip to Morocco he met Paul Bowles, on the literary workshop held in Tangier. His friendship with the well-known author profoundly marked his work and Bowles's translation into English of the first three books of the Guatemalan writer made him famous in the Anglo-Saxon world. As a result, both of his North African and his homeland experience will guide most of his work.

Among his novels and story books that have been translated into various languages we can include: *El Cojo bueno* (Alfaguara, 1996), *El Cuchillo del Mendigo* (1986), *El agua quieta* (1990), *Cárcel de árboles* (1991), *El salvador de buques* (1992), *Lo que soñó Sebastián* (1994; homonym film in 2004 directed by itself Rodrigo Rey Rosa), *Que me maten si...* (1996), *Ningún lugar sagrado* (1998), *La orilla africana* (1999), *Piedras encantadas* (2001), *El tren a Travancore* (2002), *Cablleriza* (2006), *Otro zoo* (2005), *Siempre juntos y otros cuentos* (2008) and *El material humano* (2009). In 2004, Rodrigo Rey Rosa received the Premio Nacional de Literatura Guatemala Miguel Ángel Asturias, and in 2012 he won Príncipe de Asturias Prize. Rey Rosa is also known for his Spanish translations of the following authors: Paul Bowles, Paul Léautaud, Norman Lewis and François Augiéras [1].

The novel *Los Sordos* begins with the disappearance of a deaf child in a village in Guatemala and the disappearance of Clara Casares, the daughter of a wealthy banker and kind Guatemalan tyrant, the next day after the charity party she had given. Cayetano Aguilar, the innocent country boy, becomes Clara's personal bodyguard [2] and gets the opportunity to go to university with the girl, thanks to whom he discovers the pleasure of reading. Cayetano makes a connection between the two disappearances, and even between the two worlds that are represented and implemented by the dumb metaphor, given by the Mayan indigenous and the deaf metaphor, represented by the state, the authorities and the urban population. Cayetano who is in love with Clara, goes looking for her and so he reveals a world of violence, the importance and the misunderstanding of the ancestral Mayan culture. He also discovers a hospital with suspicious practices and the relationship between Clara and Javier Robles, her lover and the family's lawyer, who was married, and his relationship with her family. Meanwhile, Clara's father, Don Claudio receives a telephone call for redemption which proves to be false, as she had called to reassure him (that she was fine), without revealing her location. While Cayetano was trying to find her and to clarify the mysterious disappearance, Clara seemed to be peaceful and happy, hidden in a hotel/hospital (El Hospital Neurológico Experimental Lara Kubelka) funded by her and her lover Javier. Because of all this, Don Claudio strengthens his relationship with his son, Ignacio, but he dies before finding out the truth about Clara. After discovering the hospital and Clara's lifestyle, who appeared to be drugged with some kind of pills that claimed to help to detach her from the past and her father, Cayetano gets into a motorcycle accident and is admitted to the hospital founded by Clara and Javier. These pills (drugs) lead to memory loss, which can be metaphorically extended and projected into Guatemala's macrocosm, by the fact that lying can be merged with the truth in a fictitious reality, as that of addicts'. This worldwide extended vision can be represented by the loss of identity and therefore, the loss of the past, of the ancient Mayan heritage, which forms part of the country's identity. This is

because the Mayan culture belongs to the Guatemalan culture and identity. Patients' actions and glances and the suspicious healing practices he had noticed in his short time spent there, made Cayetano call the authorities for investigation. The limited evidence provided by Cayetano - a laptop with documents and images and a booklet - and the way authorities of the Public Ministry have been given information about hospital treatments during the tour, led to an uncertain finality/end/ conclusion about the hospital activity and to Javier Robles being judged by/ according to the Mayan laws. In the chapters dedicated to his judgment, the contrast between the two civilizations is revealed at its best: an ancient belief alive today, which opposes to extinction, and the western culture, in a continuous progress: "The descent of Juan Chox to the village of San Francisco was solemn. The child who was beating the drum in a slowly rhythm- «the rhythm of his respect» was going in front of him. He had the rod and the touch: they were sacred. On their way through villages and hamlets - Tzununá and Jaibalito, Chaquijchoy, Chuitzanchaj and Pajomel, San Pablo and Santa Clara - they were joined by many people and they were walking in a long queue in rows of three. Nobody had seen anything similar to happen by the lake, at least no one remembered it. It was like those men and women have waited all their lives for this moment. Fathers [3], grandparents started to go finally; they were *nahuales* [4] again. Not just remembering other times, the annals times, the forgotten custom, but also the authorities - the police itself, «always on the side of power, although not always for the justice» - was with them. Their time, their charger - they were proving it while walking - had finally awakened" [5]. The movement of forces that occurs at the same time with this Mayan judgment puts in discussions the strength and the shutter reason that makes us think of a divine power, the supreme or only to hidden powers, as chance or hazard: "It is true that without the road recently inaugurated it would have been impossible to arrive to a manifestation like this, and it is possible that people wouldn't have gathered as they did, naturally, almost unconsciously" [6]. This moment shows us how important it is to make a gesture when required, and maybe the only one you were born for, the fact that unity means strength and that heritage and links are always in us, only that the trigger of the feelings is outside us. The scene of the trial put in contrast the Occidental justice and law and the Mayan traditional judgement in which Javier was subjected - also implied the suspicious activity of the Hospital - in order to be found guilty or not and to preserve the harmony between the two worlds.

Towards the end of the novel, Cayetano goes back to being in the centre of the action, by his mother. When he finds out that his sister had become a club dancer, he wants to take his niece away from her in order to give her a proper home and provide a decent education. However, the author leaves us an open end, to explore our rich imagination in finding the most hidden answers and/or the questions at the end of reading. Not only Cayetano's destiny and story are left into question, but also those of the other characters, uncertainty and ambiguity hovering in the end, without a final result.

From the very beginning, even from the title, one can observe the lack of communication, metaphor often encountered in the pages of the novel. The three themes of the novel are: Guatemala's portrayal of violence and the actual sordid environment, the failure of the justice system and the rule of the Mayan world between ancient and current traditions. Rodrigo Rey Rosa uses the dialogue, the monologue, the free indirect style and elements of the epistolary (excerpts of articles from newspapers read by Don Claudio after the disappearance of Clara and those found by Cayetano in the hospital) and cop (Cayetano adventure and his quest to unravel the mystery behind the Clara's disappearance) style in shaping the lack of interest of the elite, the state and the fact that they don't want to listen or understand the Mayans, the majority of which don't speak Spanish; in shaping the increased spread corruption and the bodyguards as a social class. We assist at the projection of feelings and states of mind and fear into Guatemala's macrocosm as characters. One of the moments during which fear is best represented is when Cayetano reunites with Clara, and very confused he gets chills on his way to her room, but "the fear that started to master him disappeared when he heard Clara saying his name" [7]. During their short talk, Cayetano was amazed by her carefreeness and indifference, getting to feel again "that fear threatening to paralyze him" [8]. Fear is presented through Cayetano's accident, carefully prepared, and with an incredible well defined ending, with visual images and strong sensations: "It seemed that his own physical pain was found in everything around him, it enveloped him. The intensity of the pain increased and decreased -and the surrounding area- in the rhythm of his breath. The pain was like hoarfrost floating and agave rocks in the landscape and the taper volcanoes, the black air, even in the fine mesh of pale stars in the sky. But the moment when the pain seemed to abandon him finally came; it expanded, getting away from him - like the aura of an explosion - launched with the cry (asking for help - but to whom?). The blades of clouds have easily gone away. He closed his eyes" [9].

*Los Sordos*, considered to be an ambitious novel, introduces us into a world where communication is almost nonexistent, where violence, murders and kidnappings are commonplace, and where the state takes no action. We talk about a world hard to imagine in the XXI<sup>st</sup> century, considered the millennium of cybernetics. In this rapid pace of worldwide globalization, the silent cry of the indigenous communities of the former Spanish colonial empire, not only from Guatemala, seems to be imperceptible not only to local authorities but also to the whole world: "That meandering of moving people was the manifestation of a form of life that remained in obscurity for centuries and it was now coming back - and reached the square and the sea of heads there gathered to punish for murder, with collective cruelty, an innocent man that is attributed to have been magically opened" [10]. During this process of modernization and digitization, we are challenged to read this novel to discover the depth of the ancient culture through its customs, language, spirit, purity manifested by a great sense of protection of the nature and the environment that is required to be preserved in this superficial and materialist world, just to keep the identity of the individual, but also the national one. But, while captivated by the novel, one may be surprised that some villagers use *escaip* (Skype) and have an instant connection to the Internet, despite the slightly old computer. It is the scene where Cayetano had escaped from the hospital and was looking for a way to contact Ignacio, Clara's brother, to announce the authorities about the practices in the hospital. On the other hand, the poor peasants want to become bodyguards in order to progress, not to remain poor, without a future in a world where the rich ones make the rules.

On the background of the violent and divided Guatemalan society, the author puts us in front of antithetical couples that reveal us other facets of the communication act and deeper meanings of what we actually understand by *being deaf* and *being mute*. Among these we can mention the antithetical binomials, for example, the antithesis between indigenous and peasants, between urban and rural areas, between the Western culture and the Mayan one, between the Western justice and the Mayan justice, the antithesis between the traditional and the conventional medicine.

On the novel pages, deafness is not just the lack of perception and consideration for the ancient Mayan culture; it is among us, we who speak the same language, but do not understand each other, we, deaf to the wishes and needs of the ones next to us, maybe because of our selfishness, or because we are always in a hurry. This latter fact is very well highlighted by Clare's relationship with her father, Don Claudio. When she calls him to calm him down, without telling him where she is his say, he however pays the ransom and continues her search. Although until then he did not pay any attention to the needs of his first born and he did not see her displeasure to deal with the family affairs, to do what he thought it was best for her. Because of her brother's lack of interest

regarding the family business, she remains (in charge) to handle the situation and Don Claudio wants to leave her his entire fortune, with the ultimate desire of her leaving Guatemala after his death.

Although it could be considered a novel hard to read due to the open ending and to the lack of psychological depth of the characters, the ambiguity of the crimes for which no one is guilty, slang and jargon, or lack of concreteness, Cayetano is the character that made me and that makes us follow the difficult path during which he met stingy lawyers, unscrupulous doctors, money that becomes an omnipotent God, adulteries, victims that are millionaires and poor victims like the indigenous children who are suspected of being subjects in medical experiments. Creating characters seems to be an easy task, especially because it lacks the psychological depth, but it reveals us current and essential aspects. Reading the novel is easy, despite the variety of specific Spanish words and terms used in Guatemala that are related to the culture of the country. And Rey Rosa gives us an introduction to his country history and the Mayan culture: CAP [11], Kaibiles [12], such Mayan traditions *tz'ite'* [13] or *solonik* [14] – by the action that Cayetano makes us follow, hoping that everything will be very clear for us. Thus, we are witnessing an ancestral world fighting to preserve its language, culture and customs in this digital age, in which we become deaf to those around us and to the silent cry of these ancient heritage they have taught us so many things.

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- [2] On the recommendation of his uncle Chepe, he reaches the service of Don Claudio Casares, in order to protect Clara.
- [3] In the text the term los tatas/el tata (the dad) is used to designate people from the Mayan culture who had the authority to judge, those considered wise, that could make decisions.
- [4] Considered to be of divine nature by the Mayan Cosmo vision, Nahuall represents the protector or the master of each and every one of us, received at birth, our nature's gift.
- [5] Rodrigo Rey Rosa, *Los Sordos*, Editorial Alfaguara, México, 2012, p. 92. The quote refers to the scene in which people gathered for the trial of the doctor who was arrested after Cayetano, who had fled and had been helped by villagers, tried to talk to Clara, and the villain who helped him, caught him in the market: “El descenso de Juan Chox el pueblo de San Francisco fue solemne. Delante de él iba el niño, que tocaba un ritmo lento - «el ritmo de su respeto» - en el tambor. Llevaba la vara y el envoltorio: cosas sagradas. A su paso por las aldeas y los pueblos - Tzununá y Jaibalito, Chaquijchoy, Chuitzanchaj y Pajomel, San Pablo y Santa Clara – se fueron sumando al cortejo muchas gentes, y marchaban en una larga columna de tres en fondo. Nadie había visto nada semejante ocurrir a orillas del lago, al menos nadie lo recordaba. Era como si aquellos hombres y mujeres hubieran esperado todas sus vidas para vivir este momento. Los tatas, los abuelos, habían vuelto a caminar por fin; eran los nahuales otra vez. No sólo la memoria de otros tiempos, los tiempos de los anales, el *costumbre* olvidado, o reprimido, sino también la autoridad - la misma Policía, «siempre del lado del poder, aunque no siempre del de la justicia» - estaban con ellos. Su tiempo, su *cargador* - lo demostraban al andar - por fin había despertado.”
- [6] Rodrigo Rey Rosa 5, *Los Sordos*, p. 92. The road was paved at the same time with the opening of the hospital: “Es cierto que sin el camino recién abierto habría sido imposible proceder en una formación así, y es posible que la gente no se hubiera ido congregando, como lo hizo, de manera natural, casi inconsciente.”
- [7] Rodrigo Rey Rosa, *Los sordos*, p. 74: “El miedo que comenzaba a dominarlo desapareció cuando oyó pronunciar su nombre a Clara”.
- [8] Idem, *Los sordos*, p. 76: “de nuevo aquel miedo que amenazaba con paralizarlo”.
- [9] *Ibidem*, p. 77: “Le pareció que su propio dolor físico estaba en todo lo que le rodeaba, lo envolvía. Aumentaba y disminuía, el dolor - y el espacio circundante – con el ritmo de su respiración. El dolor era como una bruma que flotaba en el paisaje de piedra y agaves y conos de volcanes, en el aire negro, y hasta en la fina red de débiles estrellas en lo alto. Pero llegó el momento en que también el dolor parecía que lo abandonaba; se expandía, alejándose de él - como la aureola de una explosión - con el grito que lanzó (pidiendo ayuda - ¿pero a quién?). Las telarañas de nubes se estremecieron levemente. Cerró los ojos”.
- [10] *Ibidem*, p. 92: “Aquella culebra de gente en movimiento era la manifestación de una forma de vida que había permanecido en la obscuridad durante siglos y que ahora *volvía* - y llegó hasta la plaza, y el mar de cabezas allí congregado para castigar con crueldad colectiva a un hombre inocente del crimen que le imputaban se abrió como por arte de magia”.
- [11] PAC or Patrullas de Autodefensa Civil (Civil Patrols of Self Defense) which have been created starting with the 1980's by the Army of Guatemala as part of the against insurgents politics and which was joined by more than a million peasants, mostly indigenous Mayans aged 15 and 60. This civilian army was set to end the system of indigenous authority and became a form of controlling the community, Mayan being diminished in 1996, after finding various abuses, massacres and torture condemned by the Inter-American Commission on Human Rights (Comisión Interamericana de Derechos Humanos - CIDH).
- [12] Kaibil is an elite soldier trained by the Guatemalan Army special mission, currently, operations against terrorist crime. Kaibil School was named in 1975 after a Mayan king, Kaibil Balam, who was caught by the Spanish during the conquest.
- [13] *Bond holy* to be consulted before determining a judgment or start healing.
- [14] It is a legal-spiritual practice that can be translated by *loosen the knots*.

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## UNIVERSITY AND SOCIETY IN INTERWAR ROMANIA

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### Abstract

*After the First World War Romania launched a new stage in building the society, focusing this process on its cultural and educational aspects. Through encouraging the youth to graduate secondary and superior levels of the education (in a society where almost half of the population was illiterate) the Romanian state wanted to create the basis for recruiting the intellectual, political and economic elite.*

*Actually, meritocracy becomes more or less a financial task of the state. It is this mechanism for social promotion that becomes affected by the 1929-1933 economic crisis, especially if in conjunction with the phenomena of titled inflation. Intellectual unemployment, university dumping and school inflation – all these phenomena highlighted by the mass-media revealed the same symptom: the failure of the university graduates youth to integrate the economy. More than this, we may be able to observe a process with cultural significance: the devaluation of the idea of intellectual work, the incapacity to properly allocate the human capital in order to face societies needs and a continuous discontent among the university youth. The aim of this paper is to present the evolution of some ideas like university, knowledge and intellectual work in the interwar period, in Romania and across Europe, as well. In a period of democratic regression in the entire Europe, the quest for intellectual work and expertise was portrayed as an universal solution to the whole social problems.*

**Keywords:** *interwar Romania; university; human capital; intellectual work.*

### From professionalizing education toward changing the society. The higher education's means and uses in Romania 1919-1939.

#### Preliminaries

Romanian historiography usually confuses modernity with the solely attribute of modern. To put it simply, it is a phrase that lacks the subject and the predicate. It's almost like, looking through the window, one can say "It is a shiny day!", without looking at the thermometer and unaware of the season.

Modernity, as a philosophical and political attitude toward society, is a state of mind one can or cannot adhere to. Consequently, modernizing is the objective historical phenomenon implemented in order to achieve the modernity, while modernism is the subjective reflection regarding the objectives of modernity and the success/failure of such a demarche.

Returning to the Romanian historiography and the ways it uses to represent the past, such an approach was empowered to envisage the educational system, especially the higher education. Described as modern institutions and as mechanisms of westernizing the society, higher education was perceived as an independent and self-sufficient actor of the Romanian modernity. In other words, higher education was portrayed as a modern actor, and not as a mechanism for changing and modernizing society.

Another confusion was due to the synonymy between modernity and the national state. And, because of this one, education was (re)interpreted as a mechanism of national emancipation and as shortcut for bridging the gap towards the west. Only that to this confusion felt prey the historians as well as the political decedents of the 20<sup>th</sup> century first half.

#### Modernity as "the rise of professional society"

"Modern society in Britain, as elsewhere in the developed world, is made up of career hierarchies of specialized occupations, selected by merit and based on trained expertise. Where pre-industrial society was based on passive property in land and industrial society on actively managed capital, professional society is based on human capital created by education and enhanced by strategies of closure, that is, the exclusion of the unqualified"[1].

Inaugurated by Pierre Bourdieu and continued by Gary Becker, Randall Collins or Anthony Giddens, the sociology of education succeeded in revealing important aspects that occurred during the modernization phenomenon. And probably the most important question that arose was how to convert a skill into a self-sufficient mechanism of income and secured property. During a time when capitalism was conceived as a way of achieving property (i.e. power and power relations), education itself was reshaped in order to fit the economic mainstream. "How could the professions transform a service into income-yielding property?"[2]. First of all, during the 19<sup>th</sup> century the entire social system was monopolized by the professional pattern. In other words, the society lied on an hierarchy of professions, while profession became a social ideal open to all and sanctioned through merit only. This was the specific difference between the professional society and the previous social systems, like the agrarian society (based on the system of castes) or the industrial society (based on social classes). The professional society tended to privilege human capital in detriment of the economic or social ones, and tended to build a society based on merit. "Since the ideal is justified by social efficiency and the avoidance of waste, particularly the waste of human talent, it implied a principle of social justice which extended to the whole population the right to security of income, educational opportunity, decent housing in a clean environment [...], the right and obligation to work. [...] The rise of the welfare state was a practical expression of the professional ideal. It was initially an attempt to extend to those as yet excluded from professional status the basic security and conditions already enjoyed by the established professions. [...] Although the ideal embraces equality of opportunity and even equality of treatment in raising every citizen to the minimum acceptable standard of life, it is not in the final analysis an egalitarian society" [3].

So, the professional society, grounded on equality of opportunity and pursuing the equality of outcome, gave birth to the professionals. And to become a professional meant trained expertise and selection by merit, "a selection made not by the open market, but by the judgment of similarly educated experts". While the entrepreneurial ideal of the libertarian capitalism believed that market was the fairest and most efficient way of redistributing rewards ("the invisible hand" of Adam Smith), the professional ideal looked for establishing a social system that would properly allocate human capital among society. While the first system made the apology of the best, the latter was preoccupied by the destiny of the rest. "The first called for as little state interference as possible; the second looked to the state as the ultimate guarantor of professional status" [4].

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This is why the 19<sup>th</sup> and, even more, the 20<sup>th</sup> centuries became increasingly professional, imposing the model of the professional expert. “During the 19<sup>th</sup> century, the examination system gradually evolved into the crucial link between training and practice. For professional careers, it was not expertise as such, but its certification, which created cultural capital. The shingle on the wall and the title on the calling card symbolically represented a license which permitted the holder to practice and at the same time assured the public of a minimum standard of competence. In bureaucratized countries, the importance of state approved credentials gave rise to a veritable entitlement system [...]” [5].

#### **Interwar Romanian: higher education as a mechanism of allocating human capital in society?**

Reshaping Europe after WW1 meant the occurrence of new national states as well as rebuilding a new social edifice, that should had at its core the idea of social justice. In fact, in Treaty of Versailles was stipulated that the League of Nations has as its main objective the establishment of universal peace “and such a peace can be established only if it is based upon social justice”. In order to achieve such an objective, League of Nations would have an pendent institution (Bureau International du Travail) that was supposed to contribute to regulations concerning labor and the rights of the workers. Probably one of the most important decisions was to convert labor from a factor of production into a right. In other words, this can be described as the international recognition of the welfare state pattern.

The idea of state intervention in the economy and the creation of an equitable system of redistribution played a major role in designing (higher) education. During interwar period, in Romania as well as among Europe, there were two competing models in shaping the University: the Humboldtian (German) model that remained loyal to the idea of *art for art's sake*, and the Naapoleonian (French) one, that envisaged higher education as a link between human capital and society.

The uses of higher education were increasingly important through a disrupted Europe, in which economies were trying to recover after the Great War and with so many borders that encouraged the idea(l) of autarchy. The increase number of higher education institutions and the diversification of the branches of studies (universities, polytechnics, schools of economics, agronomic academies or schools of belles-arts etc.) transformed Romania in one of the most “developed” countries in terms of alphabetization. Compared with 1912, when literacy rate was 39% of 5.7 million people (>8 years old) in the Old Kingdom (Walachia and Moldavia), in 1930 the rate grew to 56% of 6.7 million people [6]. Meanwhile, in the interwar period Romania had a 1.3‰ (the top number was achieved in 1935/36 academic year, when the student population was of almost 40.000), while almost half of the 19 million population was still illiterate. Although it may look like an alphabetization revolution, the uses as well as the benefits of education remained opened only to a small part of the society.

#### **Problems to approach**

- 1. The status of the intellectual work and “learned professions” in interwar Romania.** By this, it is easily to figure out to which extent the project of the Romanian political establishment was a modern(ist) one, and the way in which education was conceived to contribute to such a goal, especially to social emancipation and social stratification. Also, a special attention would be paid to the relations the Romanian governments had with the Bureau International du Travail in problems like social assistance, social assurances, unemployment, and regulations regarding the connection between school credentials, professions and income. To this respect, it is essential to capture the activity of Minister of Labor.
- 2. Student’s associationism and the idea of social service.** The creation of student identity implied also the promotion of a new type of civic engagement. The idea that the student was no more than a “client” of the university is somehow neglecting the relation between education and society. Across generations, the students – in Romania and Europe as well – were triggering to develop a socialness side of the undergraduates life. Student voluntarism was conceived as a way of improving the social life and also as a mechanism for persuading society for the greater need of professional expertise. Students were supposed to become the educated talent in the service of society. And, in the scientific age, the students had the chance to scientifically contribute to the renovation of the society through social service, social study and social action.
- 3. Public education and professional training: education to all, professions for few?** The booming of student enrollments in the interwar period should constitute a strong argument for analyzing the output, the careers of the higher education graduates in interwar Romania. Did Romania need such a great number of professionals? Did the state implement a strong policy of sponsored mobility in order to supply the need of professionals in certain domains? Because of the tuition fees, did higher education turn from a meritocratic system into an economic biased one?
- 4. Social promotion and social change in the Agrarian South-Eastern Europe.** The last objective is intended to be a comparative demarche. As many observers of the interwar period stated, Europe was a divided continent following a West-East line, between the industrialized western societies and the agrarian eastern states. The rural population of the Eastern Europe consisted of about 100-150 million inhabitants (European side of USSR included), that is 10% of the agrarian population of the world at that time. Isolated from the West, situated in a difficult geopolitical context, and lacking a modernizing political and economic apparatus, “the eastern countries did not participate in the progress of the west and the increased population was forced to continue to seek its living from the land” [7]. According to the League of Nations statistical data, the agrarian population average ratio in these societies was of at least 75%: 60% in Hungary, 75% in Poland, or 80% in Romania and Yugoslavia. The other side of Europe was composed of forgotten people struggling for everyday survival. With no project to encompass all social classes, these societies had to assist to an increasing disparity between the urban and the rural sides. The comparative approach would intend to reveal the use of higher education as a social mechanism for communitarian development, whilst the sample will be composed of Poland, Yugoslavia and Bulgaria, all three neighbor countries of Romania and all new states in search for a new societal project.

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**THE CULTURAL PROMOTION OF THE PROVINCE AS AN INTELLECTUAL RESPONSIBILITY IN INTERWAR ROMANIA.  
THE CASE OF YOUNG AL. DIMA**

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**Abstract**

*As a resident of Sibiu in the 30's, the young intellectual Al. Dima had to face the boundaries of the Province on his path towards an academic career. The Province in interwar Romania had often an antagonistic relation with the Capital (Bucharest) in terms of cultural promotion. And Dima was one of the literates who felt deeply the pending status between Center and Periphery. Thus, the promotion of the localism became an intellectual task. His biography, although quite difficult to detect, reflects the mechanism of construction of the provincial intellectual, and the dramas on the road to deprovincialisation. Dima was an introverted character. He left any trace of memoir and is scarcely mentioned in the literary history. Based on correspondence and cultural press, this study is a sketch of Dima's early activity as a leader of Thesis group in Sibiu and as promoter of the values of the Province in a Romanian centralized state.*

**Keywords:** Thesis, Al. Dima, Center-Periphery, regionalism, intellectual, local culture, Sibiu.

**1. Thesis: national integration through local culture**

In centralized political systems, marginality is a (un)assumed condition of the peripheries. Such a phenomenon has been felt in Transylvania and Bukovina, provinces placed by historical and geographical conditions, always on the edge: in the imperial period, on the outskirts of the Austro-Hungarian Empire, being coordinated from Budapest of Vienna; during the statal reshaping after WWI, looking with concern and hope towards Bucharest. The setting of the provinces with their identity inheritance somehow distinct from the one of the Old Kingdom proved, after 1918, difficult to manage by the Center concerned by unification and leveling.

In terms of culture, for the intellectual placed at the periphery of the creative sphere, the marginality translated into provincialism generated a conflict between the need for localism, as an artistic validation of the origin/adopting space, and the hesitant recognition that any cultural canon is determined by a Center (Smith 1974, p. 56). In this regard, the Province becomes a category of the secondary, sometimes marked by alienation, dispersion and the need for decentralization (Nemoianu 1997, p. 8).

An impetuous impulse of “awakening” the Province animated several young intellectuals in the Sibiu of the '30s. The mobilizing signal was fired by the secondary teacher Al. Dima, the founder of the intellectual group Thesis [1]. Originating from Turnu Severin, Dima created this association in an adoptive Province marked by a tedious atmosphere. ASTRA, which has built its reputation since the previous century, failed to animate the public in Sibiu. In the first decade after the 1918 Union, in Transylvania, the only cultural initiative with an echo was the one from *Gândirea* (1921), which transferred though from Cluj to Bucharest just a few years later. In 1932, Thesis takes the lead in promoting the Province in Transylvania. It will be followed, in 1933, by the *Abece* group from Brad, owned by George Boldea and Emil Giurgiuca, and then by the groups around the reviews *Gând românesc* (Cluj), *Sibiul literar*, *Provincia literară* (Sibiu), *Lanuri* (Medias) etc.

Dima and his colleagues proposed another rhythm for the cultural life of the Province, experiencing a certain form of intellectualizing the population. Thesis started as a response to the Criterion model, as a cultural reunion, placing in the spotlight scientific and educational pursuits, subsequently translated into literary works. In a “negative, somewhat reactionary” speech, they sanctioned the foundation purpose, revealing the university graduates dilemmas in the '30s, but also the lure of the conceptual search (Thesis. Studii, proză, poeme 1939, p. 4). In the first newsletter of activity (1932-1933), Dima emphasized that the message is not subordinated to self-promotion, but to the purpose of illustrating the creative activity of the Province, eliminating the cliché of the periphery as “grave of the cultural values”. Promoting the Province was perceived as a responsibility of the local intellectual. Of course, self-promotion became inherent to such an initiative, and represented one of the few strategies to urge a young intellectual on his arduous path to affirmation. The dimensions of this approach were thus complementary: a “youthful protest” against the “provincial passiveness”, an opportunity to connect to new cultural values, a workshop for literary criticism, and a tribune to promote the creative localism (Primul buletin al Grupării intelectuale „Thesis” din Sibiu, 1932-1933, pp. 3-4) [2]. Dima prefers the term “localism” to the vague “regionalism”, considering that the first one targets a close socio-geographic reality. Political regionalism came too close to centrifugal tendencies, thus the localism would have imposed better, even on the cultural level. The creative localism also fitted the time trends: Dima invoked the administrative localism for the developing of the provinces; the sociologic localism with connections to the Gusti sociological school; while cultural localism disseminated cultural values pertaining to a certain region/place (Activitatea grupării intelectuale „Thesis” pe anul 1933-1935, p. 2).

**2. Thesis' activity in narrow circle**

The activity of the group had both a private and a public component from the beginning. The first one manifested through weekly meetings in a small circle, usually at the Prefecture of Sibiu. The topics of discussion were established in advance. The lectures ranged from literary criticism to legal, psychological or educational matters. The program also included readings from the Romanian or foreign literature. The debates tackled the issue of the cultural regionalism, but also excerpts from the literary writings of the members. For Thesis, literature was first of all a mission. Assuming this strand of literature seems typical for the Transylvanian writers. As shown by Liviu Malița, the social role of the writer contains an important pedagogical component regarding the building of the nation (Malița 1997, p. 57). This mission was also assumed by the Thesis writers when rejecting the cliché of the cultural life belonging only to the big cities or university centers.

Within the group, the Center-Periphery relation and the issue of the cultural hegemony are tackled especially in the press. *Provincia literară* becomes the tribune of complaints targeted to the claimed monopoly of Bucharest on the quality literary reviews. The most vocal defenders of the Province, C. D. Fortunescu or Paul I. Papadopol, blamed, though decently, any defamatory generalizations on periphery (Papadopol 1932, pp. 3-5; Dongorozi 1932, p. 6; Fortunescu 1933, pp. 4-5). The discrediting of the provincial press by publicists from the major journals from the Capital was not something new. However, what caused the reaction

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(and probably the title) of the publication from Sibiu was an article signed by a fresh “deprovincialized” writer from Bucharest, Al. A. Philippide, from *Adevărul literar și artistic*, who denounced the mediocrity and naivety of the reviews from the peripheries. The Province replied to these accusations with certain superiority, invoking the deep and objective character of the writing outside Bucharest. Dima also stated with confidence: “the Province is not only an organ assimilating values produced in big cultural centers, contrarily it has to become a lofty outbreak of creation” (Dima 1934, p. 1).

The contestations manifested also in rejecting the literary directions from Bucharest. Emil Cioran’s presence among Thesis didn’t favour a connection with the literature of the young generation from the Capital. Even before establishing in Sibiu, Dima wrote in neo-sămănătorist *Datina* [3] about the errors in the *gândirist* thinking. For instance, the issue of January 1929 contains a file on the subject of the self-imposed primacy of *Gândirea* as initiator and promoter of traditionalism in Romanian culture. It seemed thus as a competition between who defines more faithfully and who assumes better the formula of traditionalism in literary works. In fact, the “traditionalist offensive” of *Gândirea* is opposed by the central role claimed by *Datina* that militated even before the war, when *Gândirea* was not yet created, for a thorough cognition of the national life. Dima proposes as solution for the *gândirist* offer a nationalization of Orthodoxy. *Gândirea* could fit thus within the cultural history not by overcoming the ethnic, but by subordinating the spiritual to the ethnic understood as cultural unity (Dima 1929, p. 5). Another line of attack is directed against the mysticism barrowed by *gândirism*, by the philosophy of Nae Ionescu or by the *Calendarul* and *Cuvântul* reviews. According to Dima, mysticism harms the Romanian culture through anachronism and perpetrates “the pathetic situation of our rural life” (Dima 1933, p. 21).

### 3. The public activity of Thesis group

Regarding the public component, literary gatherings and other activities complemented the efforts of modernizing Sibiu [4]. In 1930, the county of Sibiu held the second place, after Brașov, in terms of alphabetized population (85.2%), in a country where half of the population was still illiterate (Manuilă & Georgescu 1937, p. 40). However, in the city of Sibiu, out of 50.000 inhabitants, 44% were German ethnics, 38% Romanian ethnics, and the rest were Hungarians (13%), Jews (3%), others (2%). At least on the cultural level, the Romanians in Sibiu competed with the Saxons as holders of cultural and publishing venues of tradition. In 1928, in Sibiu appeared 32 periodicals, most of them written in German (17 German, 14 Romanian, 1 German-Romanian). No Romanian daily newspaper was being published in 1928 (Constantinescu 1934, pp. 19-21). A source of the provincial condition can be drawn from these data, as well. Furthermore, before the war, Sibiu held the primacy of the Romanian periodicals in Transylvania, being also the residency of the Orthodox Metropolitan Church and of ASTRA. The centralization after 1918 placed Cluj at the forefront in Transylvania, being also favoured by the creation in the city of the Romanian university. The publications in Sibiu will evolve significantly in the coming years, the phenomenon characterizing the entire publishing Romanian area (29 publications in 1934, 31 in 1937, followed by a slight decline) (Dunăreanu 1969, pp. 66-69).

Thus, this is the general atmosphere where Dima and his colleagues from Thesis take the lead. According to the newsletter of 1932-1933, Thesis organizes The Book Day, where Dima held a lecture on the crises of the Romanian books. A showcase in the exhibition had been arranged with publications of authors from Sibiu. One of the Thesis members, Pimen Constantinescu, intended to create a bio-bibliographical album with all the writers from Sibiu. He had also organized an Italian language course at “Gheorghe Lazăr” High School (Primul buletin al Grupării intelectuale „Thesis” din Sibiu, 1932-1933, pp. 27-30). In 1933, cultural personalities are commemorated at the literary gatherings. Various lectures on education and literature are being held. At The Book Day in 1934, at the library Cartea Românească, a stand presents the exhibition “Views from the cultural past of Sibiu” (Activitatea grupării intelectuale „Thesis” pe anul 1933-1935, p. 10). The newsletter of 1934-1935 contains a statement of Al. Dima, made at The Book Day of 1935, where he again draws the attention on the book crisis due to the small numbers of readers. Then, starting from the positive examples of other ethnics, Dima proposes the creation of a regional publishing house, suggesting thus the difficulties of the writers from the Province and their efforts to publish in Bucharest (*Ibidem*, p. 16).

In 1939, Thesis publishes an anthology with the group activity in the last 6 years, with its focus on creating a high cultural environment, despite the obstacles of all kinds. An important objective was the study of the local realities. The private or public activities shaped the public opinion, analyzing the local events, the literary production and local press, but also appealing to the Local as a muse or frame for the literary works of the members (Thesis. Studii, proză, poeme 1939, p. 5). A homage to the city that marked the intellectual activity of the young Dima is his monograph on Sibiu, published in 1940.

### 4. On the difficult road of deprovincialisation

For an ambitious and countryside young man, but with a precarious health condition, Sibiu city was not of the most fortunate choices. After graduating the Faculty of Letters from Bucharest, in 1929, Dima had to pass through some lung cures abroad, after that returning in his hometown, Turnu Severin. All this time, Dima was in a permanent state of correspondence with Tudor Vianu, a young associate professor, at that time. The latter proved to be a very empathic and with an astonishing patience toward all requests coming from his disciple, whether it was about administrative issues, about helping Dima in publishing his studies or about guiding in the esthetic and literary critic fields. Starting with 1931, all Dima’s letters for Vianu were sent from Sibiu: he was appointed teacher of Romanian language at “Gheorghe Lazăr” High School. Nevertheless, Dima felt it like a stage defeat: “in the actual circumstances of the educational system, this was the best possible place to be. I can only hope to a place to work in Bucharest, when time will allow this” (Alexandrescu Vianu & Alexandrescu 1992, p. 312). In 1932 he began to collaborate with the sociologist Dimitrie Gusti. It seemed it had been a good and fruitful relation, since in 1935 Dima began his doctoral studies under Gusti’s coordination.

Thesis literary circle was established the next year of Dima’s arrival in Sibiu. It was supposed to be a mechanism on bringing together the local intellectuals, although Dima certainly saw this cultural initiative as a launching ramp for his cultural career. He published many of his studies in Thesis’ publications, although with little impact to the public.

Along with Victor Papilian, Ion Chinezu, Octav Șuluțiu, and Pavel Dan, in 1936, Dima founded The Society of the Romanian Writers from Transylvania and Banat, as an alternative to a similar structure from Bucharest. In order to compete the Center, Dima believed that only a strong coalition of the entire Province would succeed to renovate the cultural establishment. Anyway, Dima envisaged this cultural project as a mechanism to make his own way into the Society of the Romanian Writers in Bucharest. This is how we should interpret the request sent to Vianu in 1937, in order to sustain Dima’s candidature as a member of this society. In the same time (1935-1937) he corresponded with Camil Petrescu, the editor-in-chief of *Revista Fundațiilor Regale* (Ichim 1981, pp. 181-183).

After a few months scholarship in Berlin, in October 1937, Dima is appointed director at “Gheorghe Lazăr” High School in Sibiu. Anyway, it was just for a short period, because the political shifts that occurred in Romania starting with 1938 affected the educational system as well. The new minister of education, Ion Petrovici, replaced him, giving Dima many reasons of dissatisfaction, but a good moment to accelerate his efforts for accomplishing the doctoral studies (Alexandrescu Vianu & Alexandrescu 1994, p. 115). After defending his Ph.D. in 1939, Dima tried again to make his own way into the University: “A lot of people are so happy in this country that is quite saddening that a hard worker like me has to knock in a humiliating way to doors that will not open”. Although he succeeded to be appointed as a general manager of the ASTRA’s publications in Sibiu, Dima was already aware that such an achievement was just another “uncertain and delicate status, especially when you are among Transylvanians” (*Ibidem*, p. 167). Eventually, at the 29<sup>th</sup> of October 1939, as a direct consequence of suspending Social Service, Dima’s detachment to ASTRA was cancelled. Dima confessed to Vianu: “you can imagine it is quite hard for me to accept the idea that my Ph.D. was all in vane and that all I have to do is to be condemned to a secondary school career. At least I hope somebody will help me to become a school inspector. This is what only Mr. [Petre] Andrei can do for me, the more he classified me the first at exams (Well, this is my fate: A at all exams, but “situations” are just for others)” (*Ibidem*, p. 182).

In such circumstances, Dima’s efforts to promote the Province was not just a responsibility, but a compensatory way to maintain his inner equilibrium. Nevertheless, his relation with the Province passed through numerous avatars, as reflected in his correspondence with Tudor Vianu. For instance, Dima confessed that, through the public debates of Thesis, he tried to rebuild “a spiritual environment that this place cannot offer, despite my efforts in such a direction. All my recent interests were localized in this Transylvanian soil with a spiritual life I had to integrate to, by fighting with nostalgias that eventually will burst out” (Alexandrescu Vianu & Alexandrescu 1992, p. 358). In 1939 he admitted he was defeated by the spiritual milieu of the Province: “I reached a moment of my life and of my career in which I can no longer accept the humiliations of a petty provincial milieu that shows no understanding for intellectual struggles” (Alexandrescu Vianu & Alexandrescu 1994, p. 167).

In 1945, Dima was appointed professor at the Department of Esthetics at the University of Iași. Although in Iași he succeeded to consolidate his intellectual career and to achieve professional satisfactions, Dima didn’t give up his dream to go to Bucharest. In 1962, 17 year after his settlement in Iași, Dima asked Vianu for a personal favor: “Am I allowed to ask for a *request*? When you will talk to the Minister, can you, please, suggest him to transfer me to a department in Bucharest, in any conditions, just to get rid of this petty local milieu” (Alexandrescu Vianu & Alexandrescu 1997, p. 301). Four years later, Vianu died. His successors could have been Alexandru Dima or Liviu Rusu from the University of Cluj. Rusu remembered this moment and confessed that he himself encouraged Dima to apply for this position, since he didn’t intended to leave the University from Cluj (Rusu 1979, p. 184). Dima became by contest the new chief of the Universal and Compared Literature Department from the University of Bucharest and, then, the director of Institute for Literary History and Theory „G. Călinescu”.

15 years of perseverant expectance massively contributed to the shaping of Dima’s identity as an intellectual of the Province. The years spent in Sibiu, as well as the activity in Thesis group represented a formative stage for his academic career. This period was succeeded by the activity in Iași (1945-1966), a university Center with a rich tradition, and later he achieved complete deprovincialisation by joining the University of Bucharest (1966-1974). Trying to establish a typology of the interwar Transylvanian writer, Liviu Malița’s pattern can be applied to Alexandru Dima’s *cursus honorum*. As a provincial individual he aims for the comfort of bourgeois life, especially since he comes from families with a modest social background. He holds an important cultural and educational capital, but he regrets choosing such an instable career. “Remaining *home*, he often finds himself lonely. He is condemned to frequent year after year the same people of bourgeois polish and low aspirations. He often felt suffocated in such a narrow milieu, one of whom he believed to be of privileged ones, when, in reality, was a marginal one” (Malița 1997, pp. 176-177).

In other words, the assumed or, conversely, the rejected marginality of the provincial intellectual is originated in the Center-Periphery polarization. It is that kind of dichotomy that can turn free spirits full of aspirations into a devastating state. Such a vehement struggle against provincialism was enacted by an early and temporary collaborator of the Thesis group. Emil Cioran was a vocal opponent of the monotony that tends to limit the existence. In fact, in order to surpass the inferiority toward the Center, the provincial intellectual is tempted to build an identity that lays on an apparent superiority. This is why the provincial individual suffers from an “overvaluation of ego, from the illusion of an intangible superiority”, that places him into a veritable “band of dreamers” (Cioran 1995, pp. 91-92).

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### Notes

[1] Other members were Paul Constant, Ion Popescu Sibiu, Mircea Alexiu, Horia-Petra Petrescu, Pimen Constantinescu, Ionel Neamtzu, Ioan Focșeneanu and others.

[2] The group completes its ideological interests along the way. The programmatic article “Creative localism – its defining and justification” appeared for the first time in *Familia* review, no. 2, 1935, pp. 3-8.

[3] *Datina* is the first journalistic laboratory which Dima establishes connections with during high school, guided by his teachers. C. D. Ionescu, the teacher that coordinated the meetings of the Reading Society, detected and promoted the young literary talents in the local review *Datina*. The sămănătorist-traditionalist trend of the editorial staff will definitely influence the future esthetician. The collaboration continued during his student years, Dima being the secretary of the review for 10 years, starting with 1925. See Lăudat 1979, pp. 110-111.

[4] Dima engaged in this public component also as teacher at the “Gheorghe Lazăr” High School, coordinating the activity of the Reading Society “Al. Vlahuță”, since 1931. He supports the publishing of the first newsletter and guides the organization of literary gatherings of the pupils. After Dima goes to study abroad, in 1934, the Society significantly reduces its activity. See Economu 1979, pp. 58-60.

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## REBELLION AS STREET PERFORMANCE: STUDENTS COUNTERCULTURE DURING CEAUSESCU'S ROMANIA

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### Abstract

People passing by downtown Bucharest end of 1968 witnessed, somewhat bewildered, nocturnal protests march. It was the first in a long time when the streets of Bucharest became the stage of free demonstrations, and even in this case the slogans which the demonstrators shouted, seemed to be entirely apolitical. Almost twenty years later, in February 1987, the population of the city of Iași participated in an almost identical procession. These eruptions of public protest were two of the very few urban uprisings that Romania's Soviet regime experienced for over four decades. This article aims, firstly, to reconstruct the social and cultural background of these demonstrations. Secondly, it will be analysed to what extent these uprisings represent a specific student counterculture, being discretely, yet constantly in conflict with the ideological codes of Ceausescu's regime.

**Keywords:** Ceausescu's regime, protest, student, counterculture, performance.

### Introduction

It was the Christmas Eve of 1968 when, in the centre of Bucharest, passers-by witnessed perplexedly a street demonstration that seemed to have nothing in common with the habitual manifestations, which were usually more or less “directed” by the regime. After a long time, the streets of Bucharest looks like the scene of spontaneous protest marches and even if the participants' slogans had, apparently, nothing political in them, the fact per se was mostly unusual, even provocative in those circumstances.

Almost twenty years later, in February 1987, the population of Iași, an important university city in eastern Romania, witnessed an identical manifestation: the same nocturnal outburst of a social group sooner ignored or considered privileged by ordinary people, the same strange ambiguity between carnival-like and civic attitude, the same swift and spontaneous nature, the same absence of open political demands, but, most important, the same desire for fusing with the rest of the city.

Except for workers' protests in Brașov, in November 1987, the student manifestations in Bucharest and Iași have been the only street protests in Romania between 1946 and 1989. Despite the different historical contexts, the similarities between the two events are impressive. How can these manifestations, their similitude and their reiteration be explained? To what logic should we project them in order to adequately interpret them? Were they the expression of deep, solidly configured dissatisfaction, or just a form of mimicry of the Western counterculture at that particular time? Do they represent the germ of a protest-based culture or merely functioning “accidents” of the regime? At the same time, what substance did they have for the student world: have they contributed to the formation of a critical political culture of resistance to the totalitarian regime?

First of all, the present approach aims to reconstruct the facts and context of these events: their course and development, their causes and their stake, and their effects upon the student milieu. Based on the signification of the two episodes, the second objective is to provide an analysis of the relations between the communist regime and the students, both for framing the historical and political context of the protests and, especially, for establishing how the Ceausescu regime envisages the student world. Finally, a third objective is attempting a reconstruction of the student milieu in Romania as set up an autonomous space for expression in relation to the political regime.

The starting premise of this study is the fact that the student milieu, the most open, liberal and cosmopolitan environment, has played, in the '70s and '80s, a key-role in configuring a political culture at odds with the totalitarian regime. This has happened either as a discrete and non-political rebellion, the expression of a counterculture that has nurtured various forms of disputation and subversion.

Apparently, there are no direct, extensive, narrative sources. Particularly, there are no direct accounts on how the Party hierarchy perceived and described the demonstration in February 1987. For this reason, the present study is mainly based on two types of sources: the testimony of direct participants (resulted from the employment of interviews as a method of oral history) and reports of party officials. All testimonies belong to direct participants and thus are conspicuously marked by an inherent subjectivity.

### Walking out Dissent, Singing in the Street

Usually, for a Romanian student in the '60s, Christmas Eve was a night like any other. Classes were not interrupted during that period, and any form of public or private ceremony was completely prohibited, sometimes punished with imprisonment, as it was regarded more serious than a common law offence: celebrating Christmas was considered a deviation from secular radicalism, an act of defying the fundamental assumptions on which the communist regime in Romania had been founded. Thus, Christmas was officially entitled as a “folkloric festival”.

Ironically though, it is this very type of restrictions that made the regime order vulnerable. When groups of students in Bucharest's university campuses spontaneously gathered for carolling on Christmas Eve, no one was able to imagine what would follow. The success of the initiative was immediate. In a very short time, over two thousand students joined the group. However, since the distance between these campuses is quite large and it requires crossing the city, the festive pilgrimage became the object of Bucharest inhabitants' sympathy. The campuses were generally organized on the principle of gender exclusivity - there were campuses exclusively for girls and, respectively, for boys -, and this fact created a certain tension, almost as in an amorous game. So the limits between permissible and illicit grew more and more distant. From the University Square, the topographic and symbolic centre of the city, where they danced *Hora Unirii* (a folk dance on a song with strong patriotic significance), the carollers' convoy went to the Czechoslovakian Embassy (in December 1968 echoes of the Prague Spring and of the Soviet intervention were strong), then to Bucharest North Railway station. Bucharest residents were cheering them and, in the Christmas spirit, they were giving bagels and apples to the students, from their windows.

Quite vague and innocent, slogans appeared (it is said that they called: “Freedom, freedom for students!”), but also verbal clashes with the civil law enforcements, probably officers of the Department of State Security (*Securitatea*, the secret police of regime!) or the members with superior positions in the Party hierarchy. The students' intention of going to the U.S. Embassy was blocked by the police forces.

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Gradually, due to police mobilisation, the youth realised that they had exceeded the red line and their only escape was either anonymity, provided partly by the spontaneous, innocent and somewhat non-responsible character of the phenomenon, or bravely acting on. Therefore, they tried to maintain a compact group. But, as the manifestation extended, most students left the convoy, especially after their intentions to reach Ceaușescu's villa failed as they were confronted with the tactics of repressive structures, increasingly numerous and aggressive.

The regimes repression was moderate and limited to alleged leaders or instigators. Initially, authorities tried to block the students into their campus, in order to prevent any participation. Then, as their number increased and the manifestants occupied the streets and the main marketplaces of the city, the repressive forces started regrouping, in order to stop their advancement. Simultaneously, members of the Party begin early negotiations with the students, especially to convince them to quit.

It is quite clear that the intention of the Regime was not to punish, but to deter. Apparently, Ceausescu himself had called the tune right away. It is a known fact that at least three arrests were made the next day. One of the arrestees went through two consecutive trials and, at a certain time, was admitted in a mental clinic. She lost not only her student status, but also the right to any public career. She was forced to leave Bucharest permanently and give up her position as a journalist. There were probably other victims of repression. Also, some party officials were punished by discharge from office. In this case, those who are responsible with the propaganda are considered the guiltiest.

This is not surprising if we try to understand the working mode of the Ceausescu regime in its early years and the nature of the new "contract" between the society and the regime. By appealing to self-criticism, and, by the propensity in the use of propaganda and discourse as means of coercion, in the late '60s, political repression takes new forms. There is the primacy of rhetoric against physical repression, of symbolic means versus concrete ones. Yet, there is no simple restraint in the use of force. Thereby, the political regime looks for causes within, and not external, thus trying to admit its limits, if not its errors.

During the following days, by communist party initiative, some elaboration meetings with students took place, in all faculties throughout the country. Students also became a matter of almost "sociological" attention for the authorities. It is then easily seen from reports and positioning of the party leaders involved that they tried to moderate the temptation of repressiveness and convert it into speech. But when violence is used in speech, this is done only by authorized persons (important leaders or senior apparatchiks!) and it is well restrained. The idea was of making a clear separation between the "leaders" and the "mass" of students and also to give the participating students the benefit of naivety.

Besides, another concern was to depoliticize the demonstration. Ion Iliescu, the leader of the youth Party organisation and, implicitly, the official ruler of the Romanian youth, noted on several occasions the "hooligan" character of the event, to conclude that it is only "anarchic, student hoodlumism": pertaining rather to the field of social pathology than the political engagement. He also emphasised that students were somehow taken hostages by a group of "less sober guys", "turbulent elements", "a series of errant elements that have become the leaders of the event", the head of which was "a girl who [...] is known as a woman of loose morals", that always picked fights, a dubious figure, a sociopath that Ceausescu himself treats as "crazy". Another leader, Nicolae Stoian, a journalist and servant of the propaganda, distinguishes from the silent mass of students "those 3-4 reprobates who incited the students" (Berindei/Dobrinu/Goșu, 2013: 495-511).

Paradoxically, this scathing, rudimentary language, in which the protesters are identified with social deviance, is in fact a major shift in the behaviour of the totalitarian state towards society, a shift that was almost unimaginable only a few years before. This not only shows that the class struggle no longer works as principle of political action, but rather that the party-state wanted and felt able to govern without recourse to the revolutionary violence of previous decades, consequently by normal means.

Twenty years later, in the evening of February 17th, 1987, the students' demonstration in Iași was much more radical. The context was different: Ceaușescu was not at the height of his popularity like in 1968, but on the contrary! That was a period of great economic and social difficulties. The source of the demonstration appears to be a spontaneous student meeting around a campfire in the small park Pushkin of the University campus. This was occasioned, on the one hand, by the shutdown of electricity in the campus - for economic reasons - and secondly, by a celebration of study completion for some of the students. The formula is quasi-similar: a mixture of folk music, probably alcohol, and a diffuse state of frustration generated by cutting electricity on campus.

As their peers did in December 1968, the students in Iași tried to co-opt colleagues from other campuses and universities of this town to the demonstration. It's hard to say whether their purpose was to protest or to celebrate together, to socialize or to express solidarity. A massive convoy of thousands of students crossed the city from one end to the other in an over ten kilometre night march, singing folk songs and slogans with specific claims, particularly against restrictions on electricity and hot water in student campus.

The same as the case in Bucharest twenty years earlier, authorities tried, on one hand, to frame the movement in order to limit its proportions, and on the other hand, they tried to harass the participants (by verbal, even physical violence, and arrest). The protest came into disarray when the students from the largest university campus in the city were locked in their campus. However, a numerically significant group continued its march towards the administrative centre of the city. There, in front of the district's administrative palace, students have openly expressed their dissent.

Just as previous events in Bucharest, there weren't massive arrests. Repression relied more on "ideological" and administrative measures. Thus, in the following days, in a state of great tension, endless meetings of "unmasking and obloquy" were held at each faculty – a sudden reiteration of Stalinist political culture. Some of the leaders were summoned to the Department of State Security to make statements, the black lists were compiled, and a series of expulsions were conducted by the University Staff, but somehow randomly, more to appease the secret police officers, and apparently without direct connection to the event. Student supervision measures specific to the communist regime were taken: student life control reinforcement and prohibition of any kind of public events, official or not.

There is a major difference from Bucharest's protests, in December 1968: except for faculty meetings ordered by authorities, no other discussions took place within the formal framework of party and state structures, as it happened in 1968. It seems that Ceaușescu was not even told, and this is in fact an act of disobedience. It is obvious that the regime did not want to create martyrs or increase the social tension more, and, especially, they did not want to bestow a political dimension upon the event. At the same time, this shows how rigid the structures of the system had become: they could not accept the idea of a breach from society. The society constituted a compact block behind Nicolae Ceaușescu and any form of difference was seen as unimaginable, rationally speaking, and such facts could never be reported to him.

### **That Mutual Distrust: Students and Communist Regime**

We have observed that both in December 1968 and in February 1987 the repression was limited and had a dominant rhetorical character. An intense discursive campaign of discrediting the protests and their alleged leaders took place in the following days in all universities from Bucharest and Iași. However, massive arrests and ousts didn't happen anymore. Seen from the perspective of the repressive communist regime in Romania, the fact was surprising, but it must be related to the political context of each particular moment; it shows, in the same time, the contradictory nature of the relations that Ceausescu regime had with the student world.

We don't know yet how the Party perceived the demonstration in February 1987. Instead, there is conclusive evidence about the reaction of the Party in December 1968. For some apparatchiks and members of the secret police (*Securitatea*), the student-inflicted events represent a personal matter: they know they will lose their positions. They have a rasp reaction. But as it reaches higher levels in the Party, the tone becomes more and more relaxed. Ceausescu seems to approve with the students, especially when he becomes critical towards the attitude of some professors who, supposedly, did not respect the law of education on the maximum number of exams required.

Therefore, we do not speak of hopelessly fractured relations. The leaders of the Party feel slightly bewildered and humiliated. Not at any time do they accept the legitimacy of such events, but they try not to bestow them a “political” character, that is to formally treat them as “hostile” and anticommunist, as had happened before. In their agenda, this was a “lack of maturity” from the part of the students, but also some system dysfunctions: matters that could find solution. The echo of this attitude is their decision of reinstating (after twenty years!) the Christmas break for students, and also reinforcing the prohibition to exceed seven exams per session.

In short, in December 1968, the Party believes that the main cause of the protests is a scarcity in what concerns “students ideological propaganda”. In other words, students were not sufficiently integrated in the “Party-state”. Thus it is primarily a problem of logistics. In Ion Iliescu's words (minister of youth and the main responsible from the Party directly involved in the matter), a few days following the event, the manifestation of December 24 had proven the weakness of our organisation, *with they*, the lack of combativeness, of political firmness of the UTC [1] framework and its members.”

The appellative *they* could explain everything: despite the Ceaușescu regime's opening towards the society and especially towards students in the first years, the student milieu continued to be foreign territory to the Party. Even through the voice of an “intellectual” of the Party, such as Ion Iliescu - one of the few member of the Party administration with higher education - was deemed, it shows that the students represented a territory in relation to which the Party had “cultural” difficulties: who were “they”? Were they ready to be absorbed into the regime framework and politics?

With its vague social and cultural boundaries, the student milieu had unquestionably eluded the system until then: in December 1968 it was still the only significant social category not properly integrated to the “Party-state”. The organisation aiming to attract students to the regime lacked an actual influence, in spite of the fact that, after 1965, the Party itself had made serious efforts to improve student life and even the freedom of speech. Should we believe, therefore, that the students were anticommunists or militants against the regime?

Upon the instauration of the communist regime in Romania, in the late 40s, the student identity soon turned into an ambiguous social form: on the one hand, it seemed to be a source of highly qualified personnel for the “socialist revolution”, while on the other hand, even as aspiring intellectuals, they were automatically regarded as suspects. It is known that the intellectuals were not among the founding social classes of the regime (established, according to the official ideology, upon the alliance between the working class and the peasantry), they were potential carriers of the “counter-revolution” germ, soaked in bourgeois and cosmopolite attitudes, as the context of the Hungarian revolution of 1956 had proven, when numerous students had been involved in various “hostile” actions. Yet the most important aspect in this case is the fact that the regime had coerced the student milieu to isolate itself from the rest of the society, as if in a “golden ghetto”. In short, in the mid-sixties, the student milieu is a depoliticised political space, potentially dangerous for the regime, but held under a careful watch through systematic campaigns of propaganda and repression, but most importantly through a drastic control of study access and curricula.

For this reason, the public manifestations of the students happen so late in post-war Romania, and it is for the same reason that it seems so surprising. It is true that, in the interwar period, the students' engagement in the public life had left rather negative memories, because it had represented the cradle of radical political movements. The politicising tendency of public engagement is maintained in the first post-war years, especially by the students' adherence to various forms of protest against the communist regime. However, after 1948 especially, the terrible repression and the new policies of student recruitment, based on socially restrictive *numerus clausus*, have determined students to disappear from public life, as a source of autonomous action.

Only after the repression decreases in intensity, in mid-60s, and the university recruitment restrictions gradually relax, students seem to regain certain autonomy. From this point of view, December 1968 witnesses a landmark: it shows the limits of student involvement with the regime on one hand, but also the beginning of a comeback in the public space, on the other.

In the 70s the reports of the political police but especially personal recollections seem to indicate a fairly high degree of integration of the students within the regime. This adhesion is based on the illusion of a kind of contract: students believe in the regime as far as the regime offers them trust and, respectively, a space where they can freely express their specific rituals. There is no frontal opposition, nor unconditional submission. Despite the fact that the student environments were regularly subjected to moralizing sessions, especially earlier in the decade, when the regime had a more pronounced ideological capacity; for instance, the famous campaigns of haircut correction (compulsory haircuts) or dress attire correction, the 70s represent probably the best period in terms of student activism and relations with the regime.

In the 80s, however, the adhesion is gradually reduced to a minimum, even if, concurrently, party membership had become mandatory for a career, and each student was automatically registered in a Party-affiliated student organisation. Thus, the moment February 1987 indicates quite clearly the end of all illusions.

### **Rebellion, Counterculture and Street performance**

But there is something that seems to disquiet the Party line and staff even more than its ability to convert students. Was the formal organisational adhesion to the Party and its satellite structures enough to consider students as an integral part of the regime? Are students a good partner for the “great epic of constructing socialism” in Romania, especially as future leaders and models for society?

Towards the mid-sixties, the party had renounced the class-struggle logic in relations with students, on behalf of which all students of “dubious origin” (all who did not come from the working classes or proletarian peasantry) had been eliminated. Furthermore, students are no longer the usual suspects in the eyes of the regime. Now they have the right to have their own publications, albeit under the control of the Party, to have relations with foreigners, and especially they are allowed some freedom of behaviour according to the evolution of Western political culture.

In the late 60s students represent more than ever the hope in the country’s bright future, through knowledge and technologic progress. It is the moment in which Ceausescu’s Romania experiences a genuine technological and technocratic fervour. Yet the carolling episode and the authority disobedience are still confusing to the party hierarchy. The party leaders are especially horrified at the ease with which regular students have been attracted to such protests. “Students [...] followed them like a flock of sheep”, one of the Party official mentions. “Some student hostels have been locked and they clamoured to open them free, because they wanted out” (Berinde/Berindei/Dobrinca/Goşu, 2013: 495-511). Naiveté, alcohol, forbidden attractions and the desire for socialization were not sufficient explanation in the eyes of the Party.

In fact, if one carefully observes, in these situations, the students are described in the official language of bureaucracy of the Party as an unpredictable even dangerous social actor. Their artistic manifestations are generally sombre, and at times “they have abnormal characteristic [...] to the liking of certain, supposedly “select” category, which comes and socialises in the reek”. Graver still is the fact that among these activities one cannot distinguish the “care and consideration for promoting militant activities” respectively, for the cultivation of thematic subjects and political orientation in the service of the Party policy and propaganda. Or in the words of a poet and propagandist, editorial board member of a publication for students, N. Stoian: “we need to consider a number of things and see whether are capable to confer them political content” (Berindei/Dobrinca/Goşu, 2013: 495-511).

Questioning the student’s ability to confer “political content” to their activities is very significant when related to the values that motivate students. The finding does not translate a simple rift between generations, although this is not insignificant. It is a fracture of social imagery: in relation to what one thinks it is possible or desirable in a society. Despite the ideological opening of the regime in the mid-sixties and despite the new possibilities (including their readiness to reconnect with the “old regime” and especially with the capitalist and liberal western world), the manifestation of December 1968 definitely emphasises the fact that students have other cultural, and even ideological landmarks than those proposed by the official propaganda.

Some of these emanate from the Western entertainment culture, which began to be available in Romania at that time through official, but mostly unofficial means, relatively tolerated by the regime. These imports do not have the intensity of those in Yugoslavia or Hungary but still accounted as a cultural shock for a dogmatic and prudish society. Other shocks pertain to the political culture of radical western activism of those years, albeit randomly perceived in Romania. Finally, there is a recovery of traditional folkloric culture and the Christian traditions, as the pretext for carolling in the eve of December 25, 1968, shows.

This is not a structured form of culture. Actually, the main feature of this counterculture is its diffuse, unsystematic character, always in tension with the official public speech. Nor is it a conscious form of resistance to the regime and its propaganda, but rather a form of identity-based alternative culture: a discreet rebellion as strategy of generational identification, which sometimes becomes to the most a form of resistance to bureaucratic communism. Then, its political character is, then, rather implicit.

The manifestation of February 1987 is not different at its core, with the mention that the *performance* aspect is much more visible: from the carnivalesque and popular entertainment direction, to the nocturnal taking into possession of the main streets and squares of the city, both an echo of repression anxiety, and also a reflection of a desire for publicity and theatricality. Both must be understood as forms of experiencing and negotiating freedom as a generation: a *rite de passage*.

It is true, there is an evident difference of political culture between the various student milieus in the case of Iasi students protests. The manifestation was initiated by students (most of them, girls, as was the case in Bucharest) of the University (from the faculties of *Letters, History and Philosophy* or *Geology*), where a more liberal, even cosmopolite atmosphere dominated. They had the support of the students in Polytechnics, who were very numerous and therefore heterogeneous, often linked by age compatibility to their colleagues from the University.

In contrast, students from campuses of the Agronomy and Medicine institutes generally refused participation. The explanations are various: agronomy students usually have limited involvement in student life, and they are also geographically marginalized, with a distinctly patriarchal political culture. Oppositely, medical students represented the aristocracy of student life and were more careful about their careers, which could have been severely affected by a political implication of this kind. Both categories represented the conformist part of student mind.

## Conclusions

The student demonstrations of December 24, 1986 in Bucharest and of February 17th, in Iaşi represent the most important student protests during the communist regime, between 1946 and 1989. They are also among the few street demonstrations that the Soviet-like regime underwent in almost half a century. But the importance of such demonstrations lies not only in their unusual, exceptional character, but also in the form of manifestation itself, in which urban performance seems to be the key of the game. Concurrently, the student manifestations of Bucharest and Iaşi, reiterated almost twenty years apart, can offer significant clues in order to see whether the triggering factor of these attitudes in the student world represent spontaneous reactions or profound phenomena.

The present approach aimed first to reconstruct the facts and context of the two events: their course and development, their causes and their stake, and their effects upon the student milieu, as well. Based on the two episodes’ signification, the second objective was to provide an analysis of the relations between the communist regime and the students. Finally, a third objective was to track the extent to which the student life in Romania had set up an autonomous space for expression in relation to the regime.

Although we don’t only consider different cities or political contexts, but also somewhat different causes or stakes, the similarities between the two events are easily observable. First, both manifestations have a spontaneous character and similar developments: they start off as kind of *performance*; they take into possession the main urban squares, only to wrap up in deep confusion and tension. Then, both manifestation lack leaders – at least formally – and they do not have martyrs. Similarly, neither one protest nor the other forward political or general objectives, even if the protesters show messages that indicate a state of frustration and a need of autonomy. Despite all these, at that particular time both manifestations had been the subject of “quasi-political” interpretation from the part of the authorities.

Besides these similarities, there are other elements that unify the two events and align them more clearly to student action in the years of the Ceausescu regime: 1. The protests’ mode of operation: both protests are walking manifestations. Moving from one

place to another is the essential scenographic element for both manifestations, itinerancy being a type of public display, a search for allies and a form of protection against repression. It was also intended to allow the display of age congenialness. But mostly, nocturnal deployments allow a form of social dissimulation, of emancipation in relation to the official, diurnal constraints. 2. The enactment of the two protests is based as well on a few common elements: the carnivalesque (the festive, jocular, loosened atmosphere, questioning the social norms and hierarchy, the dissimulation regarding any political intent, etc.), the reclaiming and recovery of certain forms of folk lore (carolling, folk songs), launching slogans and insolence towards authorities as forms of showing spontaneous cohesion and communion with the city, negotiations with the authorities and the collective confusion at the end of both manifestations. 3. The absence of massive repression: in the case of both protests, for the first time in its history, the regime decides to decriminalise the protests in favour of the ideological, administrative and bureaucratic response. 4. In both situations, the citizens of the two cities applaud the manifestations (probably for different reasons), but do not participate directly.

Despite the similitude, one cannot invoke a genealogical connection between the two protests. Actually, even if student memory has somewhat turned them into myths, the purpose was never that of an ideological or intellectual recovery as part of collective memory. Also, while the demonstration of Bucharest has no concrete claims and no particular, well-defined cause, the student protest of Iași seems to have an agenda of somehow narrow, but specific claims. Finally, the reaction of the regime was broadly similar in the two cases, there is however a number of differences in their mode of “reading” these protests: thus, while the Bucharest manifestation received a somewhat sociologic interpretation – if not relaxed, in any case not dramatised, object of interest for the party hierarchy and a pretext for improving the regime efficiency – the manifestation that took place in Iași twenty years later has been interpreted in a diametrically opposite manner: the Party Central Committee has ignored the protest, while for local Party officials the protest was a kind of mechanical incident related to the good functioning of the social apparatus, having no impact whatsoever on the system, while its only possible interpretation was a form of juvenile misconduct. Their blindness is noticeably a sign of weakness and a testimony of the blockage the system was in during that period.

Then where does this impression of unity upon analysing the two events come from? Definitely, this is an image generated by the common constraints, fears and expectations, meaning by what we might call the specific student context. The first ones to understand, even grudgingly, that the student must be addressed separately in relation to the Romanian society of the time, were the authorities in 1968. Ceausescu himself tries to understand and to pacify this peculiar milieu, using new means, without ignoring the undesirability of student undertakings.

However, students do not actually exceed the red line, they do not pursue their endeavour, and they do not politicize it. They seem to accept the repression and especially the regime’s conclusions. They are not an autonomous performer. But they try to become one at all times.

Therefore, what we can call student counterculture in Romania arises in the late sixties in an atmosphere of freedom offered by the Ceausescu regime, and then escapes his control in the following decades. It is a specific form of expression: it is not genuine adherence to the regime, nor is it open revolt, but a mix of echoes from Western counterculture with attempts of recovering “non-communist” national traditions, or, better said, without a propagandistic nature. The main venture of this counterculture is not opposing the totalitarian regime, but rather seeking for specific, generational expression, a form of authenticity at odds with the more and more aggressive propaganda of the Ceausescu regime. This counterculture does not directly incentives the two protests, but gives them a framing and, maybe, certain legitimacy.

## Notes

[1] *Uniunea Tineretului Comunist (Communist Youth League)*: the youth organization of the Romanian Communist Party (PCR).

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## THE SCHOOLS OF HISTORY IN CLUJ AND BUCHAREST AND THE HISTORIOGRAPHY OF THE MIDDLE AGES: THEMES, DIRECTIONS AND RESEARCH METHODS (1990–2013)

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### Abstract

*In the following pages we propose an analysis of the historiographical production on the Middle Ages in Romania, created in Cluj and Bucharest for approximately a quarter of a century. We are interested in the themes addresses in these historiographical centers, in the directions and methods used by the historians in their undertaking to achieve their objectives. We are also preoccupied with the extent to which the Romanian historiography in these centers aligned to the historiographical requirements which existed at European level. We are discussing schools of thought to the extent that there is a group of historians that traces the directions which need to be followed, we could even include a number of professors and their students, future researchers, who study themes and make use of different research methods.*

*The goal of this thesis is to provide an overall perspective of the historiography of the Middle Ages in Romania, in the last 25 years (especially with reference to the two schools of history in Cluj and Bucharest), which may serve as a reference point for a possible cultural history of this interval, in which historical studies must occupy an important spot.*

**Keywords:** *History and Historiography of the Middle Ages; themes, directions, methods.*

In the following pages we propose an analysis of the historiographical production on the Middle Ages in Romania, created in Cluj and Bucharest for approximately a quarter of a century. We are interested in the themes addresses in these historiographical centers, in the directions and methods used by the historians in their undertaking to achieve their objectives. We are also preoccupied with the extent to which the Romanian historiography in these centers aligned to the historiographical requirements which existed at European level. We are discussing schools of thought to the extent that there is a group of historians that traces the directions which need to be followed, we could even include a number of professors and their students, future researchers, who study themes and make use of different research methods.

Also, an historiographic school can be formed around a personality or a magazine. In the conditions in which, after 1990, there were historical personalities who traced directions for research, as Pompiliu Teodor at Cluj and Lucian Boia at Bucharest, we can talk about the existence of some historiographic schools in the studied centers.

The changes made in European historiography, as well as the opening offered by the fall of the communist regime stimulates Romanian historians to align their work to the new standards. The new directions for Romanian historiography were marked by the signatories of the “Manifestul istoricilor liberi din Romania”, a document written and signed by multiple Romanian historians [1].

After 1990, the Romanian historians are writing about the necessity of a new history too. Pompiliu Teodor, a historian from Cluj, thinks that the history of Transylvania cannot be understood without framing it in the ampler history of Europe [2], without regard to the new directions of research, in which the history collaborates with the other neighboring sciences [3].

Analyzing the volumes of *Bibliografia istorică a României* we can determine that in the period following the Revolution of December 1989 a large number of articles, studies and history books [4] were written, there was an intensification of the connections with the universal historiography, mixed commissions were organized with the neighboring historiographies, a program of international exchanges was initiated with the help of scholarships bated by the Academy Institutes and by the university professors and institutes. To this also added the participation of Romanian historians to international conferences and symposiums [5]. All these aspects were a plus for Romanian historians and Romanian historiography.

We can specify from the beginning that some research directions are specific for a school, others are refound in the historiographic researches from the both centers. Also, we can distinguish an inclination to the study of the own medieval space. In other words, the historians from Bucharest are preoccupied about the study of Wallachia (Țara Românească), while the historians from Cluj emphasized on the study of medieval Transylvania.

A problem that must be solved from the beginning is the one of the Middle Ages periodization. If its beginning is marked by the certification of the first pre-state formations, its end generated different opinions. For some historians the medieval Romanian ends at the end of the 18th century, when the Phanariot mastering in the Romanian countries came to the end [6].

Others historians, increasingly more, having as example the foreigner historiography, frame the period between 1500-1800 as being premodern or they named it Early Modern Ages [7].

As part of historiography from Bucharest a new research direction was emitted by Lucian Boia, who is analysing the myths from the Romanian history and also from the Middle Ages. In this sense, in 1993 it was set up the Imaginary History Centre, part of Faculty of History of the University from Bucharest. The purpose of the Centre was to study the historical and political myths, that was a less practised method in the Romanian history. This method is necessary for linking the Romanian historiography with the European one “and more for a more complete and nuanced understanding of our recently historiography” [8].

For example, Lucian Boia sees a myth in the ruler of Wallachia, Michael the Brave (Mihai Viteazul), who was transformed by the communist historiography in a symbol of the medieval unity [9]. An important role comes also to the schoolbooks which made him a image without regard to the historical concrete files. These have the responsibility “to integrate the Wallachian ruler in the european history and transform himself in a part of the common culture which has to overtake the limits and the national particularities and to represent all of us as the inhabitants of this continent” [10]. The situation is the same after 1990, when “another unifier makes his appearance: Stephen the Great.” [11].

The work which generate a large number of reactions was History and myth in the Romanian conscience (Istorie și mit în conștiința românească) [12]. The historian considers that the myth is refound in all the ages of the Romanian history and it has an positive aspect because by mythologization the heroes remain timeless in the nation conscience [13]. The historian distinguishes between the mystification which has a negative connotation meaning “lie, scam, willful disinformation” and myth which has positive effects beyond the people, it animates them [14].

The historian Ioan-Aurel Pop says about the Romanian origin that there was a series of myths “but the idea of the Latinity of the Romanian isn’t part of them”. Much more, some of the rules of the Romanian medieval states became symbols and myths for the

Romanian people. It is the case of Mircea cel Bătrân, Iancu de Hunedoara, Ștefan cel Mare, or Mihai Viteazul. These myths not have to be blamed, but studied and accepted as part of our past [15].

After the model offered by new history ("la nouvelle histoire") [16] in the Romanian historiographic space, **the history of the collective mentalities and of the social imaginary** [17] take shape after 1990. A pioneer was until 1989 Alexandru Dușu [18], followed at Cluj by Simona Nicoară, Toader Nicoară și Sorin Mitu and at Bucharest by Lucian Boia [19]. There was followed the institutionalization of the area by the creation of research centers, of seminar and of some specific publications. For example, beginning with 2002, at Cluj-Napoca was organized the Seminar of Historical Anthropology, led by Toader Nicoară, the results of the researches being published in the "Notebooks of Historical Anthropology" magazine. The purpose of this seminar is to integrate the Romanian historiography in the European and World one, by the using of a new research methods and by the stabilization of a new research directions: historical anthropology [20], nutrition [21], habitat, clothing, fashion, collective sensitivities and the social imaginary, the organic history (epidemics, natural calamities).

For the new history it is highlighted the importance of the collaboration with the ethnology and the anthropology [22]. For example, ethnology determined the historian to use another sources than those written, as the archaeological or iconographic ones, which are processed with the help of the comparative method and the regressive method [23].

The historians focus on the historical demography [24], on the otherness history [25], on the history of the collective mentalities [26] with an important accent on the death study, especially on the death of the other, having as sources the texts of the foreign travelers, the tomb inscriptions, the elite wills, the funeral orations, the churches frescoes and orthodox monasteries [27]. They are joined the concerns in the history, imaginary [28] and ethnic imagology [29].

A theme on which both the historians and sociologists turned their attention is the women history. Through such a subject, the studies of the historians from Cluj and Bucharest are aligned to the concerns from the world's historiography. Moments from the life of the women of the 17th century are retraced through the study of the seals [30], the stationary and legal acts, the letters, the wills, the urban and customs registers, as well as the narrative sources [31]. The comparative method was used to establish the place occupied by women in the family, in the household and in the society in the three Romanian countries: Wallachia, Moldova and Transylvania [32]. The family in the 17th century, from the same space mentioned above is retraced basing on the sale and purchase agreement acts, donations, wills, genealogical studies, stationary acts and narrative sources [33]. At these are added the accounts of the foreign travelers [34].

**The genealogical researches** have remarkable results as a effect of the studies made by the historian Mihai Sorin Rădulescu at Bucharest and Ioan Aurel Pop and Nicolae Edroiu at Cluj [35]. The historians Zsigmond Jakó and Klara Jakó draw the attention in their studies to the lack of specialists who must have a good preparation regarding Latin, German and Hungarian [36]. At these it is necessary to be added modern methods too for the prosopographic study [37].

In historiographic space from Cluj are registered remarkable preoccupations about the history of the church, especially to the history of the Greek-Catholic church. New approaches of this theme were done through the doctoral schools by Pompiliu Teodor and Nicolae Bocșan [38]. Pompiliu Teodor charted the trends on the subject initiating international conferences on confessional history themes (at the middle of 90s), being helped by his disciples: Maria Crăciun and Ovidiu Ghitta [39]. At Bucharest, Ovidiu Bozgan gives a course about the history of the Greek-Catholic church and he coordinates "The Center of the Church History", which is under the auspices of the Faculty of History.

The analytical method was at the base of the study about the Protestantism and Orthodoxy in Moldova of the 16th century. In this approach were used internal [40] resources and also, external [41] resources, as well as the comparative method for establishing the similarities and the differences with other spaces and for the better understanding of the Reform in Moldova [42]. The element of comparison was the manifestation of the Reform in Transylvania [43].

The ecclesiastical history is refound in the "Narrative and iconic" [44] study too, which studies 24 Transylvanian altars from rural metal dated at the end of the 15th century and the beginning of the next century [45]. This type of research belongs to the historiographic recently preoccupations from west, at whom Maria Crăciun refers often, using the comparative method [46]. The conclusion at which she reached it is: the imagines from the altars, narratives or iconics, contained complex theological messages which had the purpose to form to the people from the church a pious, devoted attitude [47].

A subject which defines its territories, after 1989, it is the medieval archaeology. An example good to be followed by the archaeologists from the Middle Ages, it is Radu Popa [48]. At Cluj was formed "The Association of the Medieval Archaeologists from Romania" and it was published the "The Medieval Archaeology" magazine under the guidance of the historian and archaeologists Adrian Andrei Rusu [49]. In his studies the historian compares the results from the Romania archaeological space with those obtained by the Hungarian [50], German, Czech, Austrian, Bulgarian or Latvian [51] archaeologists. The comparison with the foreign archaeology brings to the light some shortcomings or even non-professional handlings from the Romanian archaeology [52].

The post-communist historiography includes in its pages some controversies as the foundation of Wallachia [53]. Neagu Djuvara's statement that the Cuman head Thocomerius is identical with Negru Vodă [54], it generated a large number of answers of the Romanian historians and not only, some of them were gathered by Neagu Djuvara in the work "Answer to my critics" [55]. Among the ones who combat Neagu Djuvara's hypotheses were the historians: Matei Cazacu and Dan Ioan Mureșan [56]. Matei Cazacu says that according to the historical sources, Ioan Basarab was the founder of Wallachia, he was Romanian and Orthodox by confession, with Catholicism approaches because of political and personal reasons [57].

A model of economic history is also the work of Bogdan Murgescu "Romania and Europe The accumulation of the economic disparities (1500-2010)" [58]. Starting from the works of economists, sociologists and "rarely" of the historians [59], the author proposes to explain the causes of the economic disparities between the Romanian countries and the others European states [60], using the comparative method. The research has as starting point the year 1500, when the economy of the Romanian countries was the same with that of Denmark, Ireland and Serbia [61].

Another work, which brings beneficial changes in the Romanian historiography, it is "The Romanian countries between Ottoman Empire and Christian Europe". The research has as mark the works of the European historians: Fernand Braudel, Immanuel Wallerstein, Daniel Chirot and Witold Kula [62]. The historian wants to make a work according to the requirements of the contemporary men, a history that combines the economic, social and political aspects of the Romanian countries [63]. About Michael the Brave, the historian situates him at the intersection between the medieval and the modern, in other words, in the Later Medieval Era [64]. This phrase it seems that is less used in the Romanian historiographic space, while it has a wide spread in the occidental historiography, especially in the Anglo-Saxon and German ones [65].

The research of the **history of Cluj** is made according to the new direction of study established by the history of the mentalities. The historian does not care about the political aspects of this centre, but more the atmosphere from the 16th century, as it appears from the gastronomic sources analysis. It is achieved in this way a history about nutrition [66]. Another research direction, which belongs to the history of the mentalities and to the imagology, it is the historic geography. It is mentioned among the Romanian historians preoccupations after 1990.

A research direction which presents a continuity with the communist period it is that of the **editing of the historical sources**. All three representative historiographic centres for the Romanian historiography are working at the publishing of volumes of *Documenta Romaniae Historiae*. In Iași, A series Moldova was published, in Bucharest, at "Nicolae Iorga" Institute the documents from B series Wallachia were edited, and in Cluj C series Transylvania [67].

At "Nicolae Iorga" Institute, in Bucharest it was watched the formation of a new generation of researchers. Their attention was directed toward important parts of the medieval history, as the Latin Middle Ages or the Black Sea history, as well as the integration of the national history in the universal one, because a good understanding of the Romanians history can be done inclusive by the knowledge of the external factors which had contributed at the development of the different events in internally. The alignment of the Romanian history at the universal one can be done appealing to the same methods, but only partial. It is also the case of the statistical method, which can be applied most of all beginning with the 18<sup>th</sup> and 19<sup>th</sup> century for the Romanian history, when the amount of documents is bigger.

The historian Șerban Papacostea says that an important problem of the Romanian history is about the planification."After 1990 there was not an effort to rethink the destiny of the historical research in the next century. It has remained since then at the discretion of each institute and center to rethink their own issues, but it would not be bad to be an overview on the development of Romanian historiography. We are still in a stage of research for the entry in the world actuality of the Romanian historiography." [68]

Having at the base the studies and the studied books we can conclude that after 1990, the Romanian historiography gradually begins to align with the requirements of European historiography. Along with some topics that have been tackled also before 1989, as the political history or the editing of historical sources, new topics showed up, the history of the collective mentalities and social imaginary, the church history, the genealogical researches, the economic history or the history of towns. Various research methods are used, from the analytical method to the quantitative and qualitative one, to the comparative and regressive ones. What is very important is widening documentation number from the documentation sources to the visual or archaeological ones, and as well as the sing of the same material, but to which new questions are put.

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- [1] Pompiliu Teodor, *Introducere în istoria istoriografiei din România*, Editura Accent, Cluj-Napoca, 2002, p. 128.
- [2] Idem, *Transilvania: spre un nou discurs istoriografic*, în „Xenopoliana”, I, 1-4, 1993, p. 61, „Cercetarea istoriei Transilvaniei, în legătură cu structurile civilizației Europei centrale nu se poate dispersa de reconstituirea fondului sud-estic. Creștinismul sau istoria culturii medievale a Transilvaniei este de neînțeles dacă o privim izolat de marile curente occidentale care au străbătut istoria Europei central - orientale. Limitarea istoriei spațiului intracarpatic la exclusivitatea raporturilor româno – maghiare, desprinderea lor din contextul mai larg al fenomenelor de istorie europeană înseamnă a răpi istoriei Transilvaniei necesarele referințe”.
- [3] *Ibidem*, p.62 „Dacă istoricii nu vor revela cu acuratețe științifică instituțiile și structurile sociale, confesiunile și viața cultural a Transilvaniei, proiecțiile moderne vor stânjeni înțelegerea reală a unei istorii de mare complexitate. În acest sens este necesar un dialog al istoriografiei cu științele învecinate, așa după cum receptarea rezultatelor istoriografiei din afara culturii românești se recomandă mai mult ca oricând”.
- [4] Pompiliu Teodor, *Introducere în istoria istoriografiei în România*, p. 129.
- [5] *Ibidem*, p. 130.
- [6] Neagu Djuvara, *Între Orient și Occident Țările române la începutul epocii moderne*, Editura Humanitas, București, 2009, p. 8, ( “Evul Mediu prelungit de Dominația otomană prin mijlocirea fanarioților”).
- [7] Bogdan Murgescu, *România și Europa Acumularea decalajelor economice (1500- 2010)*, Editura Polirom, Iași, 2010, p. 23, p. 96; Ioan – Aurel Pop, *Națiunea română medievală*, Editura Enciclopedică, București, 1998, p. 146, „spre finalul secolului XVI și începutul secolului următor, având ca reper domnia lui Mihai Viteazul, se sfârșește evul mediu românesc și începe epoca premodernă sau, mai corect, epoca modernă timpurie”.
- [8] Lucian Boia, *Mituri istorice românești*, Editura Universității București, București, 1995, p. 5
- [9] *Ibidem*, p. 18.
- [10] Mirela – Luminița Murgescu, *Trecutul între cunoaștere și cultul eroilor. Figura lui Mihai Viteazul în manualele școlare de istorie (1831-1994)*, în Lucian Boia, *Mituri istorice românești*, p. 71.
- [11] *Ibidem*, p. 20.
- [12] Idem, *Istorie și mit în conștiința românească*, Editura Humanitas, București, 2011.
- [13] *Ibidem*, p. 5-6.
- [14] *Ibidem*, p. 17.
- [15] *Ibidem*, p. 149, “Acest lucru nu este de blamat, ci de acceptat și de studiat, ca parte a realității trecute”. „Niciun mit nu se naște din neant, ci are în el o fărâamă din realitatea palpabilă. Cât este această fărâamă trebuie cercetat”.
- [16] Toader Nicoară, *Introducere în istoria mentalităților colective*, antologie, studiu introductiv, selecția și traducerea textelor Toader Nicoară, Editura Presa Universitară Clujeană, Cluj – Napoca, 1998, p. 5; Simona Nicoară, Toader Nicoară, *Mentalități colective și imaginar social*, Editura Presa Universitară Clujeană, Cluj-Napoca, 1996, p. 14, noua istorie pune accent pe ”sinteză, lărgirea bazei documentare, renovarea metodelor și a tehnicilor de investigație”.
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- [19] *Ibidem*, p. 92-93
- [20] Constantin Bărbulescu, *Istoria și antropologia corpului uman*, în „Caiete de Antropologie Istorică”, anul II, nr. 2 (4), iulie – decembrie 2003, p. 5-6; idem, *Istorie antropologică și antropologie istorică: Direcții din știința franceză*, în *Identitate și alteritate. Studii de imagologie*, volumul II, coordonatori Nicolae Bocșan, Sorin Mitu, Toader Nicoară, Editura Presa Universitară Clujeană, Cluj - Napoca, 1998, p. 25.

- [21] Claudia Țița, *De la diversa cibaria la hrana Raiului. Ospete voievodale și coduri alimentare în Ungrovlahia secolului al XVI-lea*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 13- 22; Benda Borbála, *Obiceiuri alimentare pe domeniile aristocratice și evoluția lor în secolul al XVII-lea*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 31- 54; Enikő Rűsz- Fogarasi, *Nivele de alimentație în Clujul din epoca Principatului*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 55- 66; Ovidiu Mureșan, *Regimul alimentar al secolelor XVI- XVII. De la gastrofobia utopiilor la bulimia distopiilor*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 67- 87; Ion Blăjan, *Sarea, aliment și substanță rituală*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 95- 101; Simona Nicoară, *De la modelul creștin al cumpătării la dieta alimentară modernă. Marile mutații ale structurilor gustului și consumului (secolele XVI- XX)*, în „Caiete de Antropologie Istorică”, anul V, nr. 1-2 (8-9), ianuarie – decembrie 2006, p. 117- 129.
- [22] Simona Nicoară, Toader Nicoară, *op. cit.*, p. 18.
- [23] *Ibidem*, p. 18.
- [24] *Ibidem*, p. 24, ”demografia se va extinde tot mai mult spre atitudini și sensibilități, către problematica familiei, motivațiile constituirii cuplului, apariția sentimentalismului, debușând spre mentalități”, la care se va adăuga ”problematica morții și a atitudinilor și comportamentelor umane în fața ei”, p. 54, ”foametea, epidemiile, războaiele, crizele de mortalitate, în general, îi vor preocupa pe istoricii demografi din perspectiva deficitului demografic specific ultimelor secole ale evului mediu și primelor din timpurile moderne”, p. 93. De acest subiect se vor preocupa istoricii francezi, englezi sau americani, p. 94.
- [25] *Ibidem*, p. 26, p. 56.
- [26] *Ibidem*, p. 26, ”istoria sentimentelor, pietatea religioasă și religia trăită, cultul sfinților și pelerinajele, fenomenul vrăjitoriei în evul mediu și epoca modernă, atitudinile în fața vieții și a morții”; ”istoria mentalităților colective a inaugurat o perspectivă dinamică asupra trecutului, în spirit pluridisciplinar, uzând cu demersurile sale restitutive de achizițiile unor științe umane învecinate, psihologia socială, geografia umană, demografia istorică lexicologia, semantica. În același timp, în centrul investigației istoriografice este așezat nu omul abstract și universal, ci omul concret istoric, mai mult, grupurile umane, colectivitățile”, p. 41.
- [27] Mihaela Grancea, *Călători occidentali despre atitudinile românești în fața morții (1683-1789)*, în *Identitate și alteritate. Studii de imagologie*, volumul II, coordonatori Nicolae Bocșan, Sorin Mitu, Toader Nicoară, Editura Presa Universitară Clujeană, Cluj - Napoca, 1998, p. 74-83. Simona Nicoară, Toader Nicoară, *op. cit.*, p.97, studiul morții îi preocupă pe istoricii francezi (Michel Vovelle), englezi (John Mac Manner), americani (John Stannard), italieni, germani și chiar pe cei din centrul și estul Europei.
- [28] *Ibidem*, p.27, „explorează visele, iluziile, miturile și mitologiile epocilor tradiționale și moderne”, „cuprinde ansamblul de reprezentări care se plează dincolo de limitele fixate de constantele experienței și de înlănțuirile pe care deducțiile logice le autorizează. Este un teritoriu care încorporează domeniul visului și al utopiei, întregul câmp al experiențelor umane: curiozitatea față de orizonturile îndepărtate ale spațiului și timpului, tărâmurile de necunoscut, angoasele inspirate de necunoscutele pline de neliniște din prezent și viitor. Lumile imaginare ale utopiei sau cele din spațiile intergalactice, imaginea infernului ca și a paradisului, spațiile îndepărtate, geografiile imaginare, încărcate de speranțe, iluzii și așteptări”, p. 57.
- [29] Sorin Mitu, *De la „Imagina Celulalt” la geografiile simbolice trasee metodologice*, în *Identitate și alteritate. Studii de istorie politică și culturală*, volumul III, coordonatori Nicolae Bocșan, Sorin Mitu, Toader Nicoară, Editura Presa Universitară Clujeană, Cluj – Napoca, 2002, p. 9.
- [30] Maria Vertan, *Folosirea sigiliilor de către femei în sec. al XVII-lea în Țara Românească*, în *Identitate și alteritate. Studii de istorie politică și culturală*, volumul III, coordonatori Nicolae Bocșan, Sorin Mitu, Toader Nicoară, Editura Presa Universitară Clujeană, Cluj – Napoca, 2002, p. 205-210.
- [31] Șarolta Solcan, *Femeile din Moldova, Transilvania și Țara Românească în Evul Mediu*, Editura Universității din București, București, 2005, p. 5.
- [32] *Ibidem*, p. 5.
- [33] Idem, *Familia în secolul al XVII-lea în Țările Române*, Editura Universității din București, București, 1999, p. 7.
- [34] *Ibidem*, p. 8.
- [35] Gabriel Moisa, *op. cit.*, p. 97.
- [36] Jakó Zsigmond, *Despre originea cancelarului ardelean Mihail Csáki (1492-1572)*, în *Tentația istoriei. În memoria profesorului Pompiliu Teodor*, volum coordonat de Nicolae Bocșan, Ovidiu Ghitta, Doru Radosav, Editura Presa Universitară Clujeană, Cluj - Napoca, 2003, p. 306.
- [37] Klara Jakó, *Petru Nápolyi, secretarul voievozilor Movilești*, în *Tentația istoriei. În memoria profesorului Pompiliu Teodor*, volum coordonat de Nicolae Bocșan, Ovidiu Ghitta, Doru Radosav, Editura Presa Universitară Clujeană, Cluj - Napoca, 2003, p. 337-339.
- [38] Gabriel Moisa, *op. cit.*, p. 104.
- [39] *Ibidem*, p. 105.
- [40] *Ibidem*, p. 11, „sursele narative, în special cronistica, care are avantajul de a fi contemporană cu evenimentele, nu menționează însă pe larg politica religioasă. În plus, ea este ostilă față de domnii simpatizanți ai Reformei, fiind, în general, intens subiectivă în favoarea ortodoxiei”.
- [41] *Ibidem*, p. 11, „sursele externe: biografii, cronici sau rapoarte adresate diverselor autorități politice (Habsburgi, turci, venețieni, anturajul reginei Angliei) sunt favorabile domnilor care trebuiau să susțină politica habsburgică, a Romei sau a centrelor protestante, de la caz la caz. Multe surse, în special rapoartele catolice, cele ale misiunii iezuite sau cele ale vizitațiilor canonice, sunt mult ulterioare evenimentelor, punând astfel în discuție acuratețea informației furnizate”.
- [42] *Ibidem*, p. 13, „Pentru atitudinea statului ortodox față de protestanți au fost parțial utile comparațiile cu situația protestanților olandezi și englezi în Rusia, deși acestea erau comunități străine, de imaginație recentă, ceea ce impune alte nuanțe fenomenului alteritar. Pentru psihologia colectivă față de minorități etnice și religioase, ni s-a părut util – din punct de vedere metodologic – studiul referitor la comunitățile protestante (olandeze) din Londra”.
- [43] *Ibidem*, p. 197.
- [44] Eadem, *Narativ și iconic. Rolul educativ și devoțional al iconografiei referitoare la sfinți în altarele polipectice din sudul Transilvaniei*, în *Tentația istoriei. În memoria profesorului Pompiliu Teodor*, volum coordonat de Nicolae Bocșan, Ovidiu Ghitta, Doru Radosav, Editura Presa Universitară Clujeană, Cluj - Napoca, 2003.
- [45] Maria Crăciun, *Protestantism și ortodoxie în Moldova secolului al XVI-lea*, Editura Presa Universitară Clujeană, Cluj - Napoca, 1996, p. 10.

- [46] *Ibidem*, „Altarele poliptice din sudul Transilvaniei prezintă asemănări cu cele din spațiul medieval german, spaniol și maghiar”, p. 48.
- [47] *Ibidem*, p. 76.
- [48] Adrian Andrei Rusu, *Investigări ale culturii materiale medievale din Transilvania*, Editura Mega, Cluj – Napoca, 2008, p. 11-24.
- [49] Gabriel Moisa, *op. cit.*, p. 179.
- [50] *Ibidem*, p. 72.
- [51] *Ibidem*, p. 75.
- [52] *Ibidem*, p. 89, analizând cuțitele de luptă din Transilvania medievală A.A. Rusu critică stilul de muncă, de profesionalism al arheologilor români, nota18 „Cele mai evidente sunt scăpările de prelucrare ale materialelor arheologice de la Sibiu și Alba Iulia, publicate recent, care nu aparțin unui singur autor. Lamele cuțitelor nu sunt supuse analizelor radiologice, iar învelitoarele de la mânăre s-au metamorfozat în <<podoabe>>”.
- [53] Neagu Djuvara, *Thocomerius -Negru Voda un voievod de origine cumana la începuturile Țării Românești*, Editura Humanitas, București, 2009.
- [54] *Ibidem*, p.18.
- [55] Idem, *Răspuns criticilor mei și neprietenilor lui Negru vodă*, Editura Humanitas, București, 2011.
- [56] Matei Cazacu, Dan Ioan Mureșan, *Ioan Basarab, un domn român la începuturile Țării Românești*, Editura Cartier, Chișinău, 2013.
- [57] *Ibidem*, p. 9.
- [58] Bogdan Murgescu, *România și Europa Acumularea decalajelor economice (1500- 2010)*, Editura Polirom, Iași, 2010.
- [59] *Ibidem*, p.15.
- [60] *Ibidem*, p. 16.
- [61] *Ibidem*, p. 20.
- [62] Bogdan Murgescu, *Țările Române între Imperiul otoman și Europa creștină*, Editura Polirom, Iași, 2012, p. 9.
- [63] *Ibidem*, p. 10.
- [64] *Ibidem*, p. 51.
- [65] *Ibidem*, p. 332.
- [66] Enikő Rűsz- Fogarasi, *Alteritate și ospitalitate în Cluj la turnura secolului al XVII-lea, în Identitate și alteritate. Studii de imagologie*, volumul II, coordonatori Nicolae Bocșan, Sorin Mitu, Toader Nicoară, Editura Presa Universitară Clujeană, Cluj - Napoca, 1998, p. 57-63.
- [67] Gabriel Moisa, *op. cit.*, p. 84.
- [68] Șerban Papacostea, *Istoriografia contemporana între fragmentar si întreg*, în „Observator cultural”, nr. 16 (mai), 2000.

## THE HISTORY OF A SYMBOL: THE INVESTITURE HORSE (TABLABAŞA) GIVEN BY THE SULTAN TO THE RULERS OF THE DANUBIAN PRINCIPALITIES

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### Abstract

*Starting from prehistory up to modernity, the horse was considered, by definition, a symbol of royalty, of strength and of victory in war. The horses ridden by humanity's great heroes broke the border of anonymity and remained recorded by history. As all other monarchs, the rulers of the Romanian Principalities rode horses that matched the majesty and political ambitions they aspired towards. The harness and the accessories the horses were adorned with were, in their turn, an indication of the rider's wealth and prestige. The giving of the horse was one of the main moments in the series of ceremonies making up the Principalities rulers' investiture at the Porte. Among the symbols the sultan bestowed on rulers there was a beautifully bedecked horse, with caparison and feathers. This horse, called the 'tablabaşa' (first in the stable), was ridden by the ruler during solemn ceremonies or publicly exhibited in ceremonies in which the ruler was not in the forefront. In the latter case, the horse would wear a bridle or be ridden by the great Master of the Horse.*

*The horse was, in fact, a symbol of vassalage/subjectation of the rulers of the Principalities North of the Danube to the Ottoman Emperor. This was part of the stock of symbols of power that highlighted the ruler's status as a subject of the 'almighty' Ottoman Padishah: the kuka cap, the kaftan, the two-tugged flag and the investiture berat.*

**Keywords:** Horse, Moldavia, Wallachia, rulers, sultan, Ottoman Empire, symbol, Phanariotes.

A while ago I read an article with an exciting title in the press: 'A stupid question worth Romanian citizenship: what was the name of Stephen the Great's horse?'. The article was about an Afghan refugee living in Romania for several years who, according to the journalist, had not passed the Romanian civilization test required to obtain the Romanian citizenship due to ridiculous questions such as this one, despite the fact that he spoke Romanian very well. The article showed, among others, that 'no Romanian' could answer the question, 'since Stephen the Great had a lengthy rein in Moldavia (1457-1504)' [1].

I must admit that the question referring to the name of Stephen the Great's favourite horse got me thinking. I soon realized that the history of the horse is little known and researched in Romania [2], despite the fact that the rulers of the Romanian Principalities, as well as other monarchs and nobles of Europe, had stables sheltering tens or maybe hundreds of horses at their courts, some of Eastern origin. The Royal stables were looked after by a numerous staff, run by the great Master of the Horse [3], who was also in charge of the royal hayfields and pastures. We must be aware of the fact that many of the Wallachian and Moldavian princes loved horses and had favourites, which they evidently named. This scenario is all the more likely as we know that these animals had a special ceremonial and symbolical import as the horse was associated, until as late as the industrial age, with aristocratic distinction, victory in battle and monarchic power. According to the medieval ideology of power, the monarch (including the ruler) could not be seen on foot by his subjects, which is why he depended on his horse, the only acceptable animal for his transportation. The monarch appeared before his subjects either on horse or in a luxurious coach drawn by several horses (usually six). The horse ridden by the monarch or those drawing his coach would impress through their beauty, size and lavish harness [4].

I do not mean to put together a history of the ceremonial functions and symbolic meanings that the horse had in the Aulic Romanian environment starting from the Middle Ages up to modernity. The topic of the present study is but a part of this vast field, regarding the singular question of the importance of the parading horse that the rulers of the Romanian Principalities received from the sultan on the occasion of their investiture, a horse also called the *tablabaşa* (first/foremost in the stable). Much, but not enough, has been written on the inaugural ceremonies at the princely court in Romanian historiography. Romanian historians paid special attention to the coronation and enthroning ceremonies held in Iaşi and Bucharest and neglected the investiture ceremony, which was held at the High Porte. Moreover, the Romanian historiography minimized the Ottoman influences on the court ceremony and the system of institutional organization of the two principalities, excessively privileging their Byzantine-Orthodox heritage [5]. The studies focusing on the royal insignia, their origins and meanings are quite few and contain a rather superficial analysis of the matter. These topics should be revisited starting from different methodological principles and in the light of the new documentary discoveries.

The horse is skipped every time in the studies dedicated to royal insignia, although it is often mentioned in sources among the gifts of symbolic value received by the rulers of the Romanian Principalities and by the Transylvanian from the sultan on the occasion of investiture. In the following lines I will try to trace the ceremonial-symbolic meanings of the investiture horse, starting the analysis from the investiture ceremony itself. Our analysis is based on a variety of sources, most of which are published (ceremony books and list, Turkish and Romanian chronicles, the accounts, testimonies and reports of foreign travelers).

Before approaching the matter at hand we deem a few methodological and historical mentions mandatory. The Romanian Principalities entered the Ottoman sphere of influence, becoming tributary states, as early as the 15<sup>th</sup> century. Their dependence on the Porte grew as the anti-Ottoman resistance of the neighbouring Christian kingdoms weakened, once the Apostolic Kingdom of Hungary disappeared and the Ottoman rule consolidated and even expanded in the region. Little by little, starting with the mid-16<sup>th</sup> century, the Romanian Principalities are economically, politically and culturally integrated in the Ottoman world, so that, in the second decade of the 18<sup>th</sup> century, they practically become part of the Empire. Home autonomy was, however, kept, and the rulers of Moldavia and Wallachia continued to be Christian princes tributary to the sultan [6]. Starting with the second decade of the 18<sup>th</sup> century, in a more complicated home and foreign affairs context than we can develop here, the sultan definitively renounced his old custom, opting to appoint the rulers in the Principalities directly from the members of the Phanariote aristocracy, preferring the great Dragumans of the Porte and their relatives [7]. Well acquainted with the institutions and customs of the Ottoman court, the Phanariotes wished- and succeeded, to introduce the clothing, aulic protocol and Ottoman model of organizing the court in the Romanian Principalities, so that, according to the accounts of foreign observers, the courts of Iaşi and Bucharest became, in the first decades of the 18<sup>th</sup> century, if not even earlier, miniature replicas of the Seraglio [8]. To consolidate his position with the local elite the first phanariotes, Nicolae Mavrocordat especially, sought to legitimize and consolidate the status they achieved through the

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sultan's unilateral wish by invoking dynastic connections with the old ruling families, resorting to alleged family links with the local Moldavian and Wallachian boyars and trying to compensate the void of legitimacy through an excessive ritualization of power [9].

In the four centuries that the Romanian Principalities were subjects to the High Porte, the way in which the rulers were invested varied according to their degree of dependency on Ottoman rule. Initially, the rulers were chosen by the local elite from the male members of the princely families of the two countries or from the great boyars they were related to. After being chosen, they would ask for the Porte's confirmation via messengers. With the confirmation *berat* the Ottoman authorities would also send the required insignia (the flag, kaftan, two-tugged flags, girdle and horse). Sometimes, the ruler himself would go to Constantinople, accompanied by a suite of boyars and close ones, to pay homage. At other times, the sultan opted for direct appointment, bestowing the rule to one of the candidates in Constantinople. The latter became the more frequent practice closer to the 18<sup>th</sup> century, when it became established as the rule. Regardless of the way in which the investiture was made, through direct appointment or the confirmation of choice, it was operated by the Ottoman clerk sent by the sultan to either settle the ruler in or to bring the insignia that confirmed the ruler as such. This custom is proof that the appointment of rulers depended exclusively on the sultan's will and that a candidate disliked by the sultan could not rule.

The social and political context in Istanbul or in the country where the appointment was made could influence the investiture ceremony. This was sometimes organized in great pomp, while at other times the whole ceremony would be put together hurriedly, and, if need be, held outside Constantinople. This is what happened in 1822 when, due to political and social instability in Istanbul, the Ottoman authorities decided that the rulers' investiture would take place in Silistra [10]. The investiture ceremony changed in the 19<sup>th</sup> century, after the Janissary regime was removed in 1826 [11]. The last rulers invested according to the medieval protocol of the Ottoman court were the local ruler appointed after the Greek revolt of 1821: Ionița Sandu Sturdza and Grigore Dimitrie Ghica.

The main sources of the investiture ceremony of the rulers at the High Porte are mainly the accounts of Dimitrie Cantemir and Dionisie Fotino, the reports and notes of foreign observers from the 17<sup>th</sup> and 19<sup>th</sup> centuries. For the time being, due to linguistic barriers, Ottoman ceremony books are little known and used in the Romanian historiography. The only documents of the kind available in Romanian translation are the excerpts published by H. Dj. Siruni [12]. To these sources we can add a few separate documents, with the advantage that they were written by eye-witnesses or people involved in organizing the festivities occasioned by the investiture [13]. Each of these contains detailed information indicating the fact that the ceremony largely followed the same steps, without being rigid. On the contrary, we can see that it adapted according to certain variables: the political context it took place in and the people involved.

Among all those who wrote about the investiture ceremonies of the Danubian Principalities' rulers at the High Porte, Dimitrie Cantemir is the only one to have experienced it personally, as he himself was invested as ruler of Moldavia in 1710. His accounts are the richest in information and the most trustworthy, the strongest argument being that the scholar prince was well acquainted with the Ottoman Court etiquette, having lived in Istanbul for a long while representing his brother Antioch's interest while the latter occupied the throne of Moldavia and had been involved in the struggle to obtain it.

Having reached this point, let us retrace the succession of steps in the investiture process, according to these sources. I am opting for a brief presentation, but I will insist on the episode in which the ruler received the investiture horse. The new ruler was appointed by the sultan and then summoned at the grand Vizier's court to be notified of it. Here, he was received by the grand Vizier's *chihai* (*chetüdä*), he was introduced to the Grand Vizier, who officially notified him of his appointment, and the ruler would put on the kaftan. He would then introduce the agents to represent him at the High Porte (the *kapu-kethudalari*) and, before leaving, he would kiss the Vizier's hand. The ruler left the vizier's court on horseback, accompanied by a magnificent suit, and headed for the Patriarchy church, where the oecumenical patriarch would anoint him as ruler, according to the anointment custom of Byzantine emperors. The ruler would then go to his mansion, where he would receive the visit of the oecumenical patriarch, accompanied by the grand prelates of the Church and of the Patriarch of Jerusalem, if he happened to be in Istanbul. During the ruler's reception at the Emperor's Divan one of the Grand Vizier's functionaries would place the *kuka cap* (*kuka, üskiif*) on the ruler's head and dress him with the honorary robe (*kaftan, hi' lat*). The latter, eyes fastened on the floor, would then be admitted for a hearing with the Sultan, who would greet him through the grand vizier, as Christians and commoners were not allowed to look the sultan in the face, and the latter did not speak to them directly. During the hearing, the sultan's grand equerry, the grand Master of the Horse's homologue, 'holds an Arabian horse at the ready at the yard's middle gate, its rein aglitter with gold and gems, covered in a gold and silver harness of Phrygian craftsmanship; to his left, his sword dangles from his saddle and to the right, his mace. Two yedeks, that is two plough boys of the Crown Horse, hold it, while two servants with white fezes on their heads, and as many paiks, house boys clad in golden thread clothes and wearing gilded silver tiaras on their heads in the shape of great chalices' [14]. The grand Vizier greets him, and the ruler leaves the Crown Divan with pomp. The ruler mounts the horse and returns to his mansion, where, after a while, he received the visit of the sultan's grand flag-bearer (*mir-i 'alemaga*), who brings him the ruling flag (*sançak*), the two-tugged flags (*tuğs*) and the *tambulchana*, the Turkish court's military music band [15]. After the flag and its suite left, the band stayed with the ruler until he left Constantinople to play for him daily at sunset. The day after the flag bearer's visit, the vizier sent the ruler the appointment *berat* (*berât-i hümayün*), document without which no Ottoman functionary could act on behalf of the sultan. Before leaving the Empire's capita, the ruler paid a leave-taking visit to the Vizier and other Ottoman officials, such as the *capudan* (commander of the imperial fleet). Those might also gift him with a parade horse. Finally, the ruler prepares to depart. He leaves Istanbul on the horse the sultan has given him (*tablabaşa*), accompanied by the Ottoman clerk appointed to help him settle and by a numerous suite, organized after the Ottoman court's pomp. These ceremonial formalities could last for a week or even more.

What must we remember from such descriptions? During the hearing, the sultan gave the ruler the main insignia of princely authority: the *kuka cap*, the kaftan, the sword, girdle, mace and horse. It is interesting that the sword and mace were not personally handed to the ruler, but hung on the royal horse he rode and placed on the saddle exactly as in the country's blazon, the sword to the left and the mace to the right [16]. The others (the flag and two-tugged flags) were handed to the ruler on the sultan's command to his grand flag-bearer. The most important symbol, the *berat*, was handed last, which was a hint that he should leave the Ottoman capital shortly. The appointment document was written on behalf of the sultan. Thus, *the horse is among the symbols of power that the Ottoman sovereign gave to the rulers of Moldavia and Wallachia on the day of their hearing*. Taking a closer look at our sources, we will soon see that this horse was of purely ceremonial import, no more than a precious gift from the sultan, who did nothing more than observed the court protocol of the Ottoman Turks. The horse cannot be included among the obligatory validation insignia of a new rule which were, according to Viorel Panaite, no more than two or three: the flag, the honorary robe and the diploma (*berât-i hümayün*) [17]. Moreover, the investiture horse was a sign of the ruler's vassalage towards the Ottoman Padishah. The investiture

ceremony had an obvious military connotation as most symbols given by the sultan, including the horse, were weapons or pieces of military equipment. The kuka cap itself was a piece of military ceremony, being worn by the Janissary commanders. This proves that, once invested, the ruler was included – as Dimitrie Cantemir says – in the Janissary corps. Ultimately, it is a classic investiture ceremony, in which the vassal is bestowed the arms pertaining to position given to him by his lord.

It must be mentioned that the Ottoman Turks, like all Nomadic ethnic groups originating from the Euro-Asian steppe, gave the horse a particular importance. The horses that the Ottoman received at their investiture were bedecked in accordance with the position they occupied. In the Ottoman Empire more than anywhere in the world, the richly decorated horse was a precious, well-appreciated gift. Observing the customs of the Ottoman aulic elite, the sultan would give horses upon investiture to the high Ottoman officials, as well as to the Christian leaders from the Empire: the rulers of the Romanian Principalities, the prince of Transylvania, the oecumenical patriarch, the Armenian patriarch and the Hakham Bashi (the religious leader of the Jews). Ghenadios Scholaris, the first oecumenical patriarch appointed after Constantinople was conquered, was invested by sultan Mehmed II Fatih, who gave him a white parade horse. The Byzantine chroniclers report, with awe and admiration, that Ghenadios Scholaris, after exiting the hearing, mounted the horse he received from the sultan and started a procession around Constantinople, although less than a year had passed from the Byzantine capital's conquest [18]. The Russian fashion that the bishop receive a richly bedecked horse upon ordination reached Romanian Principalities, too. As far as the mid-18<sup>th</sup> century, the Moldavian rulers gave bishops the privilege of mounting a 'royal horse on the day of their investiture' [19]. According to logothete Gheorgachi, the newly appointed bishop was first ordained, than summoned for a hearing with the ruler. Upon exiting the hearing he would receive a royal horse to go to the Metropolitan cathedral, where the Turkish music band was sent. This ceremony was similar to that of appointing functionaries in the Ottoman Empire, which highlights the degree to which the etiquette at the Romanian Principalities' courts had become ottomanized in the 17<sup>th</sup> and 18<sup>th</sup> centuries.

Romanian chroniclers mention the horse among the gifts and insignia received from the sultan on behalf of investiture or renewal quite rarely. The first account which explicitly shows that the sultan gave the ruler a beautifully bedecked horse upon investiture dates from the end of the 17<sup>th</sup> century and belongs to a foreigner, Sieur De la Croix [20]. This might mean that the Romanian Principalities' voievodes in the 15<sup>th</sup>-17<sup>th</sup> centuries did not consider the horse as one of the symbols of princely dignity.

We believe that the first rulers to have received a ruling horse from the sultan are to be sought at the beginning of the vassalage relations of the Romanian Principalities with the Ottoman Empire. Thus, Mircea the Elder, Petru Aron or even Stephen the Great might have been among them. In any case, Radu the Fair and Petru Rareș, who were enthroned from Constantinople, received investiture horses from the sultan. In the opposite direction, it is difficult to establish who the last rulers who received them were. According to the sources we have at our disposal, we are certain that Ioniță Sandu Sturdza and Grigore Dimitrie Ghica received, in 1822, on the occasion of the Siliștra investiture, a *tablabașa* [21] each. For the time being, we do not know if this kind of gift was also kept after the changes that the Ottoman court protocol went through in the age of reformation during the third and fourth decades of the 19<sup>th</sup> century.

The royal horse was given both at the enthroning ceremony and at its confirmation, every three years (the great *mukarer*), starting with the 18<sup>th</sup> century it was given yearly (the small *mukarer*). Before the Phanariote period, when the hearing before the sultan was not mandatory for validating the rule, the investiture horse was brought to the Moldavian and Wallachian rulers with the other gifts from the sultan by the Ottoman clerk appointed to invest the new ruler in his position. This also happened in the 18<sup>th</sup> century in two situations: the confirmation of prolonging the rule to three years and one year, but also in the case of moving the ruler from the throne of Wallachia to that of Moldavia or vice versa. The custom did not impose that the rulers in question go all the way to Istanbul for investiture. When the rule was renewed the sultan sent a new set of royal insignia, i.e. another horse, which probably replaced the former as 'foremost in the stable'. One of those testifying to this is R. G. Boscovich who, on 4<sup>th</sup> July 1762, witnessed the reinvestiture ceremony of Grigore I Callimachi after his first ruling year. He recounts that the reception ceremony for the High Porte emissary took place with all the necessary pomp outside Iași, on the Frumoasa plain, somewhere around Ferent's Porch, before a numerous crowd. Two pompous tents were spread here, a circular and a rectangular one, open towards the city. After receiving the royal insignia and reading the firman, says Boscovich, the Porte's emissary presented the ruler with 'a beautiful horse with one of the richest saddle blankets, entirely covered in golden embroideries, with unspeakably rich and beautiful covers, which had also been gifted by the sultan' [22].

The investiture horse also had a privileged position before the other parade horses in the royal stable, which can be seen from the 18<sup>th</sup> century sources when more detailed and numerous historical testimonies on the aulic ceremonies in the Romanian Principalities emerge. We do not believe that the Phanariote rulers, even if they had paid more attention to the symbolism of the gifts given to them by the Ottoman Padishah, paid greater attention to this particular horse than their predecessors. Neither considered the horse an actual symbol of power, the equivalent of the berat, the flag, the two-tugged flags, the kaftan and the kuka cap, but rather a symbol of the generosity and ceremonial benevolence of the High Ottoman Padishah towards them. This might also be the reason why the rulers are but rarely represented on horseback [23]. A mere overview of the 18<sup>th</sup>-19<sup>th</sup> century sources reveals a fascinating reality: the order of ranks in human society was symbolically transposed by the royal court's protocol in the animal world, which could be admired during certain festivities and celebrations organized at the court. In a world of hierarchies and ranks, we must not be surprised that the etiquette imposed a hierarchy of horses, too. All that was directly linked to the sovereign or represented the sovereign came first, including the horse. Logothete Nicolae Suțu, the son of Alexandru Suțu, the previous ruler of Wallachia, writes that the *tablabașa* came first in the royal stables [24].

From all of the court ceremonies, two are extremely revealing for the topic in hand: the ceremony of sprinkling and blessing the riding horses with water on Epiphany day and that of the taking of the horses grazing. Marco Bandini [25] and Paul de Alep [26] recount all the stages of the Epiphany holiday at Vasile Lupu's court step by step. The day's religious service, which started in the court's church, finished at the Bahlui river, in the presence of the ruler and his subjects. The sprinkling of the horses ceremony took place at the end. This is Paul de Alep's account: 'Then the highbred horses were brought, covered in handsome silk saddle blankets embroidered in gold, pearls and gems to a delightful effect. Our Patriarch (Macarie of Antiochia- my note) blessed and sprinkled them with water, one after the other, about twenty of the most beautiful ones [27], each worth several thousand dinars. A black servant riding a small mule and another slave on an ass came at the end to make those present laugh, and the patriarch sprinkled them with water' [28]. Neither Marco Bandini, nor Paul de Alep or other foreign travellers refer to a certain hierarchical order if the horses brought out for the sprinkling; Gheorgachi, however, the author of the ceremonial book of 1762, does. This shows that the whole ceremony underwent under a certain pre-established protocol recorded in the 'royal books'. This suite, in which the royal horse was the main attraction was opened by the drafter horses, continued by the riding horses, steeds (parade horses).

Gheorgachi writes that ‘the bedecked riding horses and the steeds are mounted by the sons of boyars and of the ruler in their taffeta kaftans’. Last is the ‘velMaster of the Horsewearing the royal kaftan on the royal horse called the tablabaş, with a nice suite and the ruler’s footmen around him, as is the custom. And those riding horses as they come towards the ruler they first crossed themselves before the holy icons, then before our lord and the metropolitan as he gave them sprinkled them with holy water [29]. Thus, ‘as is the custom’, i.e. by observing old ceremony norm had had become the custom.

Even more interesting was the ceremony of taking the horses out to graze, which took place in the spring, around St. George’s feast, as soon as the pasture was green [30]. According to some foreign observers and Dionisie Fotino [31], this celebration was copied after a similar manifestation occurring at about the same time of the year at the Ottoman court. Domenico Sestini wrote that it was a ridiculous ceremony through which the Romanian rulers, ‘slaves of the sultan mean to ape the Ottoman court and the Ottoman empire Pashas to be considered, ultimately, of their own’ [32]. Apart from the amusement it generated at the court, the event had a well-defined propagandistic purpose and was used as a means to pay homage to petty officials and royal stable boys. The organizers – the ruler and the Master of the Horse, display a very strict hierarchy of the royal court’s horses, the main objective, obviously, being that of the horse given by the sultan (the tablabaşa). There three important moments in the ceremony:

- 1) The reception of the grand boyars, high clergy and guests at the court. The participants were served, according to the fashion of the time, with tobacco, comfitures and coffee. The Master of the Horse as rewarded for the services brought to his sovereign with a kaftan and substantial financial gratification. Meanwhile, the stable servants prepared the horses for the parade, according to the arrangement made by the ruler in writing a few days before. At the end of the reception at the court, the ruler invited the Master of the Horse to open the ceremony proper. He would take his ishlik and go to the stables;
- 2) The horses’ parade before the crowd gathered at the royal court. This time, all the horses participated, the servants from the royal stables headed by the Master of the Horse, the arnaut and segmen flags, the flag-bearer, the guild of security officials and other officials at the court, together with the military music band. The suite was organized as if it accompanied the ruler, except the royal horse would parade instead (tablabaşa), ridden by the Master of the Horse or led by the bridle by one his aids. Thus, the participants paraded approximately in the following order: the standard bearer, on horseback, carrying the white flag, accompanied by the royal trumpeters, the arnaut and segmen flags on two rows, between which the drafter horses led by the stable boys, the carriage horses (that drew the royal coaches), the povodniks and steeds led by the bridle by the Master of the Horse’s aids and other segments, as arranged by the Hetman, the court’s catchpolls, the second and third Masters of the Horse, the Master of the Horse riding the tablabaşa ‘wearing the kaftan, his horse bedecked in its most beautiful adornments’, the stable hands, cuhadars, the military music of the court, with its deafening clangour of brass instruments and drums.
- 3) The march of the horses continued, but probably not in the same formation, up to the royal pastures on the Bahlui plain, in Iaşi, Cotroceni, or Bucharest. On the plain, the Master of the Horse organized an outdoor feast where the grand boyars and the representatives of the clergy were invited. According to some accounts, before being allowed to roam free on the field, the horses were sprinkled with holy water by a bishop [33].

These two festive events at the court, the one occasioned by the Epiphany holiday and the taking of the horses to the pasture, highlight the symbolic and ceremonial importance of the ceremonial horse in the 18<sup>th</sup> century on the background of excessive ottomanization of ceremonial practices at the courts in Iaşi and Bucharest. The festivity of taking the horses out to graze and the symbolism created to surround it show that the Phanariote rulers emulated the Ottoman court ritual, which they tried to impose at their Romanian Principalities’ courts.

If, up to a certain point, the rulers were frequent riders, the notice that, starting with the second half of the 18<sup>th</sup> century, they start using the carriage more often. Thus, starting with the second half of the 18<sup>th</sup> century, they start entering the capital cities in their carriages, with the investiture horse leading the way (tablabaşa), led by his bridle by one of the Masters of the Horse. The rulers, however, would ride the horse on special occasions: when he left the Ottoman capital, when he went to the court church to be anointed, when he left the court to go to church on certain holidays etc. Longer trips and walks are only taken by carriage starting with the second half of the 18<sup>th</sup> century, as it was a more comfortable means of transportation. The carriage was also used before, but the entrances in the capital were always done on horseback, with the exception when the ruler could not ride due to medical reasons. The Ottoman pashas, too, stop entering Bucharest and Iaşion horseback when they are sent on diplomatic missions, exhibiting the pomp and arrogance of the past, even accepting to ride in the same carriage as the ruler they were visiting [34]. Little by little, the parade horse loses its symbolic importance, leaving room for other symbols that follow the Western fashion which, as modernization took place, became much more seductive even to the traditional and conservative Ottoman court.

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### References

- [1] The article, signed by Ştefan Both, can be read at the following link: [http://adevarul.ro/locale/timisoara/Intrebarea-stupida-cetatenie-romana-cum-numea-calul-Stefan-maren-1\\_558166fecf376e3560a763/index.html](http://adevarul.ro/locale/timisoara/Intrebarea-stupida-cetatenie-romana-cum-numea-calul-Stefan-maren-1_558166fecf376e3560a763/index.html) [last seen on 19<sup>th</sup> November 2015].
- [2] In a recent study, Violeta Barbu considers that research on the recent history of the horse are still ‘in infancy’ even in historiographies of richer tradition (*Calul: între utilitate și distincție*, în Maria-Magdalena Székely (ed.), *Lumea animalelor: realități, reprezentări, simboluri*, Editura Universității „Al. I. Cuza” Iași, 2012, p. 106.
- [3] Biblioteca Academiei Române, Documente istorice, CLXXXVI/37.
- [4] Even when deposed, the monarch was evicted out of the palace on horseback, except that this time, in order to humiliate him, an ass or a jenny was used. The Ottoman sultan Osman II experienced this humiliating treatment in 1622 at the hands of the Janissaries. He was deposed and taken from the Seraglio to Yedi Kule riding a jenny (Dimitrie Cantemir, *Istoria creșterilor și a descresșterilor curții othman[n]ice*, trad. în română de Dan Slușanschi, ed. all-a, Ed. Paideia, București, 2012, p. 165; Miron Costin, *Letopiseșul Țării Moldovei de la Aron vodă încoace*, în idem, *Opere*, ed. critică de P. P. Panaitescu, București, 1958, p. 87). Details v. la Baki Tezcan, *Seaching for Osman: a reassessment of the deponon of the Ottoman Sultan Osman II (1618-1622)*, dissertation, Ph. D. Princeton University, 2001, *passim*.
- [5] For details, see. Radu G. Păun, *Încoronarea în Țara Românească și Moldova în secolul al XVIII-lea. Principii, atitudini, simboluri*, în „Revista de istorie”, V, 1994, 7-8, p. 743-759. For the influence and impact of the Ottoman fashion on the Romanian

- Principalities' elite and aulic environment, see Lazăr Șăineanu, *Influența orientală asupra limbei și culturii române*, vol. I-II, București, 1900.
- [6] Viorel Panaite, *The Legal and Political Status of Wallachia and Moldavia in Relation to the Ottoman Porte*, în Gabor Kármán, Lovro Kunčević (ed.), *The European Tributary States of the Ottoman Empire in the Sixteenth and Seventeenth Centuries*, Brill, 2013, p. 9-42; idem, *Război, pace și comerț în Islam: Țările române și dreptul otoman al popoarelor*, Iași, Polirom, 2013, p. 362-364, 444-446 și *passim*.
- [7] Some of these had Moldavian origins: Mihai Racoviță and his sons, but also Ioan Teodor Calimah his son Grigore and their descendants.
- [8] Th. Thornton, *État actuel de la Turquie*, vol. II, Paris, 1812, p. 480-482; *Călători străini despre Țările Române*, vol. V, editat de Maria Holba, M. M. Alexandrescu-Dersca Bulgaru, Paul Cernovodeanu, Ed. Științifică, București, p. 332.
- [9] Radu G. Păun, *Legitimitate principis: Nicolas Maurocordato ou le savoir du pouvoir*, in *Pouvoirs et mentalités, textes réunis par Laurențiu Vlad, A la mémoire du Professeur Alexandru Dușu*, București, Babel, 1999, p. 89-110). According to N. Iorga, N. Mavrocordat's attempts to introduce the Ottoman court protocol at the Principalities' courts was 'an addition to the etiquette which isolated the ruler'. This displeased the local boyars, who weren't used to behave so formally in the ruler's presence (*Istoriaromânilor*, vol. VII, ed. critică de Sorin Iftimi, București, Ed. Enciclopedică, 2002, p. 14.)
- [10] Viorel Panaite, *Război, pace și comerț în Islam*, p. 372; *Jurnalul mergerei boierilor deputați în Țarigradu*, în Mihai Kogălniceanu (ed.), *Cronicile României sau letopisețele Moldaviei și Valahiei*, vol. III, ediția a 2-a, București, 1874, p. 446-449.
- [11] *Memoriile principelui Nicolae Suțu, mare logofăt al Moldovei 1798-1871*, trad. din franceză de Georgeta Filitti, București, Humanitas, 2013. For the protocol adopted by the Ottoman court at the investiture of the Romanian rulers after the removal of the Janissary regime, see the account of the investitures made in 1849: „Albina Românească”, Supliment la nr. 54, 10 iulie 1849, p. 234-235.
- [12] H. Dj. Siruni, *Domni români la Poarta otomană*, București, 1941.
- [13] *Ibidem*, p. 3-10; Radu G. Păun, *Sur l'investiture des derniers princes phanariotes. Autour d'un document ignoré*, în „Revue des études sud-est européennes”, XXXV, 1997, 1-2, p. 63-76.
- [14] Dimitrie Cantemir, *Descrierea Moldovei*, trad. de Gh. Guțu, București, Ed. Academiei, 1973, p. 167.
- [15] According to Dimitrie Cantemir, the flag-bearer's visit took place before the hearing (*ibidem*).
- [16] *Ibidem*, p. 167.
- [17] Viorel Panaite, *Război, pace și comerț în Islam*, p. 374.
- [18] Steven Runciman, *The Great Church in Captivity*, Cambridge University Press, 2006, p. 190; T. H. Papadopoulos, *Les privilèges du patriarchat oecuménique dans l'Empire Ottoman*, Paris, 1924, p. 51, 172; Tom Papademetriou, *Render unto the Sultan: Power, Authority and the Greek Orthodox Church in the Early Ottoman Centuries*, Oxford University Press, 2015, p. 24, 33
- [19] *Literatura românească de ceremonial: condica lui Gheorgachi*, ed. Dan Simonescu, București, 1939, p. 304.
- [20] *Călători străini despre Țările Române*, vol. VII, îngrijit de Maria Holban, M. M. Alexandrescu-Dersca Bulgaru, Paul Cernovodeanu, București, Ed. Științifică și Enciclopedică, 1980, p. 258.
- [21] *Jurnalul mergerei boierilor deputați în Țarigradu*, p. 448.
- [22] *Călători străini despre Țările Române*, vol. IX, îngrijit de Maria Holban, M. M. Alexandrescu-Dersca Bulgaru, Paul Cernovodeanu, București, Ed. Academiei, 1997, p. 479. In 1820, at the renewal of his rule, Mihail Suțu also received an investiture horse (*Însemnările Androneștilor*, ed. de Ilie Corfus, București, 1947, p. 34).
- [23] Which is why the votive portrait of the Barnovschi monastery in Iași, in which Miron Barnovschi is represented on horseback is so rare.
- [24] *Memoriile Principelui Nicolae Suțu, mare logofăt al Moldovei 1798-1871*, trad. de Georgeta Filitti, București, Humanitas, 2015, p. 65.
- [25] Marco Bandini, *Codex. Vizitarea generală a tuturor Bisericilor Catolice de rit roman din provincia Moldova 1646-1648*, ediție biblică în latină-română, Iași, Ed. Presa Bună, trad. în română de Traian Diaconescu, p. 394.
- [26] *Călători străini despre Țările Române*, vol. VI, Paul de Alep's account. by M. M. Alexandrescu-Dersca Bulgaru, București, Ed. Științifică și Enciclopedică, 1976, p. 117.
- [27] Marco Bandini says there were 24 parade horses (Marco Bandini, *op. cit., loc. cit.*).
- [28] *Călători străini*, VI, *loc. cit.*
- [29] *Literatura românească de ceremonial...*, p. 289.
- [30] The surviving sources imply that the festivity of taking the horses to the field to graze was organized with more pomp in Bicharest rather than Iași. Actually, it seems that the Wallachians were the ones to have introduced it first in the calendar of secular holidays at the Royal Court, after which it was also picked up by the court in Iași. We do not have precise information on when it was first organized and by whom, yet, nor when the Wallachian and Moldavian rulers gave up taking out the horses to the pasture with such pomp. In any case, it seems obvious that evident the festivity did not exist at the time when Dimitrie Cantemir was the ruler of Moldavia, for it would have been mentioned in *Descriptio Moldaviae*. This means that the festivity of taking the horses to the pasture probably entered the use of the Wallachian court during the rule of Nicolae Mavrocordat or perhaps later, and in the case of the Moldavian court, during the rules of Grigore II Ghica, in the fourth decade of the 18th century. For details see our study: Mihai Mîrza, *The taking of the horses to the „ceair”. The meanings of an aulic ceremony in the Romanian Principalities*, în Iulian Boldea (coord.), *Debates on Globalisation: Approaching National Identity through Intercultural Dialogue, Studies in Articles, Section: History and Cultural Mentalities*, Tg. Mureș, „Arhipelag XXI” Press, p. 519-532.
- [31] Dionisie Fotino, *Istoria generală a Daciei sau a Transilvaniei, Țerii Muntenesti și a Moldovei*, trad. din greacă, ed. anastatică, București, Ed. Valahia, 2008 p. 688-670.
- [32] *Călători străini despre Țările Române*, vol. X, partea I, îngrijit de Maria Holban, M. M. Alexandrescu-Dersca Bulgaru, București, Ed. Academiei, 2000, p. 340.
- [33] For details on this court festivity see our article quoted above.
- [34] *Însemnările Androneștilor*, p. 41.

**FUNERARY ART IN ROMANIA DURING CAROL I ERA  
(ETERNITY CEMETERY FROM IASI AND BELLU CEMETERY FROM BUCHAREST)**

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**Abstract**

*This PhD thesis aims to analyze and research the Romanian historiography about the transition to non-livings from Romania during the reign of Carol I. As I say, it will be analyzed the era between the years 1866- 1914, covering both its period times. The first one, as a leader of the country and the second one, the period after his coronation as a king, by the end of his reign. This chosen period, from the reign of Carol I, knows a flowering of Romania, at all levels, along with the construction of the modern Romanian state. It is important to mention the Romanian cultural elite that is born on that time and in which manner is creating trends that will leave its marks, beginning with that time till later, describing the idea of transition to non-being. The research from this paper aims to restore the manner in which it was addressed and considered as a funerary art, with all its specific process and vision about the term death.*

*In first instance will be highlighted the positive changes of the Romanian society and culture of this period, the analysis of the new directions on which is structured the funerary art, as a part of the history, of human Romanian life and as part of the art, in turn, a large flowering on the vision of death.*

*The emphasis is placed on the Bellu Cemetery; it is about the historical foundation, personalities dictionary and documentation about this figures, the art and the architecture of their memorials. In sign of appreciation and respect I pay attention also to the military graves from that time. And I do not forget to pay attention to architects and sculptors, talking about their work, their description and their contribution to funerary art from that period, in relation with the cemetery.*

**Keywords:** *funerary art; Carol I era; Bellu Cemetery; Eternity Cemetery.*

Arta funerară constituie o moștenire a unui neam. Autoarea C. Rafael, în manuscrisul lucrării "Albumul cimitirelor românești" [1], menționează: "Cimitirul - mărturie vie a trecerii oamenilor prin viața pământească". Trecerea oamenilor prin viața pământească, experiențele lor, bucuriile și suferințele acestora, trebuie să rămână întipărite sub formă de artă, adunate laolaltă și cinstite cum se cuvine, pentru a constitui forme de experiență pentru generațiile viitoare, mai ales din punct de vedere cultural. Fără artă funerară, mai ales în condițiile unui popor creștin-ortodox, precum neamul românesc, identitatea noastră s-ar risipi de-a lungul vremii, personalitățile noastre culturale s-ar pierde în negura vremii, locurile lor de veci s-ar da uitării. Atenția cu care aceștia trebuie cinstiți în memoria neamului românesc, trebuie să fie extrem de sporită.

Importanța temei de față reunește atât importanța credinței creștine, cât și importanța formelor pe care arta funerară o capătă, alături de importanța perioadei domniei lui Carol I, a dinastiei monarhice, a ideii benefice de monarhie pentru poporul român, mai ales în condițiile de modernizare pe care Țările Românești le-au cunoscut la acea vreme. Importanța temei mai relevă moștenirea culturală ce poate fi lăsată pentru mai departe, generațiilor viitoare, prin abordarea a trei mari teme: credința ortodoxă, arta funerară în raport cu creștinismul, dimensiunile modernizării și artei în perioada monarhiei (domnia lui Carol I). Tratarea artei funerare în cazul mormintelor personalităților încadrate în perioada studiată se realizează pentru cimitirele Bellu din București și Eternitatea din Iași. Oportunitatea cercetării de față are la bază existența unor studii importante dar izolate, unice în literatura română și în cadrul cercetărilor din domeniul artei funerare. Astfel, George Bezveconi este primul autor al Necropolei Capitale, prin lucrarea cu același nume: "Măsurile necesare pentru ocrotirea monumentelor istorice și de artă din cimitire trebuie luate neîntârziat. Altfel schimbarea aspectului istoric și artistic mai cu seamă a Cimitirului Bellu ar amenința să aducă acest muzeu de sculpturi și arhitecturi la ruină" [2].

Deși Bezveconi a realizat o monografie doar a cimitirului Bellu Ortodox, acesta a reușit o adevărată temă de cercetare, dusă mai departe de Paul Filip, prin splendidul "Panteon Național", ce conferă un album de poze surprinzând arhitectura, mausoleele, criptele, cavourile, sculpturile tuturor mormintelor personalităților ortodoxe și catolice ale cimitirului Bellu. Autoarea C. Rafael, continuă munca celor doi cercetători, prin lucrarea sa în curs de publicare - "Albumul cimitirelor românești", prin care se dorește plasarea accentului pe ilustrații fotografice ale tuturor mormintelor actuale ale cimitirelor din capitală și, continuând, cu cimitirele din întreaga țară. Lucrarea se dorește a fi scrisă pe parcursul a mai multor volume, deținând informații legate de răposați, familiile acestora, detalii de arhitectura și arta funerară. Alte proiecte legate de arta funerară și, în special, legate de cimitirul Bellu sunt realizate de masterandul fotograf Miluță Flueraș, dar și de expertul în case de epocă, Valentin Mandache.

Lucrările și proiectele acestor artiști, cercetători și scriitori, constituie un impuls de continuare a informării și cercetării în acest domeniu, de îmbogățire și dezvoltare a informațiilor deja avute la dispoziție prin operele celor menționați. Tema artei funerare în România nu beneficiază de un grad ridicat de interes sau atenție din partea unei anumite elite culturale a acestei vremi, motiv pentru care lucrările menționate anterior devin unice în acest domeniu. Deși există cazuri izolate ale unor cercetători, artiști fotografi sau scriitori actuali tineri care vin să îmbogățească domeniul cu mai multe informații, consider că încă este loc de contribuții pe tema artei funerare și a conservării în special a cimitirelor ce reprezintă un patrimoniu cultural.

La pictorul, filosoful și scriitorul Emanuele Gennaro, viața nu poate fi înțeleasă dacă nu înțelegi moartea. Cu toate acestea, firea lucrurilor legate de moarte la Gennaro, stau exact contrar adevărului. Moartea nu poate fi înțeleasă decât în punctul în care în conștiința omului este înțeleasă viața și nemurirea sufletului, adică o continuitate neîntreruptă a vieții. La înțelegerea acestui adevăr ortodox, se va asimila și ideea morții, cea dintâi moarte, trupească, asemenea descotorosirii unui veșmânt pătat, în cele mai multe cazuri, urmând așteptarea îmbrăcării unui veșmânt nou, toate la vremea lor. Însă în absența înțelegerii și abordării creștinismului, ca teorie de bază pentru înțelegerea vieții și a morții, moartea devine o enigmă și uneori descifrarea acesteia constă chiar în acceptarea ei, în mod orbește, fără alte explicații definitive.

Autorul român Nicolae Ionescu, în lucrarea sa "Despre viață și moarte", notează 23 de eseuri prin care relevă o bogată experiență de viață, rodul unei deosebit de fertile trăiri psihice. Omul Nicolae Ionescu a cunoscut de-a lungul anilor multe momente grele, a depășit piedici ce păreau pentru alții de netrecut, dar și clipe de mare satisfacție, ce dădeau un sens veridic existenței sale. Deosebit de sensibil și receptiv la tot ce-l înconjoară, trăirile sale sufletești notate sunt deseori ridicate la cote maxime. Lucrarea sa abordează o serie de teme ce au stat permanent în fața omenirii, de la primele sale începuturi și până azi - viața, moartea, universul spiritual al ființei umane, puterea supremă a lui Dumnezeu, etc. Autorul conferă posibilitatea, prin netezirea drumului către aceste teme de adâncă cugetare, să reflectăm cu toții și să ducem mai departe gândul și ideile pornite dintr-o profundă interiorizare [3].

Motto-ul cu care lucrarea sa se deschide este: "Voi muri cu cea mai mare durere în suflet, pentru că în lunga mea viață nu am avut o singură zi în care să fi văzut, cu proprii mei ochi, splendorile lumii, ale naturii și ale versului..."

Scritoarea și pictorița C. Rafael, în lucrarea sa "Tratat de filosofie. Viața, Iubirea, Moartea.", în partea dedicată fenomenului morții, aceasta tratează despărțirea sufletului de trup din perspectiva ortodoxă, așa cum de altfel o face și atunci când vorbește despre viață și iubire. Realizarea și conștientizarea unei legături profunde, primordiale între Dumnezeu și aceste trei fenomene ale sufletului omului - viață, iubire, moarte - sunt descrise și analizate în cel mai profund mod, cu exemple concrete, dar și cu învățături pline de har ale sfinților părinți.

Învățătura Bisericii Ortodoxe învață că moartea reprezintă "despărțirea sufletului de trup" și, odată săvârșită această despărțire, trupul va putezi în pământ. Din punct de vedere biologic, deci, trupul urmează să se descompună în elementele din care a fost format. Ultima menire a omului pe pământ o constituie moartea, despre care Sfânta Scriptură mărturisește: "Și se va întoarce țărâna în pământ, de unde s-a luat și duhul se va întoarce la Dumnezeu, la Cel ce l-a dat pe el" [4]. Omul este răpit de moarte la termenul predestinat de judecata lui Dumnezeu, în vederea îndeplinirii menirii ce îi este impusă, termenul acordat omului de către Dumnezeu conținând tot ceea ce îi folosește omului în viața ce a dus-o, deci moartea constituie un folos omului. Dorind să pătrundă adâncurile scopurilor lui Dumnezeu, Sfântul Antonie cel Mare i-a adresat întrebarea: "Doamne, pentru ce unii mor de tineri, pe când alții ajung la cea mai adâncă bătrânețe?". Răspunul primit de la Dumnezeu a fost: "Antonie, vezi numai de tine! Aceasta este judecata lui Dumnezeu, ce nu ți se cade ție a cunoaște.". Sufletul omului trece, prin hărăzirea lui Dumnezeu, prin trei stări care constituie viața sa veșnică - viața în pântecul mamei, viața pe pământ și viața de dincolo de mormânt.

Pregătirea pentru moarte nu este altceva decât pocăință adevărată. "Mulți oameni, îndeosebi cei ai veacului acestuia, amână pocăința ori până îi lovește boala, ori până vine bătrânețea, ori până vine moartea." [5].

Ugo Foscolo susținea că cimitirele sunt creații ale culturii civilizate a omului, ale descoperirii morții, ale creșterii și ale fricii sale în creștere față de acest sfârșit oribil și incredibil, ale tentativelor sale frenetice de a o amâna, de a o face mai ușoară, de-a o ascunde, acoperi, explica, de-a o justifica, de-a o insera pe un simplu accident într-un șir de existențe ce își urmează una altea, într-o încercare de-a face să continue viața chiar și la cadavru, în a-i construi deasupra piramide, temple, monumente, în a-i păstra amintirea, adorându-l, celebrându-l, etc [6].

Cimitirul, totdeauna privit ca o altfel de lume și așezat mult în afara lumii vii, este de fapt redimensionarea propriilor noastre existențe într-o formă miniaturală care absoarbe ultimele gesturi, gânduri, dorințe. Ca punct final al oricărei existențe, este o completă radiografie miniaturală a lumii vii, radiografie care însoțește fiecare comunitate umană, indiferent de habitatul ei: rural sau urban [7].

Până la amenajarea Cimitirului Bellu, bucureștenii își îngropau morții în cartierele unde locuiau, de obicei în jurul bisericilor. Un obicei care devenise de netolerat de autoritățile locale. „În acele vremuri existau multe epidemii de holeră și ciumă iar mutare cimitirelor în afara orașelor era considerată o prioritate. Chiar eu am găsit în anii '70 aici un mormânt pe care scria: «A nu se deschide niciodată. Această persoană a decedat de ciumă»", povestește Paul Filip, autorul unei monografii a Cimitirului Bellu.

Cum Bucureștiul a ținut întotdeauna pasul cu noul, legiuitorii de atunci hotărăsc desființarea vechilor cimitire de pe lângă bisericile centrale și hotărăsc „Legiuirea pentru înmormantări afară din oraș” care apare în 1831. Legea pentru înmormantări, în afara orașelor a apărut în 1850, când o comisie a luat în discuție și problema creării cimitirului de pe „ulița Șerban Vodă”. La 26 noiembrie 1852, Sfatul Orășenesc hotără începerea lucrărilor pentru amenajarea cimitirului. În ianuarie 1853, se întocmeau deja planurile pentru construcția unei capele pe locul vechii biserici a lui Bellu cel Bătrân (1799-1853) de către arhitectul Alexandru Orescu. Pictorului Lecca i-a revenit sarcina de a zugrăvi interiorul capelei, înzestrată mai apoi cu obiecte de cult [8].

Cimitirul avea să funcționeze legal abia în septembrie 1858, după trei ani de lucrări de amenajare a terenului. Ca urmare a legii din 1831, familiile boierești înstărite și-au mutat osemintele strămoșești în Cimitirul Bellu. Sunt menționate familiile Cantacuzino-Rifoveanu (1863), Scarlat Rosetti (1865), familia Văcărescu care aduce oseminte din sec. al XVI-lea, Florescu, Ghica, Ralet, Filitti, Zefcari, Câmpineanu, Mihăilescu, Barbu Slătineanu care au adus oseminte de la biserica Sf. Ioan cel Mare, de la Mănăstirea Sărarindar și de la alte biserici bucureștene. În prezent, suprafața Cimitirului Bellu este de cca 22 de hectare [9].

În 1859, guvernul interzicea cu desăvârșire înmormantările în capitală. În Monitorul Țării Românești, din aprilie 1860, se anunța amenajarea și altor cimitire în afara barierelor pentru comunitățile israelite, catolice, evanghelice, protestante, calviniste, armenesti, musulmane, un cimitir pentru deținuți, un cimitir al săracilor etc. S-au mai deschis cimitire particulare. Dintr-un raport semnat de un anume doctor Felix, pe la sfârșitul anului 1877, orașul avea 17 cimitire. În 1862, Cimitirul Bellu intra sub autoritatea municipalității capitalei [10].

Cimitirul Bellu este un cimitir din București, România. Este situat la intersecția Șoselelor Giurgiului, Oltenitei, Viilor și Căii Șerban Vodă, mai exact în Piața Eroii Revoluției.

Proprietarul grădinii Bellu a fost ctitorul vechii biserici din deal, cimitirul de pe ulița Șerban Vodă, denumită pe vremuri și <Manăstirea Bellu>. Incontestabil rămâne că numele cimitirului vine de la proprietarul locului.

În spatele uneia dintre cele mai frumoase sculpturi din Cimitirul Bellu, se ascunde povestea de dragoste dintre o guvernantă din înalta societate belgiană și un medic român pe nume Andrei Popovici. Pentru că îi murise soția de tânără lăsând în urmă doi copii orfani de mamă, medicul Popovici a căutat la Paris o guvernantă. Așa a întâlnit-o pe frumoasa Katalina Boschott. Cei doi s-au îndrăgostit și într-o vară și-au luat o vacanță în care să stea singuri. În 1906, au mers împreună la Herculană la băi. Aici Katalina s-a îmbolnăvit de peritonită. A fost transportată la spitalul din Herculană, dar nepricepearea unui medic a făcut ca aceasta să moară pe patul de operație. Iubitul îndurerat a îngropat-o la Bellu dar a ținut secret povestea de dragoste a lor. Asta explică și de ce celebrul sculptor Raffaello Romanelli, întrebat cine a comandat o asemenea statuie pentru o simplă guvernantă, a răspuns: „Un domn cu stare dar care a dorit să rămână anonim”.

Sculptorul a terminat lucrarea înfățișând-o pe Katalina în mărime naturală ținând în mână o umbrelă. Până nu demult pe peretele monumentului era scris cu litere de alamă următorul text în franceză: „Cet animal de médecin m'a tuée!” (Acest animal de medic m-a ucis!) [11].

După anii 90, cel mai frumos cimitir din București a devenit ținta preferată a hoților de cupru, care au furat de la mănere de cripte și blazoane, până la statui metalice de mare tonaj. Criptele erau vandalizate și morții erau scoși pentru a li se fura bijuteriile sau chiar dinții de aur, își amintește cronicarul de la Bellu.

Printre monumentele prădate de hoși se numără și cei patru sfincși ridicăți în cinstea soldatului Victor Ioachimovici, care a murit în Primul Război Mondial, după ce a refuzat să se predea. Fiecare statuie cântărea jumătate de tonă, iar martorii de atunci spun că ar fi fost ridicăte ziua, în amiaza mare, cu o macara, sub ochii paznicilor. Din seria jafurilor nu a scăpat nici mormântul fraților Gheorghieff, bancheri născuți la sud de Dunăre, în Bulgaria, dar refugiați în 1870 în România. La moartea

lor, arhitectul Ion Mincu le-a construit un mausoleu prevăzut cu opt sfetnice de patru metri înălțime, care au dispărut din cimitir în anii '90. Jaful a fost cât pe ce să declanșeze un scandal diplomatic între Bulgaria și România.

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# THE STUDY OF THE RUSSIAN EMPIRE'S WESTERN BORDERLANDS: THE COMPARATIVE APPROACH AS A RECENT TREND IN THE RUSSIAN HISTORIOGRAPHY

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## Abstract

*During the last years, we are confronted with a growing interest in a comparative approach to the history of empires in general and to the different disputed border areas in particular. It is surprising, however, the fact that a small number of historians have done in previous decades to deal with such methodological strategy. So, we should intend that the Russian Empire confronted with dominance challenges and expansion of the legislative and social techniques to control the local elites. All of these efforts inquired some key elements: the enforcement of vertical hierarchy, the mobilization of resources, while the Centre tried to maintain some elements of the traditional order and social balance (in the initial phase of dominance). I would argue that the mental mapping of province – for instance, Bessarabia, is a complex exercise which requires a detailed data set of the geographical classifications. Concerning the realization of the complex comparison between the system of local government of the Bessarabia and these from other borderlands, the historiography from Republic of Moldova neglects the subject. A new type of scholars could be focused by the effective prospect of the features of integration of Bessarabia and Transcaucasia.*

**Keywords:** *comparison, borderland, historiography, patterns, Enlightenment.*

## 1. Introduction

The actual historiographic interest for the regional narratives and the correlation between Centre and Periphery was emerged. For the Russian case, the first explication for this evolution is the fact of the establishing the contacts with the Western historians, who have the necessary qualification to utilize the richest archival material and to analyze it from the methodological point of view [1]. The placement of the Russian history in a larger milieu privileged the gradual departure from traditional approaches (imperialistic one – perspective of the Russian historians; nationalistic one – adopted by the historians from other Post-Soviet States) [2]. The study of the Modern Continental Empires apply, more than in past, the comparative approach [3]. Nevertheless, it is necessary to note that Alfred J. Rieber recognizes that the formula of Marc Bloch remains actual one [4]. Bloch sustained that the comparative method could be a single tool of collection of testimonies for the confirmation of validity of the obtained explanations [5]. Realization of this exercise implies the application of the identical research methods when we make the reference to the process of the province-building of the continental empires.

### *The Formulations of Ideas on the Role of Comparative History*

One of the “patriarchs” of the “New Historiography” of Empires, Andreas Kappeler has proposed to dismiss the overrated conception of highly centralized top-down character of vision, which primarily focus on by belligerent episodes between different ethnic and confessional groups [6]. It is possible to indicate several factors that influence the development of this kind of analyzes.

Alexander Morrison realized a comparison of the imperial methods of one Western Empire – Britain in the India and the Russian Empire to exercise the extended control Asia. So, he argues that “has long proved difficult for historians to make meaningful comparison between the empires” [7].

The understanding of mechanisms of the cores of formation of the Empire is a “conditio sine qua non” for the practical realization of the related-field demarche. I think that it is possible to agree with Remnev who argues that the problem of comparison depends on the evidences of the specific way of communications between Centre and Periphery. The study of the complex dichotomy between Centre and Borderlands and resulting tools like as: institutional structure of the subjects; vertical hierarchies and territorial dynamics is a domain of the geography of power [8]. The Centre reunited those constituent forces or elements which determined the general strategy of development of the Empire. First one, the “heaviest” elements should be reunited in the capital of the State Entity. Second one, the defining of the role or the position of the periphery from the Centre’s vision might have divergent opinions. Alexei Miller argues that the term “region” is conventional one. The motivation for establishment of the symbolical border could be extremely variated. Frequently, the borders of the administrative units didn’t coincide with symbolical frontiers. Alfred J. Rieber defines the frontier like as “ecological system”. The features may be summarized into three groups: 1) military contested space between at least three polities; 2) arena for trading and riding by nomadic and settled populations; 3) a symbolical extended area for clashing between “civilization” and “barbary” [9].

## 2. Bessarabia in the Russian Empire: terms of comparison

Russia’s dominance contributed to the representations of the Bessarabia as land spatially situated between the Western milieu and the classical Orient that were also suspended in time between unrecognizable, ahistorical past and well distinguished, glorious future [10].

The action of cartography of the two compared spaces created by the symbolical geography of power has necessity of a larger acquaintance. If we judge just from geographic prism, we could classify the Bessarabia and Poland in the category of Western Borderlands. The fact that Bessarabia and Poland, like as Finland and Transcaucasia were incorporated during the approximate same time (reign of Alexander I) could be predictable for the comparative type of reasoning. According to LeDonne, the process of entanglements to the borders “was imposed by the enormous increase in the size of the strategic force” [11].

The hypothesis that the assimilation could be applied through different patterns, according to Marc Raeff, in concordance with specific romanticized vision of past, the uniqueness of every society and, for most in Bessarabian case, the respect for legal traditions and issues [12].

The mental mapping of the Bessarabia may represent a complex exercise. The situation is a result of the peculiarities of the process of administrative integration in the inner of the empire. Andrei Cușco and Victor Taki was researched the province based on the factual features of the Western Borderlands and Novorossiya. The evidence of the dichotomy wasn’t provoked by the external reasons, but in especially, by the demographical, economic and cultural disparities between the Southern Part (Budjak Region) and the Northern and Central Part. The Budjak Steppe was similar with Novorossiya, an Enlightened Project promoted by the Empress Catherine the Great and Potemkin-Tavriceskiy during 1760s and 1770s.

Concerning the realization of the complex comparison between the system of local government of the Bessarabia and these from other borderlands, the historiography from Republic of Moldova neglects the subject. From this point of view, this tendency represented a prolongation of the historiography from MSSR [13]. Towards this matter, some authors from Russia identified the similarities between the autonomy of Bessarabia and self-government forms from Poland and Finland. Some scholars like as I. Andreievskii referred to the peculiarities of the practical systems of the Western and Southern Provinces of the empire.

A new type of scholars could be focused by the effective prospect of the features of integration of Bessarabia and Transcaucasia. For example, this kind of demarche may have origins in the similarities of economical functions (e.g. identical agricultural specializations). The most spectacular part is consisted of the mental and cognitive representations of the Russian observers/travelers. Memoirs and travelogues created another sort of sensorial and cognitive perceptions of the particular space, which could classify thereby Meridional, Pontic Sphere. Philipp F. Vigel quoted that zone wasn't attractive in the eyes of the Russian functionaries sent there. In fact, they supposed that Bessarabia is a neighbor of Georgia [14]. Pavel Shabel'skii – the author of a brief description of the Bessarabia, launched a comparison between two spaces. The observer suggested the clear advantages offered by a region with "fertile soils, benevolent air, healthy climate, the abundance of southern fruits [...]", lived by "the good, peaceful and shy Moldovans" in comparison with Caucasian Territory, Eastern Iberia and Colchis, neighboring "hostile and predators people" [15]. Other diaries presented a collective portrait of the people with similar characteristics with those from the Transcaucasia: "just Moldovans have a little contribution to the general abnegation: they remained satisfied with horrible houses, harmonized with half-Asiatic costumes and half-Muslim traditions" [16]. This summary could be completed with analyze of travel itineraries. Other sources have signalized a collective portrait of the people who have similar features with Caucasian nationalities.

A relevant example that could indicate the "orientalization" of the province in the cognitive perceptions could serve the travelogue of the Russian officer, A. I. Mikhailovskii-Danilevskii - *Puteshestvie s imperatorem Aleksandrom I po iujnoi Rossii v 1818-m godu*. The symbolism of these travels was amplified by the impresses about the visit of the Poland, a more developed region in comparison with Russia. These observations relieved a big contrast between Western and Southern Borderlands [17]. According to Alexander I's aide-du-champs A. I. Mikhailovskii-Danilevskii, the Bessarabia belonged to Europe just from geographic reasons. Crossed the Dniester River, the adjutant of the tsar observed that the portrait of the veritable "terra incognita" was dominated by the image of the mosques instead of churches. He saw that the Moldavians haven't talked in the Russian or Polish language like as in the west of empire.

Another memoir realized by the small-graded bureaucrat, N. Turovskii, presented a similar image. The scope of the travel was the checking of the financial condition of these regions. He started the inspection from the imperial capital. After that, he stopped in Moscow, the former capital of the Great Dukes of Russia. Turovskii did an inspection of the Caucasian region, Crimea and New Russia. The diary contained not the statistical data about the financial or demographic stare, but personal impressions about the features of the people [18].

### 3. Conclusions

The incorporation of the Southern and Western Territories imposed the similar spectrum of difficulties in its administration. First of all, the ability to fix it was influenced by the persistence of social and ethnic factors. The "privileged" borderlands: Poland and Finland represented a domain of interest for the realization a large reforms and, in this manner, can be researched the field for the extension in the entire empire. In the Bessarabia and Transcaucasia, the intensity of processes was more reduced. Here on southern provinces, the experiment was conducted in dependence of local conditions. We know with certainty that the models of administration in the Pontic Zone couldn't pretend to be special for the empire. More than that, the policy was conducted to extirpate the realities named as "oriental" and, implicitly, "barbarian". The finality of the reforms from these provinces were more clear, because these all served like as usual space for "acculturation".

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[The 1828 Statute of Bessarabia Region. The Liquidation of Autonomy], in Idem, Труды по истории Молдавии [The Papers of History of Moldavia] (Chişinău: Ştiinţa, 1982), 208-209. Lucia Argint exposed, in some passages, similar ideas about the differences between those territories, but extrapolating it to the inefficiency of local boyars from Bessarabia in the administrative system. See, Lucia Argint, "Reflexii istoriografice asupra lichidării autonomiei regiunii Basarabia la 1828 și manifestările nobilimii locale", in *Revista de Istorie a Moldovei*, Vol. 4, No. 4 (2009): 85-97.

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## CULTURAL TRANSFERS: THE ACADEMIC PEREGRINATION OF TRANSYLVANIAN STUDENTS AT THE EUROPEAN UNIVERSITIES FROM THE 13<sup>TH</sup> TO THE 19<sup>TH</sup> CENTURY

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### Abstract

The first young Transylvanians to study in Europe are registered starting with the 13<sup>th</sup> century concurrently with the creation of the first universities. At first, due to the ethnical and denominational connections it was only the Germans and the Hungarians those who were studying abroad, the Romanians students being registered only from the 15<sup>th</sup> century. Tens of thousands of young people attending the Central and Western universities have disseminated for hundreds of years the religious, cultural and political trends of Europe in Transylvania. A great part of the political and religious protagonists of Transylvania came from those students educated abroad. They represented the cultural and religious liaison between Transylvania and Western Europe.

**Keywords:** Transylvania, intellectuals, universities, cultural transfers.

### Secolele XV-XVIII

Una din cele mai cunoscute teorii despre intelectuali, consideră că ei reprezintă categoria socială care produce cultură (scriitori, poeți, artiști), care transmite cultură (profesorii, instituțiile de cultură) și cei care trăiesc prin cultură, sau sunt, prin excelență, un produs al culturii [1]. Prin urmare, atunci când ne referim la intelectuali îi avem în vedere pe savanți, oameni de litere, profesori, jurnaliști, artiști, medici, avocați, membrii ai clerului, în funcție de regiuni și conjuncturi [2].

Pornind de la o asemenea definiție care încearcă să surprindă profilul social al intelectualului, istoria intelectualității a devenit o temă distinctă în cercetarea istorică din Europa. În Franța istoria intelectualității reprezintă o direcție de cercetare foarte bine ilustrată, mai ales prin cercetările istoricului Christophe Charle [3], în Anglia prin Harold Perkin [4], în Germania sunt bine cunoscute cercetările grupului de la Bielefeld, în care s-a remarcat Jürgen Kocka [5], în Elveția cercetările lui Albert Tanner [6]. Deosebit de prolifică s-au dovedit cercetările privind formarea intelectualității din spațiul fostului Regat al Ungariei, susținute la Budapesta sub coordonarea profesorului Szögi Laszlo, dedicate în primul rând frecventării universităților străine [7]. În același registru tematic, al frecventării universităților se înscriu și studiile cercetătorilor Varga Julia [8], Slavikovsky Beáta [9] și Patyi Gábor [1] ș.a.

În ultimii douăzeci de ani, istoria intelectualității a devenit o temă distinctă și în cercetarea istorică din România. Istoriografia românească a cercetat istoria intelectualității mai ales din perspectiva formării sale universitare, pornind de la premisa că intelectualii au fost personajul principal al istoriei în epoca modernă. Ei au stat la baza restructurării clasei politice și a formării sistemului instituțional, ei au fost principalii vectori ai transferurilor valorilor societății moderne în România. Astfel, fenomenul frecventării universităților străine a fost evidențiat prin mai vechile studii semnate de Veress Endre [11] și D.C. Amzăr [12], iar mai recent de către Tonk Sándor [13], Costin Feneșan [14], Ioan Chiorean [15], Nicolae Bocșan și Nicolae Bărbuță [16], Dan Berindei [17], Elena Siupur [18], Cornel Sigmirean [19], Stelian Mândruț [20], Laurențiu Vlad [21], Florea Ioncioaia [22], Simon Zsolt [23], Lucian Nastasă [24], Szabó Miklós [25], Alexandru Zub [26].

Reconstituirile istoriografice oferă posibilitatea proiectării unui tablou cuprinzător asupra geografiei universitare de formare a intelectualității românești în epoca modernă.

Istoria frecventării universităților europene în cazul românilor a început în secolul al XV-lea. Numele îl indică drept român pe Johannes Wolahus de Welenis (de Beiuș), care în 1424 studia la Universitatea din Viena [27]. De asemenea, luând în considerare originea etnică, îl putem aminti și pe Nicolaus Olahus, care a studiat la Paris în prima jumătate a secolului al XV-lea. De numele său se leagă formarea Academiei Iezuite de la Tirnavia (Nagyszombat, 1554), considerată de unii drept prima universitate din Regatul Ungariei. Istoriografia română reține printre primii români care au studiat la universitățile din Europa pe membrii familiei de Ciula: Ștefan Ciula, care a studiat în 1445 la Cracovia, și respectiv Ioan de Ciula, care a studiat la aceeași universitate în anii 1492-1494. Un alt membru al familiei Ciula, Filip More de Ciula, mai târziu secretar regal, diplomat și episcop de Pécs, a studiat la Bologna între anii 1491-1500 [28]. Un alt nobil de origine română, Gheorghe Păclizaru, a studiat artele liberale la Universitatea din Cracovia în anul 1494. Pe un asemenea raționament, al originii etnice, se pot reține și alte nume, Gheorghe Bona Sibianul, nepotul lui Nicolae Olahus, care între anii 1552-1559 a studiat la Padova. Alți doi nepoți ai marelui umanist Olahus, Sebastian Liszt și Nicolaus Wolf, au studiat la Viena, în 1555.

Lista românilor din Transilvania care au studiat în Evul Mediu la universitățile din Europa Centrală și de Vest îi mai cuprinde pe Jayzi Jacobus Valachus (la 1592), potrivit numelui din matricolă, Ladislaus Puskarius (1596-1597), Talian Paulus Valachus (1602), Gabriel Ivuly Valachus (1640-1642) [29] - la Universitatea din Grac; Stephanus Georgius Buitul (1619) la Viena și la Roma, Franciscus Potschi teologia în (1688) [30] la Viena; Mihai Halici („Valachus Poeta”) la Universitatea din Basel (1674) și la Universitatea din Leiden (1679) [31] și pe Matei Talabă (1696) la Universitatea din Frankfurt pe Oder [32].

Sigur, până la 1700 puțini români au studiat la universitățile din Europa, mai ales raportat la ceea ce a reprezentat fenomenul „peregrinației academice” în cazul germanilor și maghiarilor. Între anii 1184-1520 din Transilvania au studiat la universitățile europene circa 2494 de tineri [33], iar între anii 1521-1700 sunt consemnați 2854 de transilvăneni [34]. Probabil printre cei 5348 de tineri originari din Transilvania care în decursul Evului Mediu au studiat la universitățile din Vest sau aflat și alți români, în afara celor menționați mai sus, dar stabilirea identității etnice a studenților pentru perioada anterioară secolului al XIX-lea reprezintă o încercare extrem de dificilă. Numele de familie nu este întotdeauna suficient de elocvent pentru stabilirea identității etnice. Matricolele menționează, doar originea geografică a studentului, din „Transilvania” sau „Ungaria”. De abia în secolul al XIX-lea documentele școlare fac referire la limba maternă a studentului, eventual la naționalitatea sau religia acestuia, menționi care ne pot ajuta în identificarea celor care au fost români. Ca urmare, orice încercare de prezentare exhaustivă a listei cu românii care au studiat în Evul Mediu la universitățile din Europa, până la 1700, este extrem de greu de realizat, istoricul asumându-și de la început eventualele erori. Un fapt, însă, este cert, și anume că numărul românilor care au studiat la universități până în epoca modernă a fost

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foarte mic. Împărțind religia ortodoxă, românii nu au beneficiat, precum germanii sau maghiarii, de facilitățile oferite de apartenența religioasă la catolicism, calvinism, luteranism sau la religia unitariană pentru a frecventa universitățile europene.

Momentul care a deschis în mod constant legăturile românilor cu universitățile din Europa a fost unirea religioasă cu Roma de la sfârșitul secolului al XVII-lea. Atașamentul clerului față de Biserica greco-catolică, rezultată din unirea religioasă, se putea obține prin educație, prin cultură. Astfel, prin actele unirii religioase s-a promis trimiterea de tineri români la instituțiile de învățământ de la Roma, Timnavia și Viena. Dar trimiterea de tineri români la universitățile din Europa Centrală s-a amânat. În schimb, s-a deschis pentru români accesul în colegiile catolice de la Cluj, Alba Iulia, Târgu-Mureș, Brașov, Bistrița. De exemplu, în anul 1703, la Colegiul Iezuit „Sf. Iosif” din Cluj învățau 45 de elevi români, proveniți din pătura subțire a nobilimii românești din Transilvania [35]. La Gimnaziul Catolic din Bistrița, între anii 1729-1799, au studiat peste 565 de români, fii de nobili, de preoți, de militari, negustori și chiar de țărani liberi, iobagi și jeleri.

În primii ani după realizarea unirii religioase, la studii în afara Transilvaniei a reușit să plece doar viitorul episcop Ioan Giurgiu Patachi, care a studiat la *Pazmaneum*, la Viena, între anii 1703-1705 și apoi la Roma, la Colegiul Germanico-Hungaricum. La 16 august 1710 și-a susținut doctoratul în teologie, la Universitatea Gregoriană [36].

Trimiterea constantă de tineri în colegiile și universitățile din imperiu și de la Roma se va derula începând cu deceniul trei al secolului al XVIII-lea. Inițial, s-au trimis cu burse din Fundația „Janiana”, la institutele catolice din actuala Slovacie, la Colegiul „Sanctus Adalbertus” și la Universitatea Catolică din Timnavia, la Seminarium Generale din Bratislava și la Colegiul „Domus Probationis” din Trenčín [37]. Dintre cei care au studiat la școlile din Slovacia se va recruta o bună parte din elita Blajului din secolul al XVIII-lea: viitorii episcopi Inocenție Micu Klein, Petru Pavel Aron, Grigore Maior și Ioan Bob, viitorul vicar general episcopal Gherontie Cotore (autorul cărții *Despre schismaticia grecilor*, în care identifică declinul românilor în Evul Mediu prin părăsirea de către ei a Bisericii Apusului în favoarea Ortodoxiei răsăritene), Ioan Neagoe (profesor la Blaj), M. Neagoe, Ioan Șincai (fratele lui Gheorghe Șincai), Epifaniu Birtak, Ioan Erdely ș.a. Trei dintre cei amintiți mai sus, G. Cotore, P. P. Aron și Ioan Șincai au studiat și la Universitatea Catolică de la Timnava (Nagyszombat), universitate fondată în ambianța Reformei catolice, la 16 mai 1635, de către arhiepiscopul de Esztergom, Pázmány Péter [38].

În a doua jumătate a secolului al XVIII-lea se înregistrează tot mai mulți români de religie greco-catolică la instituțiile de învățământ de la Viena. Cei mai mulți studiază în Colegiul *Pazmaneum*, instituție de învățământ creată în 1623 de către arhiepiscopul Pázmány Péter pentru pregătirea tinerilor catolici din Transilvania [39]. La *Pazmaneum* au studiat Petru Pavel Aron, Ștefan Pop, Simion Bran, Samuil Micu, Ioan Pamfilu, Basiliu Andrika, ș.a. Ca interni în Colegiu, unii dintre ei au frecventat și cursurile Universității din Viena, unde se presupune, de exemplu, că viitorul cărturar Samuil Micu a luat contact cu lucrările precursorilor Aufklerungului austriac, Ch. Thomasius, Chr. Wolff, S. Pufendorf, Chr. Baumeister, cu ideile novatoare ale bisericii catolice, jansenismul și galicanismul [40]. O nouă șansă pentru studii la Viena în cazul românilor s-a oferit prin deschiderea Seminarului de la „Sancta Barbara” (*Collegium Gaeco-Catholicum ad Sanctum Barbaram*). La 24 iulie 1773, Papa Clement al XIV-lea a emis Bula papală prin care era desființat Ordinul iezuit. În vechea clădire a iezuiților, la 15 octombrie 1775 s-a deschis Seminarul „Sancta Barbara” („Barbareum”), în care urmau să fie primiți tineri greco-catolici din diocesele de Făgăraș, Oradea, Muncaci, din Croația și Galiția. Între anii 1775 și 1784, când împăratul a hotărât închiderea seminariilor teologice, la „Barbareum” au studiat 41 de români [41]. Petru Maior, el însuși intern la Sf. Barbara, evaluând rolul Seminarului în formarea elitelor clericale românești, nota: „De acolo au început între români a se înmulți preoții cei învățați și iscușiți” [42].

Indiscutabil, în plan cultural și național, cele mai importante urmări ale unirii religioase au fost legate de întâlnirea cu Roma. Eugen Lovinescu în *Istoria civilizației române moderne*, dezvoltând teoria sincronismului, referindu-se la unirea religioasă afirma: „E aproape de prisos să mai amintim că, din punct de vedere cultural, întregul veac al XVIII-lea este dominat de actul unirii unei părți a românilor din Ardeal cu biserica latină. Oricât de înșelate ar fi fost speranțele politice puse în acest act și oricare ar fi fost jocul diplomatic al Austriei în Transilvania, importanța lui culturală domină întreaga chestiune a unirii: prin contactul cu însăși obârșia neamului nostru, cu Roma, ni s-a întărit conștiința națională” [43].

Inițiativa trimerii de bursieri la Roma i-a aparținut episcopului Inocenție Micu Klein. În anul 1736 episcopul a reușit să schimbe vechii domenii episcopale de la Gherla și Sâmbăta de Jos cu domeniul și castelul de la Blaj, pe care obținea venituri mai mari. Din aceste venituri, 972 de florini i-a destinat pentru burse de studii la Roma. Astfel, în 1739, au plecat la Roma, la studii în *Colegiul Urban de Propaganda Fide*, Petru Pavel Aron, Grigore Maior și Silvestri Caliani [44]. În total, pe parcursul secolului al XVIII-lea au studiat la Roma, în universitățile *Gregoriana* și *Urbaniana*, circa 23 de români, proveniți atât din Episcopia de Blaj, cât și din Episcopia de Oradea [45]. Printre ei s-au numărat Gheorghe Șincai și Petru Maior.

Un alt centru universitar de formare a elitei românești în secolul al XVIII-lea l-a reprezentat orașul Lemberg, unde după închiderea seminariilor diecesane au fost mutați alumnii de la Sfânta Barbara și de la Seminarul din Blaj. Potrivit lui Ioan Monorai, student la Lemberg la sfârșitul secolului al XVIII-lea, în timpul studiilor sale acolo erau „ca la cincizeci de feciori români” [46].

Evident, formarea intelectualității românești în secolul al XVIII-lea a stat sub semnul unirii religioase, care a înlesnit apariția unei pătri instruite de români în colegiile catolice din Transilvania și din alte centre școlare ale Austriei și de la Roma. Unirea religioasă și politica Vienei a înlesnit accesul românilor în funcții publice și formarea în secolul al XVIII-lea a unei elite administrative românești. Încă din 1744, Curtea de la Viena a impus Dietei Transilvaniei aprobarea unui articol de lege care acorda nobililor greco-catolici dreptul de a accede în burocrăția provinciei, la nivelul administrației inferioare, al Guberniului și al comitatelor. În 1767 s-a anulat orice restricție în ocuparea funcțiilor administrative. În 1768, din cele 2050 de funcții administrative din Principatul Transilvaniei, aproximativ 200 erau ocupate de români [47].

Spre sfârșitul secolului al XVIII-lea se înregistrează la universități și primii intelectuali proveniți din rândul comunității de români ortodocși: Ioan Molnar Piuaru, George Lazăr, Paul Iorgovici – formați la Universitatea din Viena.

Prin contactul realizat cu cultura europeană a secolului al XVIII-lea, intelectualii români, majoritatea de religie greco-catolică, au pregătit intrarea românilor în veacul al XIX-lea, au prefigurat epoca modernă în istoria românilor, au furnizat prin opera învățaților Școlii Ardelene fundamentele ideologice ale mișcării naționale, prefigurând drumurile ideatice ale regăsirii de sine ca popor. Construcția națiunii la români s-a fundamentat la nivelul elitei pe ideea că afirmarea identității naționale este dependentă de dezvoltarea culturii naționale, de educație și instruire, de păstrarea și dezvoltarea limbii naționale. Școala a devenit o prioritate pentru români, ca de altfel pentru toate națiunile din aria Europei Centrale. Istoricul literar Virgil Nemoianu atribuie, de altfel, etosului instruirii un rol central în crearea societății moderne în spațiul Europei Centrale [48].

### Formarea intelectualității românești în prima jumătate a secolului al XIX-lea

Secolul al XIX-lea a stat sub semnul trecerii de la vechea societate a ordinelor, dominată de valorile aristocratice și ierarhii dictate de mărimea proprietăților la o societate mai fluidă, guvernată de valori burgheze [49]. Expresia noului model de societate o reprezintă dezvoltarea învățământului, devenit o prioritate în politica statului austriac încă din secolul al XVIII-lea. După desființarea ordinului iezuit, la 1773, reformele Vienei, prin cele două legi, *Ratio Educationis* (1777) și *Norma Regia* (1785), produc o restructurare a învățământului, prin crearea unor instituții de învățământ moderne.

La români, școala a rămas în continuare sub protecția confesională a bisericii. Pe lângă școlile de la Blaj, înființate la 1747, au luat ființă școli în zona regimentelor de graniță, de la Năsăud și Orlat, spre sfârșitul secolului al XVIII-lea s-au înființat cursuri speciale pentru pregătirea învățătorilor. După reînființarea Episcopiei Ortodoxe, se întemeiază numeroase școli, la începutul secolului al XIX-lea fiind menționate 125 de școli confesionale ortodoxe. În Banat, o statistică amintește de existența a peste 360 de școli la sfârșitul secolului al XVIII-lea.

Cu toate acestea, învățământul românesc continuă să înregistreze mari diferențe față de cel german și maghiar. O mare parte a elitei intelectuale românești s-a format în colegiile și academiile de drept catolice, reformate și luterane din Transilvania, de la Cluj, Oradea, Sibiu, Târgu-Mureș, Alba Iulia, Sighetul Marmației ș.a.

La Cluj, în prima jumătate a secolului al XIX-lea funcționau trei colegii superioare: Liceul Piarist, Colegiul Reformat și Gimnaziul Unitarian. Românii, majoritatea, s-au înscris la Liceul Piarist, instituție care se revendica din vechea universitatea creată de principele Báthory la 1581. Redeschisă la 1694, a funcționat sub denumirea de *Collegium Claudiopolitanum* sau *Academia Claudiopolitana* [50]. În anul 1753, Colegiul a fost ridicat la rang de *Colegiu Academic Universitar*. Elita catolică a societății transilvănene a sperat în transformarea Colegiului în universitate. Reformații, la rândul lor, au încercat să întemeieze o universitate reformată. De asemenea, sașii au dorit să întemeieze și ei o universitate germană. Dar, la 1784, împăratul Iosif al II-lea a retrogradat colegiul catolic din Cluj la nivelul de liceu. Astfel, el a funcționat sub denumirea de *Liceul Piarist*. În cadrul lui erau trei catedre: Filozofie, Drept (din 1774) și Medicină (din 1775). La Catedra de Medicină a funcționat ca profesor și medicul oculist român Ioan Molnar Piuaru, iar la sfârșitul secolului al XVIII-lea a predat la Facultatea de Drept, profesorul român Ladislau Vaida de Glod.

Potrivit istoricului Tonk Sándor, între anii 1794-1848, la Liceul Pianist din Cluj au studiat în total, inclusiv la clasele inferioare, 1961 de români [51]. Clasele superioare, de filosofie, drept și medicină au fost frecventate de circa 640 de români. Printre ei s-au numărat George Lazăr, George Barițiu, Ioan Maiorescu, Vasile Popp, vicepreședinte al Guvernului, președinte al Curiei Regale și președinte al ASTRA, Alexandru Papiu Ilarian, Aron Pumnul, Avram Iancu, ș.a.

Un număr relativ mare de români, circa 318, mai ales din părțile de Vest, din Partium, au urmat studii la Academia de Drept din Oradea [52]. Se înregistrează prezențe de elevi români la gimnaziile și colegiile confesionale de la Sibiu (catolic), Satu Mare (catolic), unde, de exemplu, în 1814 erau 9 elevi greco-catolici, iar în 1830 erau 7 elevi, la clasa de filozofie în 1809 erau declarați „valachus” 9 elevi [53], la Academia Reformată de Drept de la Sighetul Marmației [54], la Bistrița (catolic), Aiud (reformat), Târgu-Mureș (catolic), Cristuru Secuiesc (unitarian), etc. Un rol important l-au avut în formarea intelectualității românești *Academia de Drept* de la Sibiu și *Liceul Catolic* de la Timișoara. Instituția cu rol central în formarea intelectualității ecleziastice românești l-a avut Blajul. Între anii 1806-1850 la Blaj au urmat studii teologice circa 782 de elevi, viitorii preoți ai Episcopiei de Alba Iulia și Făgăraș [55].

Prima jumătate a secolului al XIX-lea înregistrează o creștere semnificativă a românilor care studiază în afara spațiului Transilvaniei și Banatului. De asemenea, are loc o diversificare a opțiunilor profesionale față de veacul al XVIII-lea, dominat de intelectualitatea ecleziastică greco-catolică. După reînființarea Episcopiei Ortodoxe se promovează trimiterea de tineri la studii superioare la Pesta și la Viena. S-au creat fundații și fonduri de burse, atât greco-catolice cât și ortodoxe, pentru susținerea tinerilor la studii. În anul 1802, episcopul greco-catolic Ioan Bob a pus bazele unei fundații din care se acordau burse pentru studii în gimnaziile catolice de la Alba Iulia, Cluj și Târgu-Mureș [56]. Petru Maior, Martin Micu și Petru Munean au creat fundații administrate de Biserica Greco-Catolică. Dintre toate inițiativele dedicate creerii de fonduri pentru burse, se detașează *Fundația Romanțai (Romantzei)*, creată de medicul Simion Romontzei, care și-a testamentat întreaga avere, de 45.000 de florini, pentru burse pe seama tinerilor greco-catolici, care să studieze filosofia, dreptul, medicina, pictura, arhitectura și silvicultura [57]. În valoare de 300 de florini anual, bursa se atribuia acelor tineri care absolveau liceul cu calificativul „eminent” și cunoștea foarte bine limba germană. Reînnoirea bursei la începutul fiecărui an universitar era condiționată de clasificarea bursierului între primii din anul său de studii. Fundația Romanțai se va dovedi, astfel, un important suport financiar pentru studii la universitățile din Europa. Biserica Ortodoxă Română, mai puțin favorizată de autoritățile din Imperiul habsburgic, crează în prima jumătate a secolului al XIX-lea primele burse pentru studii universitare din *Fondul Sidoxial* [58]. Cu o asemenea bursă a studiat la Viena George Lazăr. Un fond pentru burse de studii, în valoare de 10.000 de florini, a creat în anul 1832 episcopul Vasile Moga, în contul căruia în 1835 a mai adăugat 30.000 de florini [59].

După modelul celor două biserici, greco-catolică și ortodoxă, se creează fonduri pentru burse de către comunitățile orășenești. Astfel, comunitatea românească din Brașov, care număra un număr mare de comercianți, a creat un fond din care se susținea un tânăr pe întreaga perioadă a studiilor la facultatea de drept, cu condiția ca după absolvire să-i apere interesele [60]. La 1837, românii din Rășinari au creat un fond de 2000 de florini pentru ajutorarea tinerilor care urmau studii superioare [61].

Toți acești pași timizi făcuți de români în ideea formării unei pătri înstruite de intelectuali au reprezentat modalități de sincronizare cu fenomenul cultural european al primei jumătăți a secolului al XIX-lea. Peste tot în Europa are loc o creștere a numărului de universități și de studenți, în paralel constatându-se declinul unor profesii considerate învechite (armata, carierele ecleziastice) și ascendența pe care-l câștigă profesiile juridice, ingineria, medicina, etc. Ca număr de studenți în prima jumătate a secolului al XIX-lea, în Franța se înregistrează circa 7.400, la 1830, în Spania 9.867 la 1826, la care se mai adaugă 3.810 elevi de la gimnaziile care funcționau pe lângă universități. În Rusia între 1836 și 1847 a avut loc o dublare a numărului de studenți, de la 2000 la 4000. Italia se estimează că avea aproximativ 5000 de studenți. Românii din Transilvania, cu toate că nu dispuneau de o instituție învățământ universitar în limba maternă (o vor revendica doar la 1848), față de secolul al XVIII-lea înregistrează o creștere semnificativă a numărului de studenți. Principalele centre de formare a intelectualității românești din afara Transilvaniei sunt Viena și Pesta. La *Universitatea din Viena* între anii 1801-1850 au studiat 81 de români, din care 46 la teologie, 19 la medicină, 13 la drept și 3 la filosofie. În spațiul german al Austriei, în prima jumătate a secolului se înregistrează români la următoarele instituții de învățământ: Universitatea Tehnică din Viena (circa 15), Institutul de Medicină Veterinară (3), Academia de Arte Frumoase (13), Institutul de Teologie „Augustineum” din Viena (5), Academia Militară de la Wiener Neustadt (20), Academia de Inginerie Militară (7), Universitatea din Lemberg (2), Universitatea din Zagreb (2). În total, la instituțiile de învățământ din Austria între anii 1801-1850 au studiat 148 de români. Printre ei s-au numărat Moise Nicoară, Constantin Alutan, Ioan Vancea (viitorul mitropolit greco-

catolic), Aron Pumnul (profesor), Iosif Hodoș, Al. Papiu Ilarian ș.a. Numărul cel mai mare se înregistrează la teologie. Deosebit de spectaculoasă este creșterea numărului celor care studiază la academiile militare. Armata, cariera militară a fost rezervată multă vreme aristocrației. Odată cu faimosul ordin dat de Maria Tereza, cariera militară a devenit accesibilă inclusiv tinerilor proveniți din structurile de jos ale societății. La Academia Militară de la Wiener Neustadt, înființată de Maria Tereza la 14 martie 1769, erau primiți tineri dotați intelectual, provenind din familii care au servit cel puțin 20 de ani în armata austriacă și au dovedit loialitate în timpul serviciului față de împărat [62]. Pentru români, șansa au reprezentat-o regimurile de graniță, create între anii 1762-1770. Astfel, din rândul grănicerilor, de la Năsăud, Orlat și din Banat, s-au selecționat 27 de tineri care au urmat academiile militare, unii dintre ei ajungând până la gradul de general [63].

În afara Imperiului se înregistrează doar 3 studenți români, la Jena, la Padova și la Roma.

A crescut, însă, numărul celor care au studiat la Universitatea din Pesta și la academii de drept, de agricultură și silvicultură din Ungaria. Pe baza reconstituirilor dedicate frecvenței instituțiilor de învățământ din Ungaria (aici fiind incluse și cele din Slovacia de astăzi) rezultă că în prima jumătate a secolului al XIX-lea ele au fost frecventate de 112 români. Dintre ei, peste jumătate, 63 de studenți au urmat studii la *Universitatea din Pesta*.

În total, în perioada 1801-1850, cumulând atât elevii de la colegiile și gimnaziile superioare din Transilvania, cât și pe studenții de la institutele de învățământ din Ungaria și Austria, Germania și Italia, rezultă un număr de 2041 de studenți români. Sigur, la acest număr de licențiați se adaugă elevii de la gimnaziile și colegiile de la Satu Mare, Bistrița, Sibiu, Brașov, Timișoara etc. și de la cursurile de preoți, de la Sibiu, Arad, de la Seminarul Catolic din Oradea și din alte instituții, în cazul cărora nu avem încă date concrete. De exemplu, de la Ungvár (Ujgorod), unde în 1787 erau înregistrați 14 alumni români.

În preajma revoluției de la 1848, potrivit estimărilor istoricului Ladislau Gyémánt, în Transilvania și în părțile apusene ale ei, pătura intelectuală a românilor se ridică la 5343 de intelectuali [64]. Majoritatea erau preoți, 2036 ortodocși (cu studii sumare de teologie, de câteva luni) și 1733 greco-catolici, în total 3769, reprezentând 70,5% din totalul intelectualității românești. Urmău în ordinea procentajelor, dascălii, cu 23,8%, un număr redus de funcționari, 95 (1,8%) și doar 86 de avocați (1,6%). Nu figurează în statistică medicii, inginerii, absolvenții academiilor de arte frumoase, ofițerii și alte categorii de intelectuali care completează spectrul intelectualității românești la mijlocul secolului al XIX-lea. Bineînțeles, în condițiile unui imperiu multiethnic și multiconfesional care se întindea din Italia în Galiția, este foarte greu să faci evaluări absolute. O cifră de 2500-3000 de intelectuali români, cu studii cel puțin gimnaziale, ar putea reprezenta o aproximare mult mai corectă și mai apropiată de ceea ce reprezintă categoria intelectualității românești la mijlocul secolului al XIX-lea. Un fapt este cert, într-un secol și jumătate de istorie, de la Unirea cu Biserica Romei, la 1700, românii au parcurs o etapă decisivă pentru cultura lor. Reformele din Imperiul dunărean, mai ales reformismul iosefin, au creat românilor posibilitatea ca în noua societate modernă, în care s-a produs transferul de putere, de la vechiul model de elită socio-economică la cea socio-intelectuală, să facă primii pași spre promovarea unei elite intelectuale. „Mii de tineri – scria George Barițiu – nu numai din clasa burgheziei, ci și dintre feciorii țăranilor, apucaseră de la Iosif al II-lea încoace a trece succesiv prin școlile gimnaziale, mulți și prin cele academice, care își simțeau demnitatea lor de om și de cetățean, prin urmare orice privilegiu prerogative aristocratice le erau nesuferite” [65].

Momentul de la 1848 în Transilvania, care marchează o întreagă perioadă istorică, eveniment perfect integrabil manifestărilor din Europa Centrală și de Vest, este în mare parte opera intelectualilor, ale acumularilor acestora în plan ideologic, în contact cu ideile inovatoare ale Europei din prima jumătate a secolului al XIX-lea. Cristophe Charle, (citând, cum spune el, pe „autori rău intenționați, care au făcut o lectură conservatoare a secolului al XIX-lea,” cum a fost Sir L. Namier) [66], reține opinia acestora în ideea că revoluția de la 1848 a fost o revoluție a intelectualilor, în sensul revoluției vizitorilor și utopicilor [67]. Sigur, Cristophe Charle luând în considerare complexitatea evenimentelor de la 1848, în care „au convulsat mișcări sociale, revolte urbane și rurale, revoluții burgheze, mișcări petiționare etc.”, nu împărtășește ideea unei revoluții a intelectualilor. Dar, în cazul românilor din Transilvania nu putem trece peste evidențele momentului. Întreaga elită conducătoare a revoluției române a fost formată din tineri intelectuali, preoți și avocați, care preluând ideea de națiune, au formulat un program politic, revendicând drepturi egale pentru națiunea română cu a celorlalte națiuni din Transilvania și autonomia provinciei în fața proiectului elitei maghiare de unire a ei cu Ungaria.

### **Demersuri pentru o universitate românească**

Anul 1848 reprezintă și un reper pentru istoria formării intelectualității românești. În documentul central al revoluției de la 1848, în *Petiția națională* de la Blaj, la punctul 13 se revendică un învățământ pentru români, inclusiv o universitate: „Națiunea română cere înființarea școalelor române pe la toate satele și urbiile, a gimnaziilor, institutelor militare și tehnice și a seminariilor preoțești, precum și a unei universități române dotate din casa statului” [68]. Ideea a fost apoi preluată într-o nouă petiție, elaborată de Adunarea Națională de la Sibiu, din 28 decembrie 1848. La punctul 6 se cere: „Să se deschidă școalele, să se înființeze și clase juridice provisorii la Blaj și în Sibiu, până când se va putea înființa Universitatea cerută de la monarh” [69]. Simion Bărnuțiu în discursul ținut în 2 mai în Catedrala Blajului, sublinia importanța școlii în viața unei națiuni: „Să nu vă îndoiiți câtuși de puțin că, dacă nu vor avea românii școale naționale, cu limba lor pentru toate ramurile cunoștinței omenești, nu vor avea nici politici, nici juriști, nici avocați buni, nici oratori și poeți, care să răspundă numelui lor” [70].

Asemenea revendicări erau expresia unei necesități naționale, a unei stări de spirit ce caracteriza elita românească, a racordării ei la modelele dezvoltării culturale ale națiunilor moderne din Europa. Necesitatea unei universități naționale era, de asemenea, și urmarea conștientizării într-o măsură tot mai mare a rolului intelectualului în viața societății, a unei națiuni, într-o epocă în care fenomenul universitar cunoaște noi dimensiuni. La nivelul Europei, la mijlocul secolului al XIX-lea erau 250 de universități. La scurt timp de la pacificarea țării, la 1 august 1849, prin capitularea revoluției maghiare, o delegație a românilor ardeleni a înaintat o *Petiție* ministrului Cultelor de la Viena în care se cerea „să se deschidă pentru români, până la organizarea ulterioară a școalelor, facultate juridică națională în Blaj cu 1 octombrie a.c. [71]”. La 10 ianuarie 1850, într-o nouă petiție, înaintată de elita românească Vienei se cerea: „Pentru educarea națiunii române și pentru dezvoltarea naționalității acesteia să se ridice o *universitate română* la un loc potrivit, precum și alte institute de instrucțiune și educațiune” [72]. Revendicarea unui sistem de învățământ propriu pentru români este cuprinsă și în *Petiția* din 10 aprilie 1850, întocmită de Andrei Șaguna, și trimisă împăratului în numele clerului și poporului român, la punctul 7 cerându-se monarhului „ridicarea de școli, atât elementare, cât și superioare”. În condițiile în care Viena aprobă redeschiderea Academiei de Drept la Sibiu în 1850, la 21 decembrie 1850, o delegație română, compusă din cei doi episcopi, Andrei Șaguna (ortodox) și Alexandru Sterca-Șuluțiu (greco-catolic), însoțiți de Avram Iancu, George Barițiu și Timotei Cipăriu au prezentat ministrului Cultelor, Leo Thun, un memoriu în care solicită crearea unei facultăți de științe juridice la Cluj. Memoriul a avut aceeași soartă ca și cele anterioare, cu toate că petiționarii subliniau consecințele nefavorabile pe care le avea lipsa unei

academii cu limba de predare în limba română. „Dacă se refuză petiția – arătau membrii delegației – atunci aceasta ar duce la regresul națiunii române”. Deloc descurajați de atitudinea Vienei, la 16 ianuarie 1851, o nouă delegație, formată printre alții de Avram Iancu, Simion Bărnuțiu, Timotei Cipariu, August Treboniu Laurian, Ioan Maiorescu ș.a., adresează un memoriu împăratului în care cer „să ni se dea o universitate română, în care toate științele să se propună în limba română și de profesori români...”.

Problema unei universități pentru români este prezentă în presă, în corespondența particulară, în diferite proiecte privind dezvoltarea culturală a românilor. Avram Iancu, eroul românilor de la 1848, în testamentul redactat la 2 decembrie 1850 își destina întreaga avere pentru înființarea unei academii de drept: „Voiesc dar, și hotărât dispun, ca după moartea mea, toată averea mea mișcătoare și nemișcătoare să treacă în folosul națiunii pentru ajutorul la înființarea Academiei de drepturi, tare crezând că luptătorii în numele legii vor putea scoate drepturile națiunii mele” [73].

Aflat la studii la Pavia, Simion Bărnuțiu redactează în toamna anului 1852 un proiect de universitate pe seama românilor, care va apărea în primăvara anului 1853 în revista *Foaie pentru minte, inimă și literatură* sub titlul *Cuvântul unui student despre necesitatea unei Academii la români* [74]. Bărnuțiu propunea crearea pe seama românilor a unei universități după modelul clasic al universităților de pe continent, cu patru facultăți: filosofie, drept, medicină și teologie. În cadrul facultății de filosofie, să fie cuprinsă și o „politehnică întreagă”, soluție care se aplica și în cazul altor universități europene.

Petițiile și proiectele privind crearea unui învățământ superior surprind asumarea idealului universitar de către elita românilor din Transilvania, dar și reflectarea unei realități. Într-un articol publicat de George Barițiu în *Gazeta Transilvaniei* la începutul anului 1853, în care analiza o statistică a învățământului din Imperiul habsburgic, constata diferențele mari ce se mențineau între numărul de studenți și elevi români și populația școlară a celorlalte națiuni din monarhie. Dintr-un număr de 74.813 elevi gimnaziali și studenți aflați în monarhie, românii aveau un total de 1.108, în timp ce numărul elevilor și studenților germani era de 16.385, al slavilor, luați în general, de 20.054, al ungarilor de 11.052, al italienilor de 21.732, al evreilor de 3.196 [75].

Astfel, ideea unei universități românești a reprezentat un leitmotiv al revendicărilor politice ale românilor în a doua jumătate a secolului al XIX-lea. În ianuarie 1861, la Conferința Națională de la Sibiu, liderii politici considerau că „astăzi e de cea mai urgentă și supremă necesitate ridicarea unei facultăți juridice, și asta trebuie urgentată” [76]. În toamna anului 1866 s-a lansat un *Apel* pentru susținerea unei colecte publice în vederea constituirii unui fond destinat înființării unei academii de drept [77]. La ședința Comitetului Central a Asociațiunii din 5 aprilie 1870, fostul cancelar aulic, Iacob Bologa, a cerut Comitetului să recunoască, printr-o declarație solemnă, necesitatea de a înființa în Monarhia austriacă o Academie de drepturi române [78]. Propunerea fiind acceptată, s-a creat o comisie care a publicat un proiect privind modalitățile de procurare a mijloacelor necesare înființării și susținerii unei academii de drept pentru români [79]. În anul 1883, fondul se ridica la suma de 20.065 de florini, insuficient, însă, pentru ridicarea unei instituții de învățământ superior. Ca urmare, s-a hotărât ca fondul să fie destinat ridicării edificiului Școlii Superioare de Fete din Sibiu [80].

Problema unui învățământ superior în limba română a revenit pe agenda elitei românești la 1872, când s-a hotărât înființarea Universității din Cluj. La Conferința Națională a Românilor din Transilvania, desfășurată la Sibiu în zilele de 5-6 mai 1872, se solicita ca în cazul că nu se poate crea o universitate pe seama românilor, „cel puțin la universitatea din Cluj, limba cursurilor să fie paritetică cu cea maghiară” [81].

### Studenți români la universitățile din Europa (1850-1919)

Revendicarea românilor pentru un învățământ superior în limba română susținut de către statul austro-ungar a rămas un deziderat neîmplinit. Ca urmare, în întreaga perioadă cuprinsă între anii 1850-1919, intelectualitatea românească din Transilvania s-a format în academiile și universitățile din Imperiul austro-ungar și din Germania, cu mici excepții în Italia, la Roma, în Franța și în Belgia. Majoritatea, însă au urmat universitățile și academiile din Ungaria.

Principala instituție de învățământ a Ungariei era Universitatea Regală Maghiară din Budapesta. A fost fondată în 1635 la Tirnavia (Nagyszombat), în Slovacia de astăzi, de către arhiepiscopul de Esztergom, Pázmány Péter [82]. În anul 1777, Universitatea a fost transferată la Buda, apoi, în 1784, la Pesta. Din anul 1842 limba de predare a devenit maghiara. Funcționa cu patru facultăți, de Drept și Științe Administrative, Medicină, Teologie (catolică) și Filosofie, care îngloba atât științele umaniste, istoria, filosofia, limbile, cât și fizica, matematica, chimia, științele naturale etc. În anul 1870 s-au pus bazele Institutului Pedagogic, menit a asigura formarea profesorilor, iar în anul 1895 s-au pus bazele *Colegiului „Baron Eötvös Loránd”*, corespondentul școlii pariziene *Ecole Normale Supérieure*. Colegiul era conceput ca o instituție de elită a formării viitorilor profesori, în care erau admiși doar studenți care terminaseră liceul cu calificativul „eminent”. Cursurile erau susținute de profesori cu o mare reputație, savanți precum Alexander Bernát, filosof de renume mondial, Eötvös Loránd, fizician, nominalizat la Premiul Nobel, Fröhlich Izidor, Beöthy Zsolt, Marczali Henrik ș.a.

La colegiu au studiat și tineri români, majoritatea dintre ei bursieri ai fundațiilor românești de stipendii. Printre ei s-au numărat Vincențiu Ardelean, Ioan Baciu, Iuliu Buteanu, Silviu Cârpenișan, Victor Chereșteșu, Olimpius Ghitta, Aloisiu Gheție, Vasile Micula, Toader Neș, Vasil Stoica, Constantin Sulică, Valer Suci, Gheorghe Tulbure și Virgil Ungureanu.

A doua universitate s-a creat la Cluj, fiind deschisă la 19 octombrie 1872, când a avut loc festivitatea de depunere a jurământului profesorilor și constituirea forurilor universitare [83]. Cel dintâi rector a fost Berde Áron, specialist în finanțe și economie națională. Prorector era marele matematician și „polihistor” Brassai Sámuel, membru corespondent al Academiei Maghiare. Universitatea funcționa cu patru facultăți: a) Drept și Științe Politice (Administrative); b) Medicină; c) Filosofie, Limbi și Istorie; d) Matematică și Științe Naturale; se adăuga un curs de farmacie. În organizarea pe facultăți, Universitatea Regală Maghiară „Ferenc József” era unică în Europa, alături de Universitatea din Tübingen, unde mai putea fi întâlnită o Facultate de Matematică și Științe Naturale.

Universitatea a început cu un număr de 34 de profesori ordinari și 5 extraordinari și un număr de 258 de studenți: 173 la Facultatea de Drept, 27 la Medicină, 21 la Filosofie, Limbi și Istorie, 32 la Matematică și Științe Naturale și 5 la cursul de Farmacie. În anul universitar 1912-1913 erau 2124 de studenți, din care 1265 la Drept, 487 la Medicină, 191 la Filosofie, Limbi și Istorie, 80 de Matematică și Științe Naturale și 107 la Farmacie. Între anii 1893-1902 s-a construit Clădirea Centrală a universității, la inaugurarea ei, în 13 octombrie 1902, fiind prezent ministrul Cultelor și Instrucțiunii Publice, Wlassics Gyula. Construită în stil neo-renascentist, clădirea însumează o suprafață de 4.226 m<sup>2</sup>.

În 1871 s-a fondat a treia universitate în Ungaria, Universitatea Tehnică Regală „József”, prin transformarea în universitate a Institutului Politehnic. A funcționat cu patru facultăți: a) Inginerie Generală; b) Inginerie Mecanică; c) Arhitectură și d) Chimie. Printre profesorii Universității Tehnice s-au numărat nume de prestigiu ale științei maghiare: Wartha Vincze, Klein Gyula, Schuller

Alajos, Rados Gusztáv, Schafarzik Ferenc ș.a. Printre ei s-au numărat și doi profesori români, Ioan Bud, în perioada interbelică a fost ministru la Budapesta, și Cornel Miklósi, unul dintre întemeietorii, după 1918, a învățământului politehnic de la Timișoara.

În cadrul teritoriilor „Țărilor Coroanei Ungare”, cum se mai numea Ungaria istorică, s-a creat Universitatea de la Zagreb, în 1874, în care limba de predare era croata. În 1912, numărul universităților din Ungaria s-a întregit cu încă două, la Debrecen și Bratislava.

Un rol important în rețeaua învățământului superior din Ungaria îl aveau academiile de drept. În 1784 erau 13 academii de drept, ca apoi numărul lor să se reducă la zece. Erau de două categorii: a) academii de stat (regale), la Kassa (Košice), Oradea, și la Bratislava (Pozsony), și b) confesionale, la Pécs (catolică), Debrecen (reformată), Sárospatak (reformată), Sighetul Marmăției (reformată) și Prešov (Eperjes – evanghelică). Diploma deținută la academiile de drept era echivalentă cu o diplomă universitară. Academiile nu puteau conferi, în schimb, titlul de doctor în științe.

Rețeaua învățământului superior din Ungaria se întregea cu institutele de agronomie, de medicină veterinară, de comerț și de minerit și silvicultură. Învățământul agronomic se realiza în cadrul institutelor de la Magyaróvár, de la Keszthely, Košice (Kassa), Debrecen și Cluj. În anul 1906 institutele de agronomie au primit rangul de academie. Medicii veterinari se pregăteau la *Academia Regală de Medicină Veterinară din Budapesta*.

La *Academia de Minerit și Silvicultură de la Schmnitz* (Selmecbánya în maghiară, Banská Štiavnica în slovacă) se pregăteau specialiști pentru industria minieră, metalurgie și silvicultură. Specialiștii în comerț s-au format la *Academia de Studii Orientale de la Budapesta*, iar din 1906 și la *Academia de comerț din Cluj*. La Fiume s-a deschis *Academia Regală Maghiară de Marină*.

În perioada dualismului austro-ungar s-au pus bazele instruirii superioare în domeniul artei. În 1871 s-a creat *Școala Superioară de Arte Plastice și de Arte Decorative* din Budapesta. În 1875 s-a înființat renumita *Academie de Muzică*, al cărei prim director a fost compozitorul Franz Liszt.

Pe teritoriul Ungariei, Slovaciei și Transilvaniei funcționau în perioada dualismului austro-ungar 4 institute teologice greco-catolice, la Blaj, Gherla, Ujgorod (Ungvár în ungurește) și Prešov (în ungurește Eperjes), 3 ortodoxe (Sibiu, Arad și Caransebeș), 2 catolice, 5 reformate, 3 lutherane, unul unitarian; în 1867 s-a deschis unul israelit la Budapesta. La acestea se adăugau, luând în considerare întreaga Transleithanie, inclusiv Croația-Slavonia, 2 institute teologice romano-catolice pentru croați și 1 ortodox pentru sârbi la Karlowitz. În total erau 74 de institute teologice.

Cercetările de până acum pun în evidență prezența românilor în perioada 1850-1919, la 29 de institute de învățământ superior din Ungaria istorică (Transleithania) [84]. Cei mai mulți sunt la cele două universități, de la Budapesta și Cluj. La Universitatea Regală Maghiară din Budapesta au studiat peste 2586 de studenți români. Cifra este, sigur, aproximativă, orice reconstituire de acest gen are o marjă de eroare. Mai mult, la Budapesta o mare parte a arhivei universității a ars în timpul Revoluției din 1956. Ca urmare, nu s-au păstrat matricolele, care oferă cele mai importante informații pentru stabilirea identității naționale a studenților.

Din cei 2586 de studenți, 1289 au urmat Facultatea de Drept, 385 Litere și Filosofie, 609 Medicină și 263 Facultatea de Teologie. Din totalul românilor care au urmat studii la Universitatea din Budapesta, 585 au susținut doctoratul, din care 349 în drept, 217 în medicină, 9 în teologie și 37 la Facultatea de Științe și Litere.

Printre tezele de doctorat susținute de români, unele reprezintă importante contribuții științifice pentru acei ani: *Alba Iulia și protestantismul*, susținută de Sebastian Radu, *Viața lui Miron Costin* de Pavel Oprea, *Viața și opera lui Dimitrie Bolintineanu*, de către Emilian Popescu, iar Miron Cristea, viitorul patriarh, a susținut o teză despre *Viața și opera lui Mihai Eminescu*, prima teză de doctorat dedicată marelui poet.

Pentru un semestru, un an sau cu întreaga perioadă a studiilor la Budapesta, printre intelectualii români care au studiat la Budapesta sau numărat: Vasile Goldiș, Virgil Onițiu, Ilie Cristea, Ilarie Chendi, Octavian Goga, Nicolae Drăgan, Victor Chereșteșiu – la Facultatea de Filosofie; Aurel Isac, Aurel Lazăr, Iuliu Maniu, Aurel Vlad, Tiberiu Brediceanu, Traian Viua, Ștefan Cicio-Pop, Petru Groza – la Drept; Victor Babeș, Marius Sturdza, Sabin Manuilă – la Medicină; Ilie Dăianu, Teodor Murășanu, Ion Agârbiceanu, Alexandru Borza – la Teologie.

Un fapt cu totul remarcabil, cinci dintre primii-miniștrii României interbelice au urmat studii la Budapesta: Iuliu Maniu, Alexandru Vaida-Voevod, Octavia Groza, Ilie Cristea și Petru Groza (din 1945).

La Universitatea Regală Maghiară „Ferenc József” au studiat 2652 de români, din care: 1834 la Drept, 515 la Medicină, 140 la Filosofie, Limbi și Istorie, 104 la Matematică și Științe Naturale și 104 la Farmacie. Din totalul studenților care au frecventat universitatea din Cluj, 646 și-au închinat studiile cu doctorat: 519 la Drept, 10 la Filosofie, Limbi și Istorie, 8 la Matematică și Științe Naturale și 99 la Medicină.

Printre intelectualii români care au studiat la Cluj s-au numărat: Teodor Mihali, Iuliu Maniu, Emil Hațeganu, Romulus Boilă, Emil Isac – la Drept; Iuliu Hațeganu, Coriolan Tătaru – la Medicină; Iuliu Prodan, Nicolae Vătășanu, Gavril Onișor – la Matematică și Științe Naturale; George Coșbuc, Virgil Șotropa, Victor Motogna ș.a. – la Filosofie, Limbi și Istorie.

Peste 303 români au studiat la Universitatea Tehnică. Printre ei s-au numărat Traian Vuia, care a studiat un an ingineria, după care a urmat dreptul, Augustin Maior, considerat inventatorul telefoniei multiple, Aurel Vlaicu, care după un an de studii la Budapesta a continuat la Politehnica din München.

În domeniul ingineriei, în silvicultură și minerit în perioada celei de-a doua jumătăți a secolului al XIX-lea au studiat 256 de români la Academia de Minerit și Silvicultură de la Schemnitz.

Opțiunea pentru studii de inginerie configura noilor realități din societatea românească, interesul românilor pentru noile modele de dezvoltare economică, pentru industrie și comerț. Din această perspectivă trebuie văzută și înscrierea românilor la academiile de agricultură de la Cluj-Mănăștur, Debrecen, Keszthely, Košice (Kassa) Magyaróvár, sau la cele de comerț de la Cluj, Budapesta sau de la Academia Regală Maghiară de Marină Comercială de la Fiume.

Opțiunea majorității românilor, ca de altfel la toate popoarele din spațiul Europei Centrale, a fost pentru studii de drept. În anul 1860, 45,7% dintre studenții de la Viena erau la drept, în 1909 erau 53,8% [85]. În Ungaria, procentul era și mai mare, de 60% [86]. La Academiile de drept din Ungaria, Transilvania și Slovacia între anii 1850-1919 au studiat în jur de 1108 români.

A doua jumătate a secolului al XIX-lea a înregistrat și primii români la Academia Militară Ludovika de la Budapesta. De altfel, s-a fondat doar la 1872. La „Ludovika” au studiat 24 de români. Printre ei s-a numărat și marele scriitor Liviu Rebreanu. Majoritatea ofițerilor români au studiat la academiile militare din Viena.

În aproape 70 de ani, între anii 1851-1919, la institutele de învățământ superior din Ungaria (respectiv, Ungaria de astăzi, Transilvania și Slovacia) au învățat circa 7159 de români, mai precis de înscriși, unii figurând la 2-3 instituții de învățământ.

Dacă includem și studenții de la cele două academii de teologie, de la Blaj (greco-catolică) și Sibiu (ortodoxă) avem un total de 11.416 studenți. Menționăm că nu sunt incluși aici elevii de la Institutul Teologic de la Gherla (greco-catolic) și de la institutele

din Arad și Caransebeș, ambele ortodoxe. Mulți români, mai ales cei din fostele comitate Bihor, Sălaj, Satu Mare, din Episcopia de Oradea, au studiat la Seminarul Catolic din Oradea. De exemplu, în anul 1900-1901 erau 28 de români înregistrați la institutele teologice romano-catolice, ceea ce ar mai adăuga la cifra de tineri români cu studii superioare.

Progresul înregistrat de români în promovarea unei intelectualități formate în universități și academiile din Ungaria este impresionant. Dacă în anul 1872-1873, la cele două universități de la Cluj și Budapesta și de la academiile din Ungaria erau înregistrați 112 studenți români, la 1912/13 erau 632 de studenți, ceea ce înseamnă o creștere de 546,28 %. În aceeași perioadă, la nivelul populației universitare din Ungaria, creșterea a fost de 220,67%. Dar, românii continuă, cu toată creșterea spectaculoasă, să rămână subreprezentată la nivelul învățământului superior, exceptând învățământul teologic. La Universitatea din Cluj, unde majoritatea studenților proveneau din Transilvania, românii au reprezentat în medie circa 10% din totalul studenților, cu diferențe de la o facultate la alta. La Universitatea din Budapesta studenții români reprezentau 2-3%. La nivelul învățământului superior din Ungaria istorică (Transleithania) ei reprezintă în jur de 5% la începutul secolului al XX-lea.

O parte din intelectualii români au urmat studii la universități din Austria, Germania, Belgia, Franța, Italia etc. În anul 1895-1898, potrivit unei statistici întocmite de membrii Societății „Petru Maior”, la universitățile din Austria și Germania învățau 49 de tineri români: 18 la Viena, 11 la Graz, 6 la Cernăuți, 5 la Leoben, 5 la München și 2 la Stuttgart. Cercetările actuale ne arată că numărul lor era mai mare.

Principala atracție pentru studii în afara Ungariei a reprezentat-o Viena. Universitatea din Viena, fondată în 1365, beneficia în a doua jumătate a secolului al XIX-lea de grandioase institute auxiliare: clinici, Observatorul astronomic, Institutul Central pentru Meteorologie și Magnetismul Pământului, Biblioteca Universității, cu cele 340.000 de volume. În 1883 Universitatea s-a mutat într-o clădire nouă, construită în stil renescentist. *Afabilă, primitoare, ospitalieră*, Viena oferă numeroase tentații: teatrul, opera, cafenele etc. „În cafenele – mărturisirea mai târziu Iuliu Moșil – era o adevărată viață culturală, erau veritabile case de citire. În cele mai mari se găseau toate jurnalele și revistele care apăreau în Viena și cele mai însemnate ziare din provincie și din străinătate. Cafenele au jucat întotdeauna un mare rol în viața culturală și literară, ca și cea politică și era locul cel mai plăcut de întâlnire al tuturor claselor sociale” [87].

O reputație aparte o avea școala de medicină vieneză, Viena *Mecca Medicinii*, după cum i se mai spunea. De asemenea, o reputație aparte o aveau studiile de istorie și filologie, prin germaniștii Jakob Minnow, slavistii Vatroslav von Jagic, continuatorul lui Franz Miklosich, și Konstantin Jirecek, romanistul Wilhelm Meyer-Lubke ș.a.

În total, în perioada 1851-1919, la *Universitatea din Viena* au studiat 697 de români din Transilvania și Banat, din care 108 la Teologie, 229 la Medicină, 156 la Drept și 123 la Facultatea de Filosofie.

Inginerii au urmat Politehnica din Viena, la care s-au înregistrat 89 de români. O instituție aparte era Academia Consulară, la care au studiat 5 români, printre care și Ioan Vaida-Voevod, fratele cunoscutului om politic, Alexandru Vaida-Voevod. Academia pregătea tineri pentru o viitoare carieră de diplomat. Un fapt interesant, în cariera politică a strălucit Alexandru Vaida-Voevod, absolvent al Facultății de Medicină. La Viena era apoi celebra Academie Militară, frecventată de 98 de români, din rândul cărora unii au ajuns până la gradul de general și mareșal [88].

La nivelul Austriei, în perioada 1851-1919 sunt înregistrați studenți români la 25 de instituții de învățământ superior. Ca număr de studenți, cele mai frecventate de români, după Viena, au fost Universitatea din Graz și Universitatea din Cernăuți. La Cernăuți, funcționa singura facultate de teologie ortodoxă din Imperiu Austro-Ungar, ceea ce explică numărul mare de studenți ardeleni, aici formându-se o mai mare parte din elitele ortodoxe din Transilvania. Printre studenții Facultății de Teologie s-a numărat și viitorul mitropolit al Ardealului, Nicola Bălan.

În total, la universitățile și academiile din Austria au studiat *1213 de români*. Printre ei s-au numărat oamenii politici Iuliu Maniu, Al. Vaida-Voevod, Ștefan Cicio-Pop Vasile Goldiș, medicii Victor Babeș, Marius Sturza, Iuliu Moldovan, omul politic, publicistul (cu studii de medicină) Aurel C. Popovici, marele slavist Ioan Bogdan ș.a.

Pentru formarea elitelor intelectuale un loc aparte l-au avut universitățile germane, în care, în a doua jumătate a secolului al XIX-lea și primele două decenii ale secolului al XX-lea, au studiat 314 români din Transilvania. Cei mai mulți s-au înregistrat la Leipzig. Aici, în 1872, a apărut revista în limba română *Fama Lipschii*. La Universitatea din Leipzig funcționa *Institutul pentru Limba Română*, susținut financiar de statul român, condus de profesorul Gustav Weigand, considerat în vremea sa cel mai mare specialist în domeniul lingvisticii române din afara granițelor României. La Leipzig au studiat viitorul episcop Roman Ciorogariu, filologii și scriitorii Horia Petra Petrescu, Sextil Pușcariu, Ioan Scurtu, Nicolae Sulică și alții.

Peste 61 de români au urmat cursuri la universitatea din Berlin. Pentru unul sau mai multe semestre au frecventat Universitatea din Berlin istoricii Ioan Lupaș, Romulus Căndea, Ioan Ursu și poetul Octavian Goga.

Indiscutabil, universitățile germane au avut un rol major în formarea intelectualității transilvane, modelând profilul cultural al multor reprezentanți ai elitei românești din fostul Imperiu austro-ungar. În spațiul german putem include și Universitatea Tehnică din Zürich din Elveția, unde sunt înregistrați 20 de studenți români.

În schimb, în cazul intelectualității transilvane au avut un rol secundar universitățile franceze, inclusiv cele italiene, cu excepția clerului greco-catolic care a studiat la Roma, la Universitatea „Gregoriană” și la Universitatea „Urbaniana”. La Roma, ca interni în Colegiul Urban De Propaganda Fide, au studiat Vasile Lucaciu, Augustin Bunea, înalții ierarhi Vasile Hossu, Iuliu Hossu, Demetriu Radu, Alexandru Nicolescu, Vasile Suciș ș.a.

La Universitatea Sorbona din Paris au studiat de asemenea câțiva reprezentanți de frunte ai elitei transilvane: poetul Ioan Lapedatu, Ioan Bianu, George Moroianu, Ovidius Densușianu, Vasile Stoica și alții. În total, la universitățile din Franța, de la Sorbona, la Politehnica din Paris, Montpellier și Academia de Arte Frumoase au studiat 30 de români. Printre ei și artiștii Sava Henția și Corneliu Medrea.

Geografia universitară de formare a intelectualității românești mai include Belgia, cu Școala Superioară de la Anvers, la care au studiat 23 de români. Doar un singur student avem înregistrat în Anglia, la medicină, spațiul anglo-saxon nefiind încă descoperit de aspirații români la o diplomă universitară. De asemenea, doar un singur student apare la Cracovia, Sankt Petersburg și Moscova.

În total, geografia universitară a formării intelectualității transilvane cuprinde 118 instituții de învățământ superior din Europa. Menționăm că la unele universități se înregistrează doar un singur student, de multe ori același om. De exemplu Ioan Bogdan, care după studii la București și Iași a continuat la Viena, apoi la Petersburg, Moscova și Cracovia.

Nu avem încă studii asupra prezenței românilor la universitățile românești de la Iași și București. Numărul lor poate fi de ordinul sutelor. În 1864 au primit ajutor pentru a studia la București studenții ardeleni Ioan Miron, Miron Valentin, Stroia Gregoriu, C. Drăghici și Augusti Ratz [89].

În total, la instituțiile de învățământ superior din Europa, din afara Ungariei istorice, au studiat 1693 tineri români. La toate instituțiile de învățământ, din Ungaria, Austria și din Europa de Vest în perioada 1850-1919 sunt 13.164 de înscriși, ceea ce, sigur, nu prezintă totalul studenților, mulți dintre ei figurând la mai multe universități. Din totalul înscrișilor circa 40 au fost femei, la sfârșitul secolului al XIX-lea s-a permis accesul tinerelor la studii universitare.

În întreg secolul al XIX-lea au urmat studii superioare 15206 români.

Indiscutabil, se remarcă numărul mare al celor care au studiat la universitățile din Ungaria istorică, din Transleithania.

Ungaria	11 468
Austria	1 213
Germania	314
Italia	61
Elveția	49
Franța	30
Belgia	23
Anglia	1
Rusia	2
Polonia	1

**Tabel 1. Repartizarea studenților pe țări în perioada 1850-1919**

Posibilitățile sociale reduse ale familiilor, dar și politica statului ungar, care descuraja plecarea tinerilor la studii în afara Ungariei, au făcut ca numărul celor care au urmat studii în Vest să fie mai mic. În 1885 s-a introdus obligativitatea celor care au studiat în afara statului să susțină examenul de profesor gimnazial în limba maghiară. Din anul 1898, orice diplomă obținută în străinătate trebuia omologată la o universitate din Ungaria [90]. Inclusiv fundațiile de burse erau descurajate să ofere studii pentru universitățile din afara statului. Fundațiile românești, cum a fost Fundația „Gojdu,” fondurile grănicerești de la Năsăud și din Banat, fundațiile administrate de mitropoliile de la Blaj și de la Sibiu, Societatea „Transilvania” de la București și alte fundații au acordat burse la circa 25% dintre tinerii români ce au urmat studii universitare [91].

Ca opțiune profesională, domină preferințele pentru preoțime și cariera juridică, urmate de medicină și studii de filosofie, care includea specializarea în litere, matematică, limbi, științe naturale, fizică și alte specializări cu perspective didactice : 4835 (36,88%) teologie, 4474 (34,13%) drept și administrație, 1541 (11,75 %) litere și filosofie, 139 (1,06 %) comerț, 574 (4,37%) ingineria, 178 (1,35%), 202 (1,54%) silvicultură, 178 (1,35%) cariera militară, 41 (0,31%) medicină veterinară, 26 (0,19%) economie, 63 (0,48%) arte plastice și muzică. Statistica noastră nu cuprinde elevii de la institutele teologice de la Caransebeș, de la Gherla, de la Seminarul Central din Oradea și de alte seminarii și institute teologice din Transilvania și din Ungaria. Indiscutabil, pentru români, o națiune de țărani, preoția continua și în a doua jumătate a secolului al XIX-lea să reprezinte prima opțiune în carieră pentru mulți absolvenți de gimnazii.

Peste 1500 dintre ei au dobândit doctoratul, mai ales în cazul juriștilor, profesarea avocaturii fiind condiționată de dobândirea doctoratului.

Impresionantă a fost mobilitatea universitară a viitorilor intelectuali, prezenți pe timpul studiilor la mai multe universități:

a) medicii Victor Babeș la Budapesta, Viena, Paris și la mai multe clinici din Germania, Mihai Sturza la Budapesta, Viena, Paris, Berlin și Nancy, Iuliu Moldovan la Viena și Praga, Traian Leucucția la Budapesta, Geneva și Laussane, Al. Vaida-Voevod la Viena și Budapesta; b) juriștii Iuliu Maniu la Cluj, Viena și Budapesta, Cornel Togan la Budapesta, Berlin și München, Ștefan Cicio Pop la Viena și Budapesta; c) filologii și istoricii Ovidiu Dante Gherman la Budapesta, Cluj și Heidelberg, Alexandru Bogdan la Budapesta, Berlin și Leipzig, George Candrea la București, Viena, Graz și Strassbourg, Ion Bogdan la Iași, Viena, Petersburg și Cracovia, Gh. Bogdan Duică la Budapesta, Viena și Jena, Sextil Pușcariu la Leipzig, Viena și Paris, Ioan Lupaș la Budapesta și Berlin, Ovid Densușianu la Iași, Berlin și Paris, Petru Suciuc la Budapesta, Cluj, Berlin și München, Iosif Popovici la Graz, Leipzig, Viena, Zagreb și Paris; d) inginerii Aurel Vlaicu la Budapesta și München, Aurel Babeș la Viena, Budapesta, Göttingen și München, Augustin Maior la Budapesta, Viena, Göttingen și München, etc.

Crearea intelectualității cu studii universitare a reprezentat pentru românii din Transilvania expresia asumării modelului meritocratic, integrarea românilor în ceea ce s-a definit drept etosul instruirii. Formați o mare parte dintre ei în universitățile europene, intelectualii români au fost mediatorii culturii europene în spațiul cultural românesc, contribuind la receptarea marilor curente filosofice și politice ale timpului, inclusiv a ideii naționale. Cetățenii ai Imperiului austro-ungar, majoritatea dintre ei nu agreau formula dualistă de organizare a imperiului. Inițial s-au mobilizat în jurul Partidului Național Român care revendica autonomia Transilvaniei. Cu timpul, s-au atașat de ideea federalizării imperiului, propusă de Aurel C. Popovici în cartea sa *Die Vereinigten Staaten von Gross-Österreich (Statele Unite ale Austriei Mari)*, apărută la Leipzig în 1906. În 1918, pe fondul disoluției Imperiului dunărean, au optat pentru autodeterminare și unirea teritoriilor din Austro-Ungaria în care românii erau majoritari cu Regatul român. Ca politicieni sau oameni de cultură, avocați, medici, profesori de gimnaziu sau universitari, intelectualii români formați în fostul Imperiu dunărean au purtat amprenta culturii și civilizației specifice Europei Centrale, contribuind după 1918 la integrarea României în sistemul de valori al Europei interbelice. Din păcate, după Al doilea război mondial, odată cu instalarea regimului comunist, majoritatea intelectualilor români au fost marginalizați, unii găsindu-și sfârșitul în închisorile comuniste. Instalarea regimului comunist a întrerupt în mod brutal procesul de modernizare a României la care au participat intelectualii începând cu secolul al XVIII-lea. Reflectând asupra semnificației abdicării regelui Mihai la 30 decembrie 1947 și proclamarea

Republicii, istoricul Keith Hitchens concluziona : „Într-un mod mai profund, acesta anunța că epoca modernă a istoriei României, care începuse cu slăbirea legăturilor cu Răsăritul și deschiderea către Apus, luase sfârșit.”

Instituții de învățământ	Facultatea	Anii 1801-1850	Anii 1851-1919	Total facultate	Total general
Liceul (Institutul) Greco-Catolic Blaj	Teologie	782	1918	2700	2700
Institutul Teologic Ortodox Sibiu	Teologie		2336	2336	2336
Școala Superioară de Teologie Esztergom	Teologie	11			11
Liceul Piarist Cluj	Filosofie	380		380	639
	Drept	253		253	
	Medicină	6		6	
Institutul Teologic Greco-Catolic de la Ungvár	Teologie		52	52	52
Univ. Regală Maghiară din Budapesta	Drept și Șt. Politice	11	1289	1300	2609
	Litere și Filosofie	4	385	389	
	Medicină și Farmacie	4	609	613	
	Teologie	44	263	307	
Univ. „Fr. Iosif” Cluj	Drept și Șt. Politice	-	1834	1834	2552
	Medicină	-	515	515	
	Filosofie, Limbi și Istorie	-	140	40	
	Matematică și Șt. Naturale	-	104	104	
	Curs de Farmacie	-	59	59	
Univ Tehnică Regală Maghiară Budapesta	Ing. Generală	-	141	141	303
	Ing. Mecanică	-	119	119	
	Arhitectură	-	29	29	
	Ing. Chimică	-	14	14	
Acad. Militară „Ludovika” de la Budapesta	Școală de Ofițeri	-	24	24	24
Acad. Regală de Drept de la Bratislava	Drept	8	71	79	79
Acad. Reformată de Drept de la Debrecin	Drept	15	85	100	100
Acad. Reformată de Drept de la Kecskemét	Drept	4	55	59	59
Acad. Regală de Drept de la Oradea	Drept	318	672	990	990
Acad. Catolică de Drept de la Pécs	Drept	-	12	12	12
Acad. Evanghelică de Drept de la Eperjes (Prešov)	Drept	-	54	54	54
Acad. De Regală de Drept de la Sárospatak	Drept	20	4	24	24
Acad. Evanghelică de Drept de la Sibiu	Drept	-	128	128	128
Acad. Reformată de Drept de la Sighetul Marmației	Drept	21	30	30	51
Acad. De Minerit și Silvicultură de la Shemnitz (Banska Štiavnica)	Secția Minerit	7	55	62	263
	Secția Silvicultură	-	201	201	
Acad. Regală de Agricultură de la Cluj-Mănăstur	Agricultură	-	81	81	81
Acad. Regală de Agricultură de la Debrecin	Agricultură	-	8	8	8
Acad. Regală de Agricultură de la Keszthely	Agricultură	2	14	16	16
Acad. Regală de Agricultură de la Kassa (Košice)	Agricultură	-	8	8	8
Acad. Regală de Agricultură de la Magyaróvár	Agricultură	-	38	38	38
Acad. Regală de Medicină Veterinară de la Budapesta	Medicină veterinară	-	36	36	36
Acad. Orientală de Comerț de la Budapesta	Comerț	-	31	31	31
Acad. Regală de Comerț din Cluj	Comerț	-	39	39	39
Acad. Regală Maghiară de Marină de la Fiume	Comerț	-	5	5	5
Acad. De Belle Arte Budapesta	Arte	-	8	8	8
Institutul de Educație Fizică Budapesta	Educație fizică	-	2	2	2
Univ. Viena	Teologie	46	108	154	
	Medicină	19	229	248	

Instituții de învățământ	Facultatea	Anii 1801-1850	Anii 1851-1919	Total facultate	Total general
	Drept	13	156	169	697
	Filosofie	3	123	126	
Univ. Tehnică Viena	Inginerie	15	89	104	104
Institutul de Medicină Veterinară Viena	Medicină veterinară	3	5	8	8
Școala Superioară de Agricultură și Silvicultură (Mariabrunn) Viena	Agricultură	-	27	27	27
Acad. Consulară Viena	Drept	-	5	5	5
Acad.de Export Viena	Comerț	-	18	18	18
Acad.de Arte Frumoase Viena	Arte	13	5	18	18
Acad.de Muzică și Artă Teatrală	Arte	-	26	26	26
Acad.de Artă Decorativă Viena	Arte	-	1	1	1
Institutul de Teologie „Augustineum” Viena	Teologie	5	27	32	32
Acad. Militară Wiener Neustadt	Ofițeri	20	98	98	98
Acad.de Inginerie Militară Viena	Ofițeri	7	47	54	54
Acad.de Medicină Militară „Josephinum” Viena	Ofițeri	-	9	9	9
Univ. Graz	Drept	-	19	19	108
	Filosofie	-	17	17	
	Medicină	-	71	71	
	Teologie	-	1	1	
Universitatea Tehnică Graz	Inginerie	-	17	17	17
Acad. De Minerit Leoben	Inginerie	-	19	19	19
Univ. Innsbruck	Medicină	-	3	3	7
	Teologie	-	4	4	
Univ. (Germană) Praga	Drept	-	3	3	11
	Filosofie	-	2	2	
	Medicină	-	6	6	
Univ. Tehnică (Germană) Praga	Inginerie	-	3	3	3
Acad/de Muzică Praga	Arte	-	2	2	2
Acad.de Minerit Příbram	Inginerie	-	5	5	5
Univ. Tehnică (Germană) Brünn	Inginerie	-	2	2	2
Univ. Zagreb	Filosofie	1	1	2	5
	Drept	1	2	3	
Univ. Lemberg	Filosofie	1	-	1	7
	Drept	1	2	3	
	Teologie	-	2	2	
	Medicină	-	1	1	
Univ. Cernăuți	Drept	-	2	2	58
	Filosofie	-	2	2	
	Teologie	-	54	54	
Univ. Sankt Petersburg	Filologie		1		1
Univ, Moscova	Filologie		1		1
Univ. Cracovia	Filologie		1		1
Univ. Basel	Filosofie	-	1	1	1
Univ. Berna	Teologie	-	2	2	6
	Filosofie	-	1	1	
	Medicină	-	3	3	
Univ. Geneva	Filosofie	-	5	5	9
	Medicină	-	3	3	
	Drept	-	1	1	
Univ. Zürich	Drept	-	6	6	6
Univ. Laussane	Medicină	-	2	2	3
	Filosofie	-	1	1	
Univ. Neuchâtel	Drept	-	2	2	2
Univ. Tehnică Zürich	Inginerie	-	20	20	20
Acad.de Agricultură Rütük	Agronomie	-	2	2	2
Univ. Anglia (neidentificată)	Medicină	-	1	1	1
Univ. Padova	Filosofie	1	-	1	4
	Medicină	-	1	1	
	Drept	-	2	2	
Univ. Pavia	Drept	-	1	1	1

Instituții de învățământ	Facultatea	Anii 1801-1850	Anii 1851-1919	Total facultate	Total general
Univ. Milano	Filosofie	-	1	1	1
Univ. „Gregoriana” Roma	Teologie și Filosofie	-	7	7	7
Univ. „Urbaniana” Roma	Teologie și Filosofie	1	49	50	50
Univ. Berlin	Teologie	-	3	3	61
	Filosofie	-	23	23	
	Medicină	-	17	17	
	Drept	-	18	18	
Univ. Bonn	Filosofie	-	2	2	7
	Medicină	-	2	2	
	Drept	-	1	1	
	Matematică	-	1	1	
	Științe naturale	-	1	1	
Univ. Breslau	Filosofie	-	1	1	2
	Științe economice	-	1	1	
Univ. Erlangen	Teologie	-	1	1	1
Univ. Freiburg	Drept	-	1	1	1
Univ. Giessen	Filosofie	-	3	3	3
Univ. Göttingen	Filosofie	-	1	1	3
	Teologie	-	1	1	
	Drept	-	1	1	
Univ. Greifswald	Științe naturale	-	1	1	1
Univ. Halle	Economice	-	8	8	12
	Filosofie	-	3	3	
	Medicină	-	1	1	
Univ. Heidelberg	Drept	-	2	2	5
	Medicină	-	2	2	
	Filosofie	-	1	1	
Univ. Ingolstadt-Landshut München	Medicină	-	7	7	24
	Filosofie	-	9	9	
	Matematică	-	1	1	
	Drept	-	6	6	
	Silvicultură	-	1	1	
Univ. Jena	Teologie	1	-	1	18
	Filosofie	-	10	10	
	Științe naturale	-	1	1	
	Filosofie-Pedagogie	-	4	4	
	Economie agrară	-	2	2	
Univ. Leipzig	Teologie	-	7	7	56
	Filosofie	-	37	31	
	Drept	-	7	7	
	Științe naturale	-	2	2	
	Economie	-	3	3	
Univ. Strasbourg	Filosofie	-	3	3	5
	Matematică	-	1	1	
	Drept	-	1	1	
Univ. Tübingen	Drept	-	1	1	3
	Medicină	-	1	1	
Univ. Würzburg	Medicină	-	1	1	
Univ. Tehnică Aachen	Inginerie	-	1	1	1
Univ. Tehnică Charlottenburg Berlin	Inginerie	-	16	16	16
Univ. Tehnică Braunschweig	Inginerie	-	1	1	1
Univ. Tehnică Darmstadt	Inginerie	-	2	2	2
Univ. Tehnică Karlsruhe	Inginerie	-	4	4	4
Politehnica Mittweida	Inginerie	-	8	8	8
Univ. Tehnică München	Inginerie	-	24	24	24
Univ. Tehnică Stuttgart	Inginerie	-	3	3	3
Acad.de Agricultură Hohenheim	Economie	-	11	11	11
Acad.de Agricultură Berlin	Economie	-	2	2	2

Instituții de învățământ	Facultatea	Anii 1801-1850	Anii 1851-1919	Total facultate	Total general
Școala Superioară de Comerț Leipzig	Comerț	-	14	14	14
Școala Superioară de Comerț Köln	Comerț	-	1	1	1
Școala Superioară de Comerț Frankfurt pe Main	Comerț	-	1	1	1
Școala Superioară de Comerț Berlin	Comerț	-	3	3	3
Școala Superioară de Comerț Mannheim	Comerț	-	2	2	2
Acad.de Arte Frumoase Berlin	Arte plastice	-	1	1	1
Acad.de Arte Frumoase München	Arte	-	7	7	7
Acad.de Arte Frumoase Weimar	Arte	-	1	1	1
Acad.de Muzică Berlin	Muzică	-	1	1	1
Acad.de Muzică Leipzig	Muzică	-	8	8	8
Acad.de Muzică Weimar	Muzică	-	1	1	1
Univ. Sorbona Paris	Filosofie	-	11	11	20
	Medicină	-	5	5	
	Drept	-	4	4	
Univ. Montpellier	Medicină	-	2	2	2
Univ. Tehnică Paris	Inginerie	-	1	1	1
Acad.de Arte Frumoase Paris	Pictură	-	2	2	2
Acad.de Comerț Paris	Comerț	-	1	1	1
Univ. Liegè	Filosofie	-	1	1	1
Univ. Gand	Inginerie	-	1	1	1
Univ. Bruxelles	Filosofie	-	1	1	1
Școala Superioară de Comerț Liège	Comerț	-	1	1	1
Școala Superioară de Comerț Anvers	Comerț	-	23	23	23
Univ. Cracovia			1	1	1
Univ.Sankt Petersburg			1	1	1
Univ. Moscova			1	1	1
TOTAL		2.041	13.164		15.205

Tabel 2. Studenți români la instituțiile de învățământ superior din Europa 1800-1919

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## PROPAGANDA AND WAR. THE MISSION OF THE ROMANIAN INTELLECTUALS IN PARIS (1917-1920)

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### Abstract

*One of the issues that my history of great interest was that of the role of propaganda during World War I, on the understanding that the phenomenon of the propagandistic took shape in the late twentieth century, with the rise of modern mass and thanks to new information and communication techniques. Furthermore, the outbreak of World War I highlighted the propaganda as total international phenomenon, taking for the first time a target group to whom addressed-modern table and had strategic purposes, such as: mobilizing against the enemy, the enemy, and demoralize the cooperation between the allies. The war also served as field experimental propaganda, becoming in turn a theater of war.*

*Although the question of propaganda as a phenomenon of the 20th century has been seen in countless occasions I believe this propaganda theme and mission of intellectuals at the time instead of Paris in World War I, requires special attention. The historical writings of the period aimed at the second part of the title were treated only a few summary items from the Communist period.*

*Documenting this theme started partially in the program of Master Relationships, Institutions and International Organizations, have deepened the aspects related to the first world war and the role of the media in international relations. Such preliminary research helped us to conceive a larger project-the Propaganda and war. The Mission of the Romanian intellectuals in Paris (1917-1920).*

*Research will have at all times in compliance with all requirements of the views of historical writing. Whereas this is a theme of historiography which is considering the question of propaganda in World War I. We are talking about a period of time during which the changes were to a large extent, but they had as purpose the achievement of national ideals-United connection.*

*This study takes into account adequate reporting events, presenting them in the context of real, in order to delineate the emotional implications of order. We maintain our objectivity and imperative for added credibility, we turn to archival documents and the legislative ones, to play the official framework of the unfolding events. The two types of sources will be continuously put in link whereas, even in the absence of their document archival value when, in addition to a touch of novelty and a symbolic capital of credibility that you bring, make up and other types of springs. Such a document should not be offered a privileged relationship with the a priori truth, above a that of a historical or literary text signed, published and therefore assumed. We believe that such a text may provide a small degree of objectivity but safe.*

**Keywords:** World War I, propaganda, intellectuals, Paris, national ideals.

Primul Război Mondial a determinat schimbări majore în geopolitica mondială, lăsând urme adânci atât în memoria individuală precum și în cea a colectivităților umane. Statele beligerante au angajat atât resurse umane, cât și materiale într-un efort comun - realizarea victoriei. Marii comandanți militari și-au adaptat tacticile de luptă și strategia pentru a rezista unui conflict de durată, mergând până la epuizarea resurselor și demoralizarea trupelor adverse. Iar, liderii politici au utilizat și alte mijloace menite să ducă spre izbânda finală și o pace durabilă [1].

Propaganda a fost direcționată atât spre proprii cetățenii, cât și spre opinia publică internațională. Aceasta transmite pe căi diverse mesaje destinate să influențeze masele și să „formeze percepții, pentru manipularea cunoașterii și pentru direcționarea comportamentului în scopul de a obține un răspuns care să favorizeze obiectivul dorit” [2].

În propaganda externă se utilizau, în special, argumente istorice și etnice pentru a-i convinge pe cei din străinătate de justetea cauzei unei națiuni.

În cazul României, propaganda externă s-a realizat fie cu ajutorul materialelor scrise și video, fie prin intermediul personalităților vremii. În alți termeni, resursele prin care s-a făcut propagandă au constat în ziare, broșuri, cărți și filme documentare. De asemenea, personalitățile vremii au jucat un rol important în diseminarea formelor propagandistice prin intermediul conferințelor pe care le realizau [3].

Treptat, marile puteri beligerante au organizat structuri de propagandă ce cuprindeau birouri interne și „birouri de presă”, create pe lângă reprezentanțele diplomatice din capitalele lumii. Acest exemplu a fost preluat de statele mici, precum și de către unele comunități etnice care aspirau la crearea de state naționale. Într-adevăr, grecii, sârbii, cehii, bulgarii, ungurii, românii și-au construit propriile structuri de propagandă în afara granițelor. În ultimii doi ani de război, și mai ales în perioada desfășurării Conferinței de pace organizată în capitala Franței, oficiile de propagandă și „birourile de presă” au publicat mii de cărți, broșuri, pamflete, atlase, petiții, rapoarte și pliante, menite să-i convingă pe decidenții vremii de justetea cererilor unui stat în dauna vecinilor săi, fie ei învingători sau învinși, foști aliați sau dușmani [4].

România a intrat în război de partea Antantei pentru realizarea idealului național. Mai precis, cu scopul de a împlini dorința românilor, și anume ca Marile Puteri să le recunoască legitimitatea revendicărilor sale teritoriale asupra Transilvaniei, Banatului și Bucovinei.

Motivul pentru care România a acționat și în străinătate a fost pentru a pleda în sprijinul unirii țării-mamă cu teritoriile aflate în componența unor imperii vecine. De aceea, a făcut apel la zierele renumite cu răspândire în țări precum Franța, Italia, Anglia și SUA. Ca particularitate, de remarcat este faptul că statul român a finanțat ziare și reviste proprii aflate în străinătate, pentru a mobiliza pe cei aflați sub stăpânire străină. Ca exemplu, periodicile *America*, *Tribuna*, *Românul*, ș.a. apăreau în SUA. Tactica folosită atât de România, cât și de țările menționate mai sus, a fost promovarea intereselor naționale în străinătate, fie prin conferințe, discursuri susținute de personalități de prestigiu, fie prin popularizarea unor serii de lucrări cu caracter științific și istoric în limbi de circulație internațională [5].

Universitarii români organizați în Asociația Profesorilor Universitari din România, au propus, în ședința din iulie 1917, premierului I. I. C. Brătianu trimiterea unei misiuni universitare în Franța, care să susțină mai ferm interesele românilor. Astfel, la propunerea vice-președintelui asociației profesorilor Universității din București, profesorul Simion C. Mănderescu, a creat la Paris, capitala Franței așa numita „misiune universitară”. Misiunea destinată să susțină propaganda în străinătate [6] era formată din

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personalități de prestigiu a lumii universitare românești: Orest Tafrali, I. Găvănescul și I. Ursu de la Universitatea din Iași; Em. Pangrati, Charles Drouhet, Dr. Hurmuzescu, Traian Lălescu, Simion C. Mindrescu, George Murnu de la Universitatea din București și Ion Nistor de la Universitatea din Cernăuți [7].

Oamenii politici, profesorii universitari, ziariști au pus bazele unui ziar, care să constituie „organul de propagandă prin excelență a românismului, tribuna de pe care să se facă cunoscută și să se apere drepturile revendicărilor naționale și politice ale românilor de pretutindeni”. Astfel, a luat ființă la Paris în ziua de 17 ianuarie 1918 ziarul „La Roumanie. Organe hebdomadaire des revendications et des intérêts roumains” (*România Organ al revendicărilor și intereselor românilor*) [8], sub conducerea lui Paul Brătășanu senator, vechi președinte al Camerei, proprietarul jurnalului *La Roumanie* din București; Constantin Mille, deputat, directorul jurnalului *Adevărul de dimineață*; C. Banu deputat, vechi director al ziarului *Viitorul*, director la *Flacăra*; Emile C. Fagure, redactor șef la *Adevărul de dimineață* [9].

Așadar, propaganda românească a avut un impact puternic în rândul populației civile, care nu a căzut în capcanele inamicului. Apoi, fenomenul propagandistic din țara noastră și-a lăsat amprenta asupra soldaților, cărora li s-a inoculat ideea că trebuia să lupte cu riscul de a-și pierde viața pentru îndeplinirea idealului românesc. În acest sens, sunt relevante victoriile din timpul campaniei din vara lui 1917 de la Mărăști, Mărășești și Oituz.

În plan extern românii, pentru a-și susține cauza, au tipărit tratate de istoria românilor în limbi de circulație internaționale. Prin aceste tratate se sublinia caracterul romanic și legătura sa cu spiritualitatea latină a popoarelor italian, francez, spaniol, etc. Mai mult, românii au realizat și lucrări consacrate istoriei provinciilor, a căror unire trebuia să fie recunoscută la Paris. Drept exemplificare, au tipărit lucrări precum: *La Bessarabie et les droites des peuples* (*Basarabia și drepturile omenești*, 1919), *Bessarabia - Political and Economical Review* (*Basarabia - Revista politică și economică*).

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## THE ETHICS OF REALISM IN ION AGĂRBICEANU'S PROSE

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### Abstract

*The rough vision, some psycho-analytical subtleties, the “cold” lyricism (Mircea Zăciu), the overrunning of the typical sweetening and idyllicism of the “samanatorist” ideology, the detailed investigation of inner convulsions of the humanity in the Apuseni mountains, in narratives where description meets moral observation – all of these dominant features of Agârbiceanu's works are correctly and rigorously revealed by an exemplary edition that manages to reconstruct the architecture of a literary work, maintaining its actuality and severe beauty since, as Mircea Zăciu had noticed, “no matter how many changes have tossed the Romanian history, society and literature, Ion Agârbiceanu seems strangely up to date”. We attempt, in this paper, to show the main coordinates of Realism in Ion Agârbiceanu's works, from the perspective of the Ethics of creation.*

**Keywords:** *prose, realism, fantastic, ethics, psychology.*

Proza lui Agârbiceanu se caracterizează, înainte de toate, printr-o viziune predominant realistă, în care obiectivitatea, umanismul, infuziile de fantastic și tentația lecției etice se împletesc în doze diferite în nuvele, povestiri sau romane. Descifrând dinamica reprezentărilor arhaice sau a tradițiilor folclorice într-o perspectivă a autenticului, fără idilizarea modului de viață patriarhal, Agârbiceanu este autorul unei opere care a evoluat „în direcțiile arhaismului și etnicismului național, al unei tradiții protectoare, urmărind să se desolidarizeze de aspectele combinate ale existenței, precum: războiul, civilizația industrială și îndepărtarea ființei umane de propria moștenire ancestrală, biologică și ereditară” [1]. Desigur, și în cazul lui Agârbiceanu se poate vorbi de o consonanță indiscutabilă între tribulațiile biografiei și relieful operei, ca și între om și umbra sa creatoare sau între ființa atât de atașată de valorile unei etici creștine și peisajul în care și-a înscris devenirea, fapt remarcabil chiar de către scriitor: „Ceea ce mi-a pătruns adânc în suflet din acești ani ai primei copilării, din păscurile oilor la marginea pădurii sau în pădure, a fost mireasma câmpului, a codrului, colorile cerului, ale luncii cu florile, bătaia și cântecele vântului în văzduh sau în pădure, cântecul apelor, a pâraielor în topitul zăpezilor” [2]. Nu e deloc întâmplător faptul că reprezentarea unei umanități suferinde e însoțită de un sentiment al relativității lucrurilor, fenomenelor și situațiilor epice, scriitorul considerând, de altfel, că prin suferința oamenii își descoperă nu numai propriile limite, ci și capacitatea de mântuire, de purificare și regenerare morală, toate însoțite de contemplarea senină a lumii: „Să stăm deci cu credință și cu vitejie în lupta cea mare și grea a vieții, în lucrarea și folosirea cu grijă și cu hărnicie a darurilor date nouă de Dumnezeu! Orice greutate și suferințe am întâmpina în rodirea bună a talanților, să nu ne pierdem curajul... Creștinul harnic și neînfricat în folosirea bună a darurilor date de Dumnezeu face cea mai măreață faptă de pe pământ: el crește și sporește averea Părintelui ceresc. Averea lui Dumnezeu nu sunt banii și moșiile, ci faptele cele bune, comorile sufletești: credința, curăția, dreptatea, nădejdea, iubirea, mila, bunătatea, prietenia, ajutorul frățesc și toate virtuțile creștine pe care Dumnezeu le seamănă în sufletul omului. Din acestea toate se naște împărăția și averea lui Dumnezeu pe pământ... Creștinul cel harnic este ca albină lui Dumnezeu pe pământ” [3]. Realismul promovat de scriitor are, de la primele narațiuni, până la cele aparținând epocii mature, o coloratură etică. Voința de reprezentare obiectivă a realității consună, în concepția și practica scriitorului, cu o viziune unificatoare, în măsura în care în centrul întregii creații a lui Agârbiceanu se regăsește ființa umană, cu dimensiunile și gradele sale specifice de reprezentare. Mircea Zăciu avea dreptate să considere că liantul unificator al acestei lumi ficționale este accentul umanist, cel care, de altfel, prin amprenta și infuziile sale semantice, conferă reliefului operei timbrul etic suprapus poeziei realiste: „Opera lui Agârbiceanu conține certe valori, un mesaj actual, capabil să trezească multiple ecouri. Nu întâmplător, tot în această etapă, calitativ superioară, a literaturii și criticii noastre, Agârbiceanu s-a orientat mai adânc către semnificația estetică a operei de artă, manifestând un interes pasionat pentru fenomenul artistic actual” [4].

Cu o arhitectură diversă, relieful operei lui Agârbiceanu este articulat prin intermediul unor teme coerent structurate, din perspectiva mai largă a realismului etic: sensul omului în lume, relația dintre individ și istorie, raportul paradoxal dintre suflet și spirit, dintre sacru și profan sau dintre imanentă și transcendență. Din această perspectivă, ființa umană este una care, pentru a-și desăvârși substanța și conduita interioară, trebuie să apeleze la credința creștină, să-și asume semnificațiile modelului christic, prin jertfă, seninătate, împăcare, definirea condiției poprii desăvârșindu-se, astfel, prin continuă propensiune spre absolut, prin tentarea surmontării limitelor și a obstacolelor și reprezentarea existenței ca suferință, ca mântuire prin jertfă cotidiană și renunțare. Exemplare sunt, în această privință, portretele cu vibrație intensă ale unor ființe anonime, de mare umilitate și, în același timp, de acută demnitate a înțelegerii rosturilor existenței, ființe ce se regăsesc în *Fefelega*, *Luminița*, *Copilul Chivei*, *Prăginel*, *Fișpanul*, în care scriitorul surprinde, cu fină vibrație afectivă, o gamă amplă de stări sufletești și de nuanțe ale trăirii afective, de la dragostea față de copii împinsă la limita sacrificiului tragic și a resemnării cronice din *Fefelega*, la destinul babei Măia, a cărei dorință este aceea de a muri creștinește, având la căpătâi o lumânare (*Luminița*), sau la truda neconținută a lui Niculai a Firii, poreclit Fișpanul.

Acuratețea portretelor, redată în linii aspre, în contur decis, ferm și în tușe energice este surprinsă de I. Negoieșcu, într-o formulare sintetică, în care e subliniată finețea reprezentărilor figurale, lirismul conturului unei atmosfere revelatoare sau intuirea exactă a meandrelor sufletești și ale imaginarului: „Mai fin decât Slavici, mai poet decât Rebreanu, mult mai inventiv decât ei, cu o prodigioasă fantezie epică, Agârbiceanu ne-a dat o întinsă galerie de portrete rurale, care prin varietate și prin interesul ei uman nu are egal în literatura noastră decât galeria urbană a Hortensiei Papadat-Bengescu. Iar dacă acești doi autori (a căror apropiere sub orice formă poate să pară paradoxală – deși înclinația către boală, către morbid le este totuși comună) se deosebesc atât prin lumile diferite pe care ochiul lor epic le surprinde, cât și prin mijloacele de expresie, căci pentru a pătrunde în sufletul urban Hortensia Papadat-Bengescu recurge la bisturiul cerebralității –, lipsa de analiză psihologică, elementaritatea, naivitatea expresivă a stilului lui Agârbiceanu duc la rezultate nu mai puțin eficiente, atunci când se aplică sufletului țărănesc, el însuși elementar și naiv” [5].

Fiind, așa cum sublinia Mircea Zăciu, „exponentul unei provincii căreia i-a simțit din plin frământările, istoria, dimensiunea morală” [6], Ion Agârbiceanu evocă, în nuvele și romanele sale, un mediu ancestral, patriarhal, încercat de aromele trecutului și de inflexiunile mitului sau ale fantasticului, toate acestea sublimite de o tulburătoare percepție etică, de indiscutabilă acuitate. Portretele, evenimentele narrative sau redarea conflictelor revelează dominantele unei viziuni în care umanismul se împletește cu redarea obiectivă, autentică a figurilor și contextelor, sau cu tentația descifrării dominantelor morale, precum în *Badea Niculae*, *Mătușa*

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Stana, Bunica, Nepotul, Hoțul, Dan Jitarul, Popa Vasile, Costea Pădurarul, Căprarul, Bolnavii, Un doftor, Dascălul Vintilă, Cula Mereuș, Mortul, Moș Viron, Bătrâna, Țuțu Ilie, Precupaș, Fierarul Petrea, Un candidat, Doi bătrâni etc. Surprinse cu acuitate caracterologică, figurile umane sunt, cum remarcă scriitorul însuși, „icoane care se ridicau în suflet, pline de duioșie” [7].

Fascinația acestei umanități marcate de suferință, umilințe, sărăcie sau frustrări cuprinde și o latură de mister, prin revelarea conflictului, dureros uneori, dintre lumea concretă și aspirația spre o transcendență ce rămâne, cel mai adesea, mută. Experiența de preot a scriitorului atrage după sine cunoașterea directă a durerilor, suferințelor, a sărăciei din satele Apusenilor: „De altfel, din experiența vieții pastorale s-au născut cele mai multe schițe și povestiri ale mele. Îndeosebi, m-a impresionat latura de suferință din viața sătenilor. Și întâia emoție era, de cele mai multe ori, de compătimire. Mai ales primii patru ani de preoție mi-au dezvăluit cele mai multe mizerii ale vieții de la țară. Eram uneori saturat, supraîncărcat cu senzații și impresii deșteptate de mizeria sătenilor, încât regretam că m-am făcut preot, să cunosc toată această mizerie, și materială, și morală. Aveam senzația că mă întunec, ca la vârsta dintre 16-22 de ani, când nu aveam o credință hotărâtă. Simțeam necesitatea să schimb mediul. Da, aproape toate personajele principale din scrierile mele au pornit de la un sămbure de realitate. creații de pură fantezie am puține, deși, evident, fantezia le-a completat, le-a depărtat uneori de realitate pe cele ridicate de aici” [8].

Figurarea suferinței, a infirmităților umane, a tarelor biologice sau morale domină multe dintre narațiunile prezente în volumele de proză scurtă publicate după 1918 (*Popa Man, Chipuri de ceară, Spaima, Prăpastia, Diavolul, Dezamăgire, Visurile, Singurătate, Primăvara*), în care se regăsesc linii ale evocării atmosferei de mister și fantasmatic ale lumii Apusenilor. Nuvele precum *Fișpanul, Gheorghiuș, Copilul Chivei, Teleguș, Prăginel, Fefelega, Luminița, Iarnă grea, Vârvoara, Ceasul rău, Melentea* aduc în scenă biografii concentrate, sublimate, aflate sub spectrul tragicului resemnat. Sunt narațiuni ce se detașează prin minimalism al notației și stil tensionat, scuturat de ornamente, într-o scriitură în care „reducția planului epic și tehnica racursiului concentrează biografii exemplare, cu o surdinizare a expresiei patetice” [9]. În *Păscălierul*, de pildă, construcție narativă densă, cu nuanță de „farsă dramatică” [10], preotul, Costandin Pleșa, un impostor, din dorința de a se detașa în rândul consătenilor, inventează așa-numitul Păscălier, o carte făcătoare de minuni, în care poate citi viitorul credincioșilor, le poate dezlega sufletele de farmede sau trupurile de boli, speculându-se, astfel, ignoranța enoriașilor, dar și nevoia acestora de a crede în superstiții sau minuni. Acest resort al amăgirii este dezvăluit chiar de preot soției sale: „Ai uitat lucrul de căpetenie, femeie. Pentru ce vor veni oamenii la mine? Să scape, prin rugăciune, de răul ce-i bântuie. Nu-i așa? (...) Vor veni, ai să vezi, și încă mulți! Dar de răul lor rugăciunea nu-i va scăpa dacă ei nu cred. Trăbă să creadă. Și credința în puterea cărții și a rugăciunii se va vărsa în sufletul lor îndată ce vor auzi că eu știu cine sunt ei și ce pățimesc. Dacă eu sunt un mincinos, pentru ei sunt mincinos. Dacă vrei să mă numești șarlatan, pentru ei sunt, pentru vindecarea lor. Și Dumnezeu, care știe toate, știe că eu mă fac a cunoaște lucrurile din carte numai pentru ca ei să creadă și să se măntuiască. Altfel, fără credință, rugăciunea și slujba nu folosesc la nimic”.

O statuie esențializată a suferinței este durată în *Fefelega*, una dintre narațiunile exemplare ale lui Agârbiceanu, care surprinde, cu acuitate evocatoare, cu dramatism, cu revelatorie empatie, silueta uneia dintre multele femei obidite, umilite, însingurate din satele Apusenilor: „Femeia e înaltă, uscată, cu obrajii stricați de vărsat, arși de soare și de vânt. Pășește larg, tropotind cu cizmele tari, pline de umflături uscate. Calul o urmează cu gâtul întins, scobălțind din picioarele ciolănoase. Poartă pe spinarea adânc deșălată două coșărci desăgite. Sub coșărci, la fiecare legănare, se văd două petece mari, pământii. Calul e alb, sub coșărci, i s-a ros părul de tot, și pielea, de-atâta frecătură, e-o rană tăbăcită, tare ca potângul. Merge în urma muierii, adormit parcă de tropotul cunoscut al cizmelor ei. Capul, mare cât o solniță, nu și-l mișcă nici la dreapta, nici la stânga”.

O altă biografie „a unui suflet chinuit” [11] este *Luminița*, narațiune în care este reprezentat sfârșitul babei Măia, femeie naivă, care își păstrează, pentru momentul trecerii în neființă, o lumânare de ceară, o „sfântă luminiță”. În cele din urmă, bătrâna moare cu mâna întinsă după lumânarea pe care nu a mai reușit să o aprindă. Gestul final este revelatoriu pentru destinul anonim, implacabil, nemilos al unei ființe neînsemnate, aflate într-o situație-limită, reprezentată cu dramatism, într-o alternanță a descrierii și a desfășurării narative, prin care „descripția se constituie ea însăși ca un moment narativ, un prolog de fapt la o tragedie comunicată printr-o continuă hiperbolizare a naturii terifiante” [12]. Între afectivitatea personajelor și ritmurile naturii se creează o corespondență, nu într-un totu secretă, peisajul primăverii preluând funcția de preambul la drama care se consumă în casa babei Măia: „Primăvara începuse cu secetă mare. Se roșiseră livezile, ca arse de brumă, iar dealurile erau pământ gol. Vitele zbieau pe câmp ziua, mergeau prin curți noaptea, iar oamenii își plecaseră capetele adânc în piept”. Chiar momentele de calamitate, de ploaie îndelungată, par să aibă rolul de a pregăti și motiva, într-un anumit sens, scenariul tragic: „Dar ploaia vreo patru zile n-a mai conținut. Câteodată scăpau de după dealuri vânturi mari, ce duceau spre Pleșa grămezi mari de nouri, ca niște turme de dihăanii și de uriași, negri, vineți, mănioși, înclățați unii într-alții”. Portretul babei Măia este unul contras, cu detalii ascetice, cu notații de o tulburătoare concizie, relevând, în tușe rezumative, o viață, un trup, un destin: „Babei Măia i se uscaseră și gâtul, și pieptul, iar din adâncul măruntaielor i se stârnea ceva ce-i aducea amețală la cap. (...) Și ochii ei, înconjurați de pielită zbârcită, vineție, priveau nemișcați, dulcegi, plini parcă de-o apă alburie”.

Evocator de încontestabilă autenticitate al spațiului transilvan, Ion Agârbiceanu este un prozator de viziune sumbră, cu tonuri aspre, lipsite de orice edulcorare, un scriitor care cultivă, cum observa Mircea Zăciu, „o proză încărcată de substanță umană, rezultat al unei observații directe și pasionate, cu concluzii morale și sociale” [13]. Multe dintre notațiile de amprentă tragică, multe dintre imaginile de tulburător dramatism din nuvelele, povestirile și romanele lui Agârbiceanu au ca suport biografic experiența sa de preot, nevoit, prin chiar misiunea de înaltă demnitate morală a profesiei sale, să asculte, să mângâie, să ofere sprijin și iertare a păcatelor, în numele lui Dumnezeu. De altfel, în volumul *Meditații în septembrie*, scriitorul consenmează diiflucțiile pe care le-a avut de surmontat de-a lungul timpului: „Mi-e aproape cu neputință să scriu ceva despre un om mort de curând. Nu numai să scriu, ci chiar să vorbesc: predicile de la prohoduri îmi sunt cele mai grele și, desigur, cele mai slabe. Am totdeauna senzația că vorbesc forțat, că îndrug cuvinte goale, că simțirea mi s-a ascuns într-o tainiță atât de adâncă, încât îmi pare că mi-a și murit. Senzația aceasta mă urmărește de câte ori încerc să vorbesc, ori să scriu despre un om mort de curând; dacă tac, e altceva, dacă tac simțirea învie și-mi umple întreaga ființă, ca o apă turbure și grea. Pe strunele sufletești se plimbă, se îmbulzesc vaiete grele, dureroase, care izvorăsc parcă din noapte și trec mereu, curg într-una către infinit, trec mute, fără cuvinte. În drumul lor aștern parcă o haină de gheață peste suflet, dar ce sloi ciudat e acesta care deschide izvorul lacrimilor, umezind ochii! În fața veșniciei noi nu putem decât să plângem” [14].

De indiscutabil interes sunt acele personaje contradictorii, ambigue, tulburătoare, prin consum emoțional excesiv, care stau sub semnul patimii, sau sub tutela unei demonii răvășitoare. Cornel Regman inventariază, în *Agârbiceanu și demonii* [15], o tipologie a demonilor și demoniilor din opera lui Ion Agârbiceanu: demonul înavuțirii (crăsmărița Nițuleasa din *Vâlva – Băilor*), demonul risipirii, al dezordinii existențiale (Popa Man, din nuvela omonimă), demonul orgoliului nemăsurat, predispus la eșec (Iosif Rodean din *Arhanghelii*), demonul minciunii, al amăgirii și imposturii (Costandin Pleșa din *Păscălierul*), demonul pierzaniei (Stana, eroina

romanul omonim), demonul seducției (Dumitru Bogdan din nuvela *Jandarmul*), demonul lăcomiei (Moise Mărginean din romanul *Strigoitul*), sau demonul vitalității exacerbate (Rusalina din *Faraonii*).

Mesajul lui Agârbiceanu este limpede trasat, în narațiunile sale ce se relevă, deopotrivă, de la legitimarea unei etici a realismului, ca și de la exigențele unui realism etic. Acest mesaj poate fi formulat cât se poate de clar astfel: oamenii care pierd calea dreaptă a eticii creștine, a umanismului, a echilibrului sufletesc eșuează, devin suflete damnate, conștiințe chinute, pierdute în labirintul lumii, dar și în labirintul propriului eu. Nuvela *Popa Tanda*, de pildă, trasează destinul unui aventurier, Emanoil Manovici – popa Man – devenit preot în Teleguța. Personaj misterios, cu avânturi și impulsuri nestăpânite, nestatornic, contradictoriu adesea, Popa Man, „un suflet torturat, lesne deschis patimilor” [16] e un factor destabilizator în satul în care se stabilește ca preot, prin patima pentru Firuța, dar și prin patima îmbogățirii, până la izgonirea sa din sat. Se poate susține, desigur, opinia lui Cornel Regman, conform căreia conștiința personajului e locul unei confruntări tragice, al unor impulsuri contradictorii, bântuite de neliniști și aflat într-o continuă prefacere afectivă: „Întreaga povestire – scrie Cornel Regman – nu-i altceva decât proiecția sufletului sălbatic al popii și a metamorfozelor sale demoniace pe acest fundal inocent de psihologie colectivă, modulând – asemenea corului antic – un cântec nu prea variat, de câteva note” [17].

Protagonistul din *Jandarmul* (Dumitru Bogdan), întors în sat după 15 ani, moștenește cea mai mare avere din sat, părând, la început, un om gospodar, echilibrat, econom, chiar dacă, în portretul pe care îl conturează scriitorul se insinuează și unele accente sau prevestiri neliniștitoare: „Era un bujor de român cum nu se afla altul din sat. Drept ca un brad, dar cu trupul vărtos, cu priviri tari, sure, ca de oțel, cu mustața neagră răsucită. Fața bronzată avea linii aspre, întunecate. O paliditate ciudată pătrundea de subț arămiul obrazilor. Gura părea pecetluită cu o nuanță de strânsoare”. Pe parcurs, Dumitru Bogdan își dezvăluie adevărata fire (vidul sufletesc, incapacitatea de a iubi, egoismul, nestatornicia, lașitatea). Destinul tragic al „jandarmului” poartă în esența lui o latură de mister, de spaimă atavică, de inexplicabil: „Oamenii începură cu bănuielile cum a ajuns Dumitru Bogdan aici să se spânzure, și ce rost aveau bureții din traistă... Satul întreg se perindă să-l vadă pe mort. Numai două femei nu fură văzute de nimeni: Veronica, măritată acum a doua oară, și Catarina, care cine știe pe unde era cu feciorul cu care fugise. Pentru amândouă, jandarmul era mort de mult”.

Din peisajul uman al Apusenilor se detașează lumea minerilor, categorie marginală, ce trăiește în condiții precare, desenată de scriitor în tușe sugestive, aspre, concise, de o expresivitate minimalistă: „Din tainițele pământului, de pe cărări înfundate în munți, de după colțuri de stânci, începură să răsară deodată grupuri de mineri, întâi mai puțini, apoi tot mai mulți, luându-și drumul tăcuți, cu pași osteniți, spre ghișeurile din vale, unde li se făcea plata în toată sâmbăta, după-masa. Văzuți de departe, păreau cete de bandiți care se strecoară, nesimțit, la pradă. Cu fețele și mâinile negre de cărbune, cu bărbile nerase, cu hainele întinate, răspândind miasme acre din umezeala măruntaielor pământului, aduși de spate, pășind larg pe picioare nesigure, văzuți de-aproape, păreau mai degrabă grupuri de nenorociți. Din când în când se auzea tusea hărăitoare până în adânc de piept și câte-o înjurătură amară în diferite limbi ale țării, când vreunul se împiedeca de-o piatră din drum”. Lumea minerilor e evocată și în romanul *Arhanghelii*, monografie a unui ținut, dar și monografie a unei patimi, aceea a îmbogățirii. Reușita existențială sau eșecul se datorează funcționării sau secării filoanelor aurifere din mină: „Complexitatea faptelor epice, varietatea eroilor și a planurilor de acțiune sunt strâns legate de prezența centrală a minei *Arhanghelii*, care concretizează admirabil fenomenele istorice oglindite. De ea atarnă existențele ce populează cartea; ea își aruncă umbra greoaie asupra peisajului Vălenilor; prăbușirea minei aduce prăbușirea eroilor și așterne o tăcere încremenită peste ținutul căruia îi dăduse o vreme viață. Mina *Arhanghelii* este de fapt eroul principal al romanului. Ea simbolizează, într-o proiecție populară naivă, însuși capitalismul, cu cortegiul de nefericiri, mizerie, iluzie a stabilității, aparentă bunăstare, dincolo de care pânzele prăbușirea economică și disoluția moravurilor” [18].

Cazul directorului Rodean este exemplar pentru lumea băieșilor, iar proprietarul minei „*Arhanghelii*” trăiește mirajul îmbogățirii, într-un ritm trepidant, de care e cuprins întreg satul: „Satul părea din ce în ce mai populat; cară încărcate cu piatră scârțăiau pe drumuri ziua-noaptea; căluții cu coșurile desăgite împleteau o rețea nesfârșită pe ulițele satului. Mirosul de mineral scos proaspăt din sânul pământului plutea peste tot umed, sulfuric, pișcător, deschidea larg nările băieșilor, care se îmbătau de el mai mult decât de orice băutură. Pielele toctocau neîntrerupt, umplând de răsunete uscate și înfundate bătrânele păduri de brad”. Eșecul lui Iosif Rodean e strâns legat de declinul minei, dar și de fascinația malefică a aurului asupra conștiinței sale labile, neîn stare să reziste tentației înavuțirii rapide. Desigur, există o dimensiune moralizatoare a romanului, realismul etic al prozatorului fiind cât se poate de limpede configurat, prin liniile de evoluție ale acțiunii, prin destinul personajelor, dar și prin modul în care Agârbiceanu reprezintă, de-a lungul narațiunii, „oameni ce se încarcă de o putere mai mare decât le e încăputul, devenită prin chiar aceasta blestemul lor; mai adesea, oamenii unor teribile tentații, care anulează sau alterează în ființa lor orice altă trăire, reduși, într-un fel, prin propria patimă, la condiția unor căpcăuni” [19]. Roman ce se impune prin forța epică, prin vitalitatea narațiunii, dar și prin credibilitatea personajelor, care depășesc schematicismul moralizator, *Arhanghelii* ilustrează, deopotrivă, etica realismului, dar și canoanele realismului etic, specific prozatorului ardelean. Mircea Popa sublinia, cu îndreptățire, o astfel de confluență, între autenticitatea relatării și substratul etic, remarcând strategiile narrative de substanță balzaciană sau coordonatele unui discurs realist bine coordonat și structurat: „Deși *Arhanghelii* rămâne, într-un fel, un roman cu teză, valoarea lui nu este cu nimic împietată de prezența acestei strategii literare de factură balzaciană, deoarece el se realizează dincolo de orice stângăcii arhitectonice, printr-un ritm trepidant, admirabil condus, al acțiunii și un discurs realist de bună factură compozițională și stilistică – înscriindu-se, prin toate aceste elemente – ca una din marile biruințe ale realismului pe tărâm românesc în literatura noastră de la începutul secolului” [20].

Proză de largă cuprindere a unei realități surprinse în multiplele ei metamorfoze, și, în același timp, de adâncă înțelegere a sufletului omenesc, opera lui Agârbiceanu continuă tradiția prozei transilvane inaugurate de Slavici și continuată de Rebreanu sau de Pavel Dan: „Umanitatea creației, vocația povestitorului și statonica apropiere de ființa supusă unor grave și dramatice încercări, mesajul unei opere pentru care valorile morale sunt fundamentale, fiindcă ele emană din experiența oamenilor, sunt de natură să readucă în lectura noastră proza unui scriitor autentic. El continuă o tradiție inaugurată în literatura Transilvaniei de Ioan Slavici și îmbogățită de Liviu Rebreanu, Pavel Dan și Ion Vlasiu. Printre aceștia Ion Agârbiceanu are măreția și frumusețea mesajului umanist, are, nealterată, pasiunea povestitorului și, în consecință, a făuritorului de vieți” [21].

Viziunea aspră, unele subtilități de analiză psihologică, lirismul „rece” (Mircea Zăciu), depășirea edulcorării, a ornamenticii convenționale și a idilismului tipice pentru ideologia sămănătoristă, investigarea cu minuție a convulsiilor sufletești și a umanității Apusenilor, în narațiuni ce îmbină descrierea și observația morală sunt însușiri reprezentative ale unui demers narativ de mare interes, ce ilustrează cu asupra de măsură exigențele eticii realismului.

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FRANCO-ROMANIAN CULTURAL GEOGRAPHY. INVENTORYING, ANALYZING AND DIGITALIZING  
BENJAMIN FUNDOIANU / FONDANE MANUSCRIPTS IN ROMANIA, FRANCE AND THE UNITED STATES

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**Abstract**

The purpose of this research is the initiation of a recovery endeavor, benefic both to the formative culture (Romanian) as well as to the adoptive one (French), to determine a (re)settlement of Benjamin Fundoianu/Fondane in the cultural spaces in which he divided his creative energy and, at the same time, a more just positioning of his in the broader global, cultural landscape. Romanian-French poet and philosopher, born Benjamin Wechsler, (1898 in Iași, Romania -1944 Auschwitz-Birkenau), his enrollment in the literary and journalistic context of that time was particularly significant, both due to the value of his theoretical and practical contribution, as well as due to the perspectives which we can appreciate that would have presented to him, if he hadn't been subjected to such a tumultuous and tragic existence.

The identification, inventory and analysis of the manuscripts of Fundoianu/Fondane during each stage of his creation is a mandatory and essential project for both Romanian and French culture and for the history of the avant-garde in general. The manuscripts are divided in different collections, at Bibliothèque Doucet – Sorbonne Paris, Société d'Etudes Benajmin Fondane, the Romanian Academy Library, respectively the Romanian National Museum of Literature and the Romanian National Library. The Yale University library collection also includes holograph manuscripts of approximately 650 poems, 55 works of prose and 9 playscripts, mostly in Romanian, but also in French. Correspondence (incoming and outgoing) is with Fondane's sisters Lina and Rodica Wechsler, other family members and the journal *Hatikvah*. The investigation, quantitatively as well as qualitatively, of the still inedit texts signed by Fundoianu / Fondane now, after more than half a century after his passing away, would be a late, but not useless cultural acknowledgement.

**Key words:** Benjamin Fundoianu / Fondane, manuscripts, poetics, Romanian / French culture.

Although lately, it has been frequently written and spoken about Benjamin Fundoianu Fondane, his writings still have enough uncharted areas, unexplored facets, little known issues or allegations, that sometimes need to be corrected, completed or more closely investigated.

Ever since the first phase of tackling a subject related to the social or literary personality of the one who named himself, according to circumstances or his own structure, Wexler, Fundoianu or Fondane, it must be said, unfortunately for our cultural geography, that he was among the writers that were not always properly appreciated. One of the causes that lead to this was the insufficient knowledge of his work, which, at a closer evaluation, put him, without a doubt, among the great Romanian avantgardists.

Moreover, Benjamin Fundoianu's enrollment in the literary and journalistic context of that time was particularly significant, both due to the value of his theoretical and practical contribution, as well as due to the perspectives which we can appreciate that would have presented to him, if he hadn't been subjected to such a tumultuous and tragic existence.

In fact, generally speaking, taking into consideration the cultural complexity of the activity of the literary man in question, the piece dedicated to him is quite brief. The multitude of directions in which Fundoianu / Fondane intellectually engaged himself in makes a synthesis difficult; in my opinion, a productive research method, in this case, being that which is structured on delineated areas.

It is beyond any doubt that the literary man in question had a particular penchant for polemical ostentation, his way of thinking dissociating itself from those of his Romanian contemporaries, even if they had such attitudes, they were not vehemently directed towards defying a culture, as a whole.

His exaggerated and often offensive radicalism does not null out however the exemplary value of his articles and lyrics, neither does it justify, over the years, his marginalization among the Romanian real literary vocation people. I have tried explaining the in-depth significance of his attitude, from the perspective which the author himself indirectly suggests to us: the text as a proof of love [1].

The Romanian autochthonous literary criticism focused intensely on the volume *Privești*, leaving almost untapped the vast amount of texts scattered throughout various publications of the time or preserved in manuscript. These constitute an irresistible source, for the passionate critic, of identifying the creative potential of Fundoianu and inventorying his multiple forms of manifestation.

Consequently, we have in project to analyse some of the texts that are not in the mentioned volume, in order to demonstrate that the ensemble of Benjamin Fundoianu's poetic art is not limited to the content of *Privești*, even if they really are, indeed, its strength.

Moreover, the point of view regarding the “colonial” status of Romanian literature is contradicted by so many other statements of the writer, so that this marginalization of his, as a consequence of a passing incisive attitude, would be a grave literary injustice.

In regard to the subject of the articles collected by the author in *Imagini și cărți din Franța (Images and Books from France)* volume, we can easily notice a philosophical-aesthetic design in their lower layers, but also an attitude towards French literature and the French literary community, some aspects even having the power to go beyond France's borders, to gain universal valences. To some extent, the attitudes conveyed by these texts are found in the substance of Benjamin Fundoianu's own poetry.

Some of the author's ideas remain standing after facing the vicissitudes of time and new trends. However, a certain reluctance regarding Fundoianu's work still persists here and there. Nonetheless, his dissociation from the general trends is not a viable reason to banish him from the Romanian culture. We must appreciate the synthesis capacity, the continuity of a subjective attitude and the hint of personality that can make us accept, without any restraints, Fundoianu's consideration from the volume's preface, which synthesizes his exegetic attempts: the speech about the few writers who are mentioned in the book is nothing else but the biography of a single one of them. And his radicalism, which can often seem to be unjust and deeply offensive, does not nullify

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the exemplary value of certain considerations or exegeses of Fundoianu, which have demonstrated and keep on doing so for posterity, both his quality as a person, as well as the fact that Benjamin Fundoianu, as Benjamin Fondane as a matter of fact, knew how to live in culture.

We also have to notice the great delay with which an essential recovery had been made: the one regarding Benjamin Fundoianu's articles on Romanian writers and literates. The writers attempted, without success, to print a volume entitled *Imagini și scriitori români (Images and Romanian Writers)*, a supplement of sorts to the collection from 1922. It was only in 1980 that a volume brought back into the attention of the Romanian literary community, Fundoianu's literary critique essays and articles, published over the years. The collection, entitled *Imagini și cărți (Images and Books)*, fully reproduces the debut plaque and the volume dedicated to French literature, but also includes numerous feuilletons, selected from the periodicals of that time.

Once the 1922 volume, and especially his preface, has been covered, it is more than natural that we ask ourselves whether the complementary volume was put together to illustrate and support the well known thesis of Fundoianu, concerning the "colonial status" of our literature. By going through disparate articles regarding the local literary climate, we notice, at times, disappointing comparisons and conclusions. But it's an important aspect that they do not focus on a specific sector, but the overall context.

It is certain that through his articles, focusing on the Romanian literature and literates, Benjamin Fundoianu adds a few more exceptions to his own French colonialism and imitation rule.

The diversity of tackled themes however, practically hides a basic unit. Whether they start from literary, theatrical or artistic chronicles, from moral philosophy themes or even sport, the implications towards which his comments converge are of an aesthetic and cultural notion. In this sense, we can say that his essayist activity forms a guide of his spiritual geography.

We have approached differently one of the materials from Paul Daniel's archive, "the crate of memories", that remained after the definitive departure from the country and, later on, from the world, of Fundoianu; it is entitled *Pagini dintr-un confesional (Pages of a Confessional)* and offers today's researcher slices of the soul: the formative framework, the atmosphere of that period of life with its afferent emotions. Perhaps this is the reason why the author "forgot" to publish it.

The cultural atmosphere from the family, as well as the fact that Iași, a city with and old and numerous Jewish community, had become a cultural renaissance center, determined young Fundoianu to energetically embark in the intellectual movement supported by the Jewish publications of that time.

The journalistic activity from "*Mintuirea*" has as a result the volume of eleven essays regarding this theme, entitled *Judaism și elenism (Judaism and Hellenism)*. Scattered throughout the publication's numbers from 1919 to 1920, the essays were forgotten about for a long time. As a Jewish publicist, Fundoianu consistently handled the related issues, but usually from a strictly cultural perspective. He rarely involved himself in issues concerning the actual scope of the Jewish communities. Therefore, his contribution in this sense is strictly limited to the philosophical register, far away from the socio-political perspective.

Regarding the poetry of Benjamin Fundoianu, we've considered that the subject of an in-depth study is the analysis of the structuring mode of the synthesis between traditional and modern, which is so skillfully weaved in *Privești...* Furthermore, to operate, in the case of the poet Benjamin Fundoianu, with cliché terms and criteria, from the perspective of a unilateral critique, would be a basic error. Under no circumstance, can a writer who speaks about death with such an existential unrest, can be categorized as a traditionalist. On the contrary, the constitution of this unfortunate consciousness places him directly into the modernist field.

The texts from the volume have left on the literary critics the impression that Fundoianu is a traditionalist. Indeed, the lyrics present the reader with all sorts of domestic, hardworking, brown and dumb creatures; the sense of smell is put to the test by the fragrance of the fruits, wet hay and of the earth, sometimes the depictions of the poet being very similar to those of a naive painter. (ex. *Herța II*) [2]. However, a peaceful atmosphere does not appear. Nature is not beautiful or of an eternal and "wild" splendor, like in the traditional pastel. Fundoianu also explores the ordinary, ugly and decaying nature, without it being anti-humane however. The peasant feels at home in its midst, alongside cattle and manure, pigs and puddles, flies, mud and heavy rains. Creatures that once upon a time would not have had access into the world of poetry, now emerge in Fundoianu's lyrics, proclaiming the idea that nature is neither ugly nor antipoetic, but the poetry was unable to adapt to the world. And the human, regardless of the state he find himself in, manifests, according to Fundoianu, his kindred spirit with nature.

The poet basically sketches an anti-pastel, not enjoying the beauty of the landscape per se, but the beauty of things as they are, as given from the beginning. Behind the landscape itself, there is a sacred mechanics, which prevails in the poet's eye.

An identification with the external nature cannot be detected in the texts. The poet does not seek in its content elements that resonate, nor does he attribute to it, as a romantic, his own sufferings, to obtain relief. On the contrary, on the nature's impassive background, the inner turmoil is amplified, colliding with its calmness and indifference. In nature's space, everything is "simple", and thus is consumed, according to the poet, the rustic existence, regardless of its appearances. The light seems to be part of the very constitution of these "sights", budding from everything and revealing her fundamental purity and essentialness. But the opposite valence of light is also highlighted, that of cruelly and brutally penetrating the essence of things.

It should be noticed that the landscape in Fundoianu's poetry is, most of the times, ordinary, even depressing. Excitement and harmony are missing, the universe that comes together with a dose of chaos, phenomenal, a state of oppressive animality proliferating everywhere. If the literary tradition suggested a delicate fauna, in Fundoianu's poetry the herds roar loudly in the fields, the pigs stupidly sleep in puddles and domestic birds seek their death under bridges. The vegetation itself breaks down, as if on purpose, voluntarily contributing to its death (ex. *Herța, V*) [3].

The human being's classification in this context is surprising, daring and never before encountered in the previous Romanian poetry, a classification almost fully identified with the animal kingdom. (ex. *Herța, VIII*) [4].

We're talking about a process of disanthropomorphization of the human being, which causes a significant chasm between the traditionalist poetry and Fundoianu's lyrics.

If before, the "purpose" of the nature poetry was to humanize nature itself, now the process is reversed, seeking the naturalization of man, including the poet. Man joins together with the lesser, uglier creatures, with simple cattle and even frogs, which is detectable even from the texts of his poetic youth.

The dominant feeling is that of alienation. Not even the poet can elude it, because of the inability to communicate. Faced with the mysteries of nature, he closes himself within him. In Fundoianu's texts, nature is and remains impenetrable, which is not the result of his greatness in relation to human nothingness. The eternity of nature from the traditionalist view is replaced here with emptiness, nothingness.

After an overview of the exegesis of Benjamin Fundoianu's poetry, the following question arises: can we talk about a splitting within his literary work? There are two writers in a single one, a voluptuous, serene Fundoianu and another sarcastic and distant? The two stages alternate, from one cycle to the other, or even within the same cycle.

George Calinescu is delighted by the refreshing images of his poetry [5], Mihail Petroveanu sees as the central idea that of universal communion [6]. Fundoianu's lyrics were, in turn, considered bucolic, naturalistic, traditionalist, traditionalist-symbolic, constructivist, symbolic or expressionistic. Dumitru Micu expresses in equally vague and entitled phrases, this state of affairs [7]. It is certain that, in the subsidiary of Fundoianu's poems, an exceptional tension is seething, capable to erupt at any moment. It is not absent even in the apparently peaceful poems, portraying humanized images of the townlet. A text such as *Herța, IV*, for example, brings to the fore a warm and welcoming interior, with old armchairs, photo albums, frills and samovars. But the poet's attitude is falsely elegiac; his intention is not one of a calm, nostalgic evocation of some things and people that are subject to a heredity taken for granted. The orchards with apricot and quince trees, in harmony with old pianos, can be misleading.

Viewed as a whole, the texts from *Privești*, just as the other lyrics which remained in manuscript, in different periodicals or those that were published in the French period of the poet's creation, provide the analyst the possibility to identify recurrent elements, whose image appears in the most unexpected contexts or as a term of surprising analogies. The latest critique has tried, with enough eloquent arguments, to remove the hypothesis of a traditionalist poet in the case of Fundoianu. As far as his adhesion to avant-garde movement is concerned, that is still up for debate, especially regarding the French stage of his activity. But the avant-garde movement, as Mircea Martin essentially mentioned in his monograph, involves, first of all, a theoretical option, and in Fundoianu's – Fondane's articles there cannot be found any documents of an adhesion to the avant-garde [8].

So, is Fundoianu a landscape artist? Are his landscapes pastels? Is his manner of work a traditional one? The answer to these questions is most certainly negative. A poet who talks with such striking unrest about death, about the fever of destruction, about the universal carnage masked by the cattle grazing quietly on the field, by the ducks with yellow shoes and the dumb peasants, sketches an expressionist atmosphere. On the other hand, Benjamin Fondane's philosophical orientation is already looming; it is also obvious in his literary works, and it falls on track with existentialism.

The stylistic technique is moderately modern, with inclinations to the traditional equilibrium and without any avantgardist syntactical destructuring. However, the existential view is most certainly modern.

Another aspect which seems not to have stirred up too many interpretative impulses is the French stage of Fondane's poetry. Or, more importantly, the continuity or discontinuity directions, between the poetry in Romanian and the one in French. A detailed search amongst the French literary critique tomes shows us that it deals, to some extent, with the side corresponding to it, the language barrier or maybe, the lack of interest making it stop at this phase of the research. On the other hand, the domestic critics have dedicated pages in volumes or magazines, without relying on a comparative study.

This was, of course, one of the essential intentions of our long term research, in order to fill a gap that the Romanian exegesis, but also the French one, left unfounded, almost unapproached. These aspects, mostly ignored by the literary critics, prove themselves to be more significant than a superficial research might have indicated, because they reach several compartments: linguistic, stylistic, thematic, structural. From this point of view, we can undoubtedly state that Benjamin Fondane's work cannot be discussed in its full meaning, unless we look at it as a part of an ensemble whose first stage is represented by the Romanian lyrics of Benjamin Fundoianu. The specific collocations pertaining to Fundoianu, translated into French, do not lose their novelty, originality or their unmistakable trademark. In this context, the purpose of a comparative study of the activities of these two people reunited into a single person is to demonstrate that, beyond the geographical boundaries, or beyond even their radical statements, there exists an indissoluble unity between Fundoianu and Fondane. And this accredits the idea that, in the early 20<sup>th</sup> century, the European avant-garde survived, more than significantly, due to the Romanian contribution as well. In addition, by engaging in an intellectual action that goes beyond the European frontiers and even the Atlantic, by his capacity of feeding off a European culture in the most complex sense of the term, Fundoianu undoubtedly is a man of the modern age.

From the European culture's perspective of time, Benjamin Fondane's imposition as a French literate, with all the necessary paperwork, is all the more relevant as Paris was, without a doubt, the epicenter of literary earthquakes which set the pace in the world; here, the creative powers were put to the test, and the beginning of the century had already produced some firsthand contestants. In such a content, the poet left the lands of Herța and embarked, with remarkable elegance and without the complex of peripheral cultures, on a fascinating literary journey, which proves, beyond a shadow of a doubt, the latent potential of the informative framework. To follow Benjamin Fundoianu's / Benjamin Fondane's cultural evolution in all its phases, constitutes not only an essential exegetical undertaking for the configuration of the French and Romanian literary critique, but also an act of reaffirmation or, why not, the assertion of one's self-worth in a free competition with Western Europe's standards.

As such, the objectives of this study stemmed, on the one hand, from the amazing and vast diversity of the person's in question work and, on the other hand, from the obvious gaps in the exegesis, which should undoubtedly be resolved.

From this point of view, the identification, inventory and analysis of the manuscripts and texts published by Fundoianu/Fondane during each stage of his creation is mandatory. (Bibliothèque Doucet – Sorbonne Paris [9], Société d'Etudes Benjamin Fondane, the Romanian Academy Library, respectively the Romanian National Museum of Literature and the Romanian National Library and the manuscripts that are overseas, in the property of Yale University) [10]. We have the latter in mind a project that would follow the current one, with the possible investigation of the fate of the *Tararira* [11] movie, cast by Fondane in Argentina and, apparently gone missing.

By our research, we focus the elimination or, at least reducing the reception deficiencies of Benjamin Fundoianu's / Fondane's work, the more so that we notice a different valuation of the one in question, in the space of the formative culture and in the space of the adoptive one, which tends to dominate him. From this perspective, such a project proves to be not only relevant to our literary geography, but absolutely necessary.

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## CONSTANT TONEGARU: A POST-WAR DISCOURSE

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### Abstract

The Romanian post-war artist is, as all intellectuals, a disillusioned one. He fights for and believes in the anti-literary mission of literature, on its need to be authentic, tuned in to the new realities. Hence, a bravado, a bohemian non-conformism, and a fragile sensibility, often of Romantic origin, will be a common landmark, as in the case of the Romanian poet Constant Tonegaru, one of the prime representatives of the “war generation” in Romanian literature.

Combining the methods of literary history with those of historical research, the present study relies mostly on a hermeneutical approach, given by a close reading of the texts interpreted, offering both a synchronic and a diachronic view of Constant Tonegaru’s poetry, its impact on present day Romanian poetry, as well as its connection to Romanian and both European and American poetry of its time.

The results of the study prove that the main source of inspiration in discovering and dealing with the real/reality of the Postmodern Romanian poets is to be found in the post-war poetry created around the “Albatros” magazine. Other findings highlight the broken line of the Romanian Avant-garde and Post-Avant-garde, the latter finding its roots in Romanticism – both a mellow, tamed and late variant and a militant, civic, even political one, represented by Walt Whitman.

**Keywords:** war generation; post-war discourse; Albatros magazine.

Constant Tonegaru is part of the “lost generation” or of the “war generation”, together with Geo Dumitrescu, Ion Caraion, Dimitrie Stelaru. Its leader, Geo Dumitrescu, prints on March 10, 1941, together with a group of friends (Dinu Pillat, Al. Cerna-Radulescu, Tib. Tretinescu, Marin Sarbulescu, among others), the first issue of the “Albatros” magazine, closed down after only 7 issues. Their contesting poetry promoted two aspects: on the one side, it reflected the horror of the war, on the other, it denied and refuted the old poetic techniques.

A common feature, linking all these poets, is the direct perception of a demystified reality, understood polemically, in contradiction with the heroic and patriotic poetry of the time. The process of refocusing of the real is extended over the lyrical persona as well. Often defined by Constant Tonegaru (“Sunt Peter Schlemihl Altfel”, “Eu, cavalier al Ordinului “Lancea lui Don Quijote””), the lyrical persona becomes the main character in Geo Dumitrescu’s or Ion Caraion’s poetry. It was justly noted, thus, that “lirica poetilor de la *Albatros* mizeaza pe dominanta subiectiva” [1]. The discourse appears different as well, the “Albatros” poets trying to explore new realms of poetry, in the search for themes deemed un-poetical and for colloquially impure, ignoble words, taken directly from the streets. The poets of the lost generation are not happy with just writing poetry, they suspect the very way poetry is created, as well as its foundations. Suspected of philistinism, of surrender and affiliation to the bourgeoisie – in the sense given by Baudelaire and the Symbolists -, poetry will undergo the assault of the young poets’ uprising: themes, formulae, styles will all be blown up.

On many occasions, Constant Tonegaru takes on a fight against literature itself, or better yet, against its old clichés, which doesn’t simply have meta-literary implications, but ontological ones, as well: the uprising, the negation brought by the poet’s irony hide, more or less implicitly, a process of construction *à rebours*. The poem *Pasarea neagra* recreates familiar landmarks of the contemporary poetry, but in a completely different key. What may have seemed a prolongation of Bacovia’s vision proves to be a distant and sarcastic cry from it, as noted Pompiliu Constantinescu [2]. The poem does not shy away from a curse in the very first line (“nu stiu cum dracu facuse domnul cu gambeta”), and continues with the grotesque image of a county fair, with a picture of Edgar Allan Poe, presented by a “lichea” as a “betiv american (...) a fost poate si gangster./ dar precis, a redactat “Graham’s Magazine””, and the bleak raven’s cry, “Nevermore!” (except that the raven proves to be stuffed, and the cry is made by the man running the so-called show).

A similar grotesque perspective may be found in other poems, like *Gradina publica*, balancing on a fine line between sarcasm and irony. If the same themes are perceived by Bacovia as the correspondents of a personal disaggregation, Tonegaru writes them in a different key: the image of the county fair or of the provincial dilapidated park saddens him, and brings forward certain notes of nostalgia for a youth spent searching for something in the grotesque visions of the ordinary; but the expression of these states is new and personal, hinting to his need for escape. Not unlike Rimbaud and the symbolists, the overcoming monotony of the ordinary makes the poet dream of other times and places: Colorado, the Indies, a distant port in the North, the fjords, Manilla, China, the Philippines, Africa, Terra Nova, all doubled by the constant use of the motif of the ship. A new landscape is shaped out of the humble and plain materials of the ordinary, one that bears both the feeling of noble adventures, and of their failure, masking his alienation. Its proof may be found in the very poem opening *Plantatii*, the poet’s debut volume: “gradina cu flori de sticla/ avea toate aleile pavate cu plumb:/ pe ziduri de cetate lipsite de porti/ in loc de steaguri falaiiau porumbei” (*Gradina enigma*). A conflict is thus born, the poet pitting the prosaic against the unmovable, the unchangeable. Gh. Grigurcu goes as far as to speak of the humiliation of the far, of the distant by its being thrown in the hell of the soiling nearness [3].

The inevitable finding of this fight is the absurd, an intimate component of the poet’s spiritual constitution, as well as of existence in general, as wrote Barbu Cioculescu [4]. The critic feels that with this immensely subjective act of reducing the world to his own persona, the poet opposed, as an artist, a vengeful and absurd creator, modeled on the figure of his father. It is a similar process, wrote the same critic, to what the German Romantics did in the 19<sup>th</sup> century, when trapped in an idealist metaphysics, they abandoned the world, isolating themselves in their conscience; they replaced poetic creation with mystical exaltation. Constant Tonegaru, on the other hand, is not a mystical poet. The creator is, for him, a cold, neuter hand, the implacable force of a blind, uncaring destiny (*Cules de rod*). The post-war world lost its order; there is no meaning and no beauty, so the only source of meaning lies in the poet’s consciousness and his ability to populate its lyrical world. Tonegaru brings into picture dead deities, angels with their wings cut off, or fallen angels, petrified and pitiful, because for him, a poet with no mystical reverberations, there is no hope for redemption. The only temporary salvation lies in the balance between the grand exotic visions of his imagination and the desperately monotonous images of the daily life, of the mechanical real. When the poem is strong enough, it turns the spleen in a planetary adventure created by an imagination running free and playing, boldly, with the grand themes and motives of literature.

The fight is, ultimately, for freedom, freedom from political dictatorship and from the dictatorship of a mechanized existence. War causes absurd, grotesque images: “La zece pasi de mine domnul caporal/ isi clacsona prelung cu pompa biliara/ ce-i atarna din pantec, verde afara/ patrula nimicita de asalt// Se linisti apoi pe spate ca-ntr-un stal/ in glasul lui rupandu-se o stamba/ Pamantul i se urca sub unghii/ si bratele zvacneau vaslitul unei gropi de smoala”, or “Ne adunasem himerici coborand din viata viitoare/ ca sa murim drepti ca paiul graului./ Nepasatori ridicam in mijlocul bulevardului/ intr-o pozitie notorie/ faldurile camasilor inrosite, sus-/ sus, deasupra acestui incetosat tratat de istorie”, in a vane attempt to transcend war, or “Sunt Peter Schlemil. Altfel si intreb respectuos, prescurtat, cu onor./ pe planeta tirania mai trimete oameni la abator?”. But Tonegaru’s fight is also against dehumanization, against a mechanic, monotonous existence, threatening to level everything: “Cetateni, baricadati drumul cu sens unic/ si demontati omul robot/ si insumi semnez./ Eu, cavaler al Ordinului ‘Lancea lui Don Quijote’” or “Undeva in China meridionala am strapuns un om galben cu baioneta;/ pe trepte de pagoda sangele curgea din el mirosind putred a iod/ inecand intr-o pata dincolo de zidurile de piatra Asia/ in care aduceam civilizatia blindati in camioane Ford”.

Thus, the exotic features, the grand escapes and the colorful landscapes invoked by Tonegaru are to be seen, wrote Vladimir Streinu, more like the means by which the instinct for freedom celebrates itself [5]. This exotic is thus the expression of a substantial lyrical protest against the arbitrary conditioning of individual life.

Tonegaru’s lyrical adventures create a true poetry of the seas and of the sailor, for which he makes use not only of his own autobiography, but of literary influences as well, to be found in Edgar Allan Poe (*The Narrative of Arthur Gordon Pym*), Charles Baudelaire (*Le Voyage*) and Arthur Rimbaud (*Le Bateau Ivre*). Beyond the aquatic imagery, these adventures also create an astronomical voyage, as the poet’s persona finds itself attracted, up to adoration, writes Streinu, by the stars and moreover, by the Moon (always with a capital letter). The critic warns, however, against this rediscovered poetry of the Moon, as on many occasions, it offers the poet the very chance to dynamite the traditional poetical language and imagery, threatening to shoot it “cu gloante dum-dum”, or with “o arma Manlicher”, followed by a quite impressive array of crude metaphors related to the Moon (“Luna enorma chelie plutea printre tot ce nu era viu”, “Luna galbena ca un ochi de motan s-a stins atunci sub o pleoapa de nor./ - acela e ochiul lui Dumnezeu.../ ... a mintit unul dintre noi”, “Luna ca un ficat insangerat”, “Cum stelele s-au urcat pe cer, nu stiu./ Dar luna, zau, as pune-o intr-un cuier/ sa nu se mai miste traditional/ si-as descarca intr-insa o carabina Manlicher”).

The overdue Romantic appears to be painfully aware of his delayed condition and fate: “norii filtrau un repertoriu romantic”, “astrii murisera de gripa”, “heruvimii toti atarnau uscati/ Insirati pe sfori ca niste ciupeci”, Poe’s raven is exposed in a wooden shed of a county fair. The poet acknowledges the distance separating him from the Romantic sensitivity and techniques, he is deeply aware that he can hear the lost Romantic echoes only in “scoici albastre langa Ureche, Grigore”, and he does feel out of place and time, having lost – if he ever possessed it – his self-assurance, the faith in the righteousness of his poetic voice: “incert ma plimbam prin certitudinii mormand ca un tub de orga”. He is no longer the direct means of communication. His voice, his lines are no longer original; they are but the echo of a distant past – a deeply Romantic one – or of a literature experienced as distant, as not his, a literature he can only point to, having lost its vigor and true purpose.

This is a true moment of crisis for Romanian poetry, one noted by Ion Pop: “cu astfel de date, poezia lui Tonegaru se situeaza intr-un punct de criza al lirismului, intr-un moment de ‘bilant’ modernist in care se inscriu si urme avangardiste mai atenuate totusi, caci radicalismul iconoclast lipseste, imblanzit de un temperament romantic-elegiac” [6]. Barbu Cioculescu wrote about the same Romanticism bereft of the spirit of rebellion that animated the poetry of the generation’s leader, Geo Dumitrescu, for example. This social vein or a need to revolt against the order of the day, be it social or literary, would have brought the poet closer to life, wrote Barbu Cioculescu [7]. Nevertheless, Tonegaru’s poetry or poetic temperament does not resemble either the blue flower sang by Eminescu; he is a late Romantic, and a lone one, inside a literature that knows the revolutionary Romanticism, a step forward and a direct influence of American poetry, through Walt Whitman’s lyrics. In fact, “cu el se incheie seria trubadurilor ratacitori aboliti de secolul vitezelor”, noted the same Barbu Cioculescu [8].

It is probably the very reason why, despite its irreverence and sometimes shocking images, Tonegaru’s poetry did not have the same impact as Geo Dumitrescu’s. While Tonegaru’s attitude towards poetry does share a common underground subversive irony, one that closely links together the poets of the “Albatros” group, and one that reflects their attitude towards literature and its conventions, Tonegaru’s literary gestures are never of complete refusal. Tonegaru shares Geo Dumitrescu’s inquiring lucidity, doubled by a lively critical spirit, which offer him the conditions for a neuter, objective distance from the literature he should be a part of. But we cannot speak of anti-poetry in Tonegaru’s case, a frequent accusation with Geo Dumitrescu. The cute irreverence, the young bravado, the liberties with the poetic language remain more a fleeting phase with Tonegaru, whereas they are carried forward by Geo Dumitrescu in a conscious, programmatic effort, which will turn the accusation of anti-poetry in an acknowledgement of its power to innovate, to change the poetry. Where Geo Dumitrescu imposed a new type of poetry, Constant Tonegaru rested at the beginning of the battle, lacking the fighting spirit and compensating it with an elegiac feeling.

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## ROMANIAN CYBER LITERATURE

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### Abstract

*The study Romanian Cyber Literature presents the way cyber or virtual literature is seen by the Romanian critics and writers that belong to printed or “traditional” literature. The study is based on the analysis of the answers given by different Romanian critics and writers to literary surveys on the emergence and development of literature in the virtual world, especially in the last decade. Once Internet access has become easier, part of Romanian literature has started, just like everywhere else in the world, to develop exclusively on the Internet, which gave it, on the one hand, specific features, differentiating it from printed literature, but also, on the other hand, a certain disdain from large parts of literary critics. The present study thus aims to show the differences between the Internet literature and “traditional” literature, as well as features individualizing both.*

**Keywords:** *cyber/virtual literature vs. traditional literature; Internet.*

In Romanian culture, cyber literature, by which we mainly understand literary works which appear before the public exclusively online, becomes a phenomenon in the true sense of the word between the last decade of the 20<sup>th</sup> century and the first ten years of the 21<sup>st</sup> century, when the PC becomes something usual. This automatically led to the spreading of online literature, through sites and e-zines, which were a complete novelty. Of course, the possibility to satisfy one’s curiosity by some simple clicks had a contribution, together with the absolutely natural “exhibitionist” impulses of creative natures, led to the apparition and development of this new kind of literature. It doesn’t seem surprising that then, in 2002, “Vatra” magazine had a whole folder, called “Virtual Romania” [1] on the phenomenon of online literature, presenting and discussing it for the specialized reader who was used, almost exclusively, to printed literature (on paper), for literary critics, first of all, but also writers and simple lovers of literature. The readers of the “traditional” support of literature – the most conservative, of course – were warned that there was a parallel literature to the one they knew, and were shown abstracts taken from sites hosting the e-zines of the time. Later on, in 2012, the same magazine had another issue on this theme [2], presenting it from an analytical perspective, with the desire to initiate a theoretical approach of the online literary phenomenon which, in the meantime, had gained enough momentum to raise questions such as:

1. *Is there really an online literature, meaning its functioning in the electronic space makes it a distinct category from the – let us call it - “typographic”, “traditional”, or “paper” literature?  
If so:*
2. *What are the profound characteristics that distinguish it from “traditional” literature?*
3. *How do you characterize the relation between cyber literature and “paper” literature?*
4. *Can we talk about a competition between cyber literature and that of traditional means?*
5. *Does the writer of the virtual space have other characteristics than the writer of traditional means?*
6. *Is the public of electronic literature different than that of printed literature, configuring a specific horizon of expectation?*
7. *Is literary criticism forced to adapt its investigation means, its benchmarks or discourse depending on the amplification of the phenomenon of cyber literature?*

These were, in fact, the questions a consistent number of literary critics were asked [3], and they referred to the acknowledgement or, on the contrary, to the disproof of the idea that cyber literature has different characteristics than “paper” literature. On the other hand, they wanted to be an illustration of the critical discourse determined or generated by the meditation on the respective type of literature or, at least, on the way it appears before the public.

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Just like in any other matter concerning art, the opinions on cyber literature are shared. For example, Irina Petras makes a clear distinction between the literature “produsa/generata de computer” (*produced/generated by a computer*) and a literature “care-scrie-si-circula-pe-internet” (*written and circulating on the internet*). The first is a simple surrogate, the second, just another face of printed literature, a metamorphosis as natural as it can be. Of course, both circulation and „publication” media contain a lot of non-values, besides the infinitely smaller amount of valuable literature, but Irina Petras doesn’t believe there is a clear difference between virtual and print. Consequently, one can speak of a conflict between traditional and cybernetic only from a para-literary perspective, an editorial one, let’s say, referring strictly to matters such as marketing strategies, the relation with the public and others from the same category.

On the other hand, Rodica Grigore clearly speaks about characteristics that distinguish electronic literature from the “traditional” one, even if she admits their kinship [4]. Moreover, she speaks about the emergence of a new category of readers, created together with the development of Internet literature in Romania. They are “cititori pasionați de acest gen, care pare multora mai viu și mai pe fața, cel puțin în anumite sensuri, decât vechea literatură a cartii și a paginii tipărite” (*readers passionate by this genre, which seems for many more lively and alert, at least in certain meanings, than the old literature of the printed book and page*). Faced with the internet onslaught, there still remains a form of resistance that is not to be neglected, one that Irina Petras also takes into account, and which refers to the pleasure of the direct contact with the object itself, a contact materialized in sensations hard to describe, which may be even ineffable, and which could, arguably, alter the reading process in their absence. This is an opinion shared by many of the specialized readers, especially the renowned literary critics formed in the Guttenberg period, when they meditate on the cyber invasion. Therefore Rodica Grigore is entitled to launch an invitation to an objective approach of the new literary reality, believing that there’s no need for a new critical language, only for this literature to be welcomed in the field of actual literature, as a particular form.

Extrapolating, just like Mircea Martin speaks about *o singură critică* (*just one form of criticism*) [5], beyond schools, trends or aesthetic ideologies, we could state, based on the previous opinions, that there is *just one literature*, beyond the media allowing for its existence. The same outlook seems to derive from Gelu Vlasin’s answers to the questions above regarding cyber literature and its relation with “paper” literature [6]. But he thinks there “nu există nici un fel de diferențiere între literatură din mediile virtuale și

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literatura traditionala” (*isn't any kind of difference between literature in the virtual media and traditional literature*), as ”forme de exprimare sunt aceleasi, diferit este doar suportul si anvergura vizibilitatii” (*the forms of expression are the same, what is different is only the support and the span of visibility*). Hence, if we are talk about a competition, Gelu Vlasin believes it has the same form Irina Petras spoke about, regarding the editorial form. A proof would be that the printed literary magazines function, in parallel, online as well. Therefore, the competition of the ways literary production and the critical discourse accompanying it present themselves to the public is, for him, highly exciting. Still, Vlasin speaks about the emergence of a major difference at the level of the public, caused by the transfer of a large part of literature in the electronic media. The readers of a computer screen (and then those of the similar e-reading devices) are generally young, and have the capacity to adjust easier to new technologies.

A further point is made by Tatiana Dragomir's answers [7]. She believes “literatura cibernetica nu a izbutit pana acum sa se separe de cea traditionala in substanta sa, in ceea ce se numeste literaritatea sa, ci doar la nivel exterior, devenind mai disponibila si asigurandu-si un contact mai direct si imediat cu cititorii” (*cyber literature hasn't managed so far to substantially distinguish itself from the traditional one in its literarity, only on an exterior level, by becoming more available and ensuring a more direct and immediate contact with its readers*). The relation with the readers forming, as Gelu Vlasin justly noted, a distinct category of public, determines, in fact, the features of the literature of the Internet, at the level of its creation and literary criticism.

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The findings we briefly presented above are based on intuition more than on detailed analyses, but they are certainly worth the attention, as they belong to specialists that are aware of the foreign bibliographies on the topic, and who also have a deep knowledge of literature as a whole. They belong to informed analysts, as proven by the fact that they match the conclusions of detailed analyses dedicated to the internet literary phenomenon.

For example, Mihaela Ursa makes use of a rich corpus of scientific references in order to prove that “paper” literature is an “analogical” one, whereas the electronic one is a “un sistem digital” (*digital system*) [8]. She also signals that the simple transposition of texts online (in blogs or e-zines) doesn't necessarily mean cyber or digital literature; this is possible only when the texts “dobandesc functia de simultaneizare si de coparticipare a «autorului» si «cititorului» traditional la crearea de continut si la receptarea lui” (*receive the functions of simultaneity and co-participation of the “author” and of the traditional “reader” to the creation of content and to its reception*). The reader, thus, becomes a fundamental element so long as, wrote Mihale Ursa, “Cititorul digital participa la crearea textului pe care il citeste intr-o maniera mai vizibil activa decat a anticipat teoria receptarii pentru lectura analogica (v. Wolfgang Iser)” (*the digital reader participates to the creation of the text he reads in a visibly more active manner than it was anticipated by the theory of reception for analogical reading – see Wolfgang Iser*).

The more active involvement of the reader in the text, up to his becoming co-author, is also signaled by Ruxandra Bularca, who speaks about “modelul de lectura al cartii clasice (Catedrala), in opozitie cu editiile electronice sau cybertextele (Bazarul intratextual) si cu modelul de (re)lectura/(re)scriere a textului colaborativ digital (Bazarul intertextual)” (*a model of reading of the classical book -the Cathedral-, opposed to the electronic versions or cyber texts -the intra-textual Bazaar- and the model of (re)reading (re)writing of the collaborative digital text -the inter-textual Bazaar-*) [9].

Inevitably, Romanian meditation on the gradual shift of literature in virtual media cannot neglect, as it has already been seen, the metamorphoses of literary criticism. Thus, Melinda Craciun focuses her attention on the way the critical discourse is involved in the managing literary blogs, reaching the conclusion that there is a significant reticence of the traditional critical “authorities” towards the online media and highlighting the need to overcome this complex [10].

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In the field of Romanian literature, the discussions on the emergence and development of cyber literature is, we could conclude, almost synchronic with the phenomenon itself. The tendency towards conceptual standpoints becomes more evident as the Internet literature escalates and as it becomes clearer that, in fact, Internet does not kill “traditional” literature, it only contributes to its metamorphosis.

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**A TREND IN LITERARY SOCIOLOGICAL RESEARCH –  
–THE FEMINIST SOCIALIST PERSPECTIVE: STAGES IN JANE EYRE’S UPWARD FEMALE MOBILITY**

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**Abstract**

*In the field of literary criticism, present trends of research include sociological perspectives such as: socialist criticism, humanistic historic approach and cultural (gender, post-colonial, African-American) studies. All types of sociological criticism focus on works of art within social context and the manner in which literature faithfully reflects different social aspects. The purpose of this paper is to deal with a feminist socialist perspective which subscribes to the social dimension of critical approaches employed in order to analyse literature in terms of its connection with contemporary cultural and political context. In A Feminist Socialist Perspective: Stages in Jane Eyre’s Upward Female Mobility, the focus is on the connection between Jane Eyre’s social status and the political background of Victorian England. Charlotte Brontë’s Jane Eyre is a story of social ascent evident in the main character’s acquiring of financial independence. Moreover, the novel itself is of political descent. It was written under political influence and it portrays upward female mobility in the form of one woman’s rebellion against the established form of patriarchal government over her own life. Jane Eyre’s revolt symbolises social insurrection in England and even Europe. In addition, the contemporary psychology discourse that Brontë employs in her work reflects political ambivalence and the heroine’s internal struggle mirrors both racial and class conflict [1].*

*This research paper deals with the literary application of feminist socialist criticism to Jane Eyre and the results focus on hypostases and stages of the heroine’s social status as: orphan and ‘passionate child’ (the Victorian pedagogical term for disobedient lower-middle class children), governess, racially pure English lady (portrayed in contrast with Creole women), self-assertive and socially active middle-class woman who acquires wealth by means of inheritance and self-determination. All in all, Jane Eyre mirrors the oppressive social realities of female members (of the lower-middle class) and deep-rooted mentalities of racial or class superiority. The novel accurately reflects Victorian social injustice and Charlotte Brontë’s own outrage at social boundaries that the authoress herself could not ignore or cross but could, instead, rebel against by means of her fiction and female protagonist.*

**Keywords:** trends, research, sociological criticism, feminist, socialist, perspective, context, Victorian England.

Until Charlotte Brontë’s identity became known, very few reviewers of *Jane Eyre* suspected a genuine connection between the life experience of the novelist and the story of her protagonist. Nevertheless, Brontë’s novel is currently regarded as being fundamentally confessional in nature [2]. Moreover, it also faithfully mirrors the oppressive Victorian social realities of female members of lower and middle classes as well as deep-rooted mentalities of racial and class superiority.

‘In the 1840’s, [...] Charlotte Brontë protested to her sisters that she would take a heroine as small and plain as herself and make her as interesting as the most beautiful and accomplished heroine of conventional fiction.’ [3] The authoress ultimately achieved her goal by means of allowing her fiction to accurately reflect Victorian social injustice as well as her deep-seated anger and outrage at social boundaries that she herself could not ignore or cross but could, instead, rebel against by means of her female protagonist. ‘Jane triumphs because she is not Blanche, not Georgiana, not Eliza [4].’ She is not an immoral or superficial woman of French origin or influence, which sets her apart from her opponent –Blanche who strives to conquer the heart of Mr. Rochester. Nor is she a middle-class woman born into a wealthy family, which also sets her apart from her stepsisters. She is regarded as an orphan adopted into the family of Georgiana, Eliza and John Reed. Nevertheless, she triumphs through social upward mobility as a result of active self-determination coupled with miraculous chance which she views as a reward or as divine intervention on account of preserving her virtue and self-dignity by not yielding to temptation.

**Socialist Theory**

In order to apply socialist theory to *Jane Eyre*, it is important to underline aspects of sociological criticism as a type of critical theory based on the idea that art is inevitably related to society. Sociological critics analyse the context in which the artist writes and responds to the social circumstances by which he is inevitably influenced. In its evolution, sociological critical theory was impacted by Marx and Engels who discussed the importance of a factor called ‘methods of production’ and led to the development of the Marxist/socialist branch of sociological approach [5].

Despite its weak points, socialist criticism can be quite useful when critics try to place art within social context and define this connection by taking into consideration the complex associations and reciprocal relations between literature and society [6]. As a result, the literary application of feminist socialist criticism to *Jane Eyre* proves to be quite enlightening in terms of identifying the main stages of the heroine’s upward social mobility: orphan/‘passionate child’ (Victorian pedagogical term for disobedient lower-middle class children), governess, racially pure English lady (in contrast with Creole women) and self-assertive and socially active middle-class woman who has acquired wealth by means of inheritance.

**The ‘Passionate’ Child**

In Victorian psychiatry, excess is embodied by *the passionate child* and the madwoman. Moreover, in Victorian pedagogy, *the passionate child* is portrayed as a creature that is either corruptible or has already been corrupted. He or she is considered a sinner in danger of eternal damnation [7]. As a result, in nineteenth-century British psychological discourse, the cultural figure of *the passionate child* is often contemptuously depicted as a threat to society and its norms, which is why youngsters are prevented from preserving their rebellious nature when they enter adulthood –hence, the ideology of punishment and humiliation meant to radically transform *the passionate child* into a submissive young adult [8].

In early nineteenth-century England, punishments for children’s revolt and rebelliousness become means of social subjugation of less privileged classes. However, these manipulative tools are always hidden behind the intellectual and educational veil of sophisticatedly distorted Evangelical truths and misinterpreted Bible verses. The upper-classes capitalise mostly on the

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mistake that lower-class masses of people make by accepting institutionalised Bible teachings as a substitute for individual study of the Bible and personal faith or relationship with the Christian God.

Therefore, Victorian Evangelicalism and pedagogy consist of a well-disguised regulatory system of control and disciplinary power by which ‘bourgeois order is established in nineteenth-century England’ [9]. The system controls a large section of society by manipulating the personal lives of individuals through self-discipline taught by Evangelicals who go so far as to even impose the regulation of intimate parts of personality and private areas of one’s psyche and daily routine under the threat of everlasting perdition. This menace leads to an ever-present existential threat which creates a social context of fear filled with pedagogies of dread [10]. The psychological costs of the falsely labelled Evangelical system of child-rearing are ‘the habitual childhood moods of humiliation, oppression,’ privation and punishment that are part and parcel of the ‘self-subjugating discipline’ and ideology of death, judgement and eternal damnation [11].

*Jane Eyre* faithfully reflects this ideology of punishment and humiliation meant to radically transform the passionate child that Mr. Brocklehurst and Mrs. Reed believe Jane has become at a very tender age. The end result of the disciplinary methods (that the young heroine endures at Lowood) should be a fearful adult that can be easily manipulated by the upper classes. Nevertheless, Jane’s strength of character allows her to acquire a greater sense of self and grow up to be a self-willed and self-defined woman who is able to ultimately change her social status without compromising her morals.

The main methods of Victorian Evangelical pedagogy consist of: restraint, chastisement and preaching of acceptance and submissiveness along with rejection of rebellion/anger/desire for earthly happiness. However, Brontë throws a more positive light unto religious discourse through ‘Jane’s refusal to depart from paths of virtue’ –a refusal that redeems the Evangelical message of hope and blessedness gained through virtue [12]. To Jane, spiritual salvation is not the result of (St. John Rivers’) activism, (Brocklehurst’s) religiosity or (Helen Burns’) self-castigation and pious resignation. Nor is eternal condemnation the consequence of (Rochester’s) restless and unhappy pleasure-seeking lifestyle or (John Reed’s) mindless behaviour and desperate act of suicide. The latter is condemned to failure by his spiteful nature (or hardened heart) and not by his tragic last gesture [13]. Jane’s progress towards happiness can only be impaired by conformation. Therefore, authentic morality is the way to salvation whereas conventionality is the pathway to earthly and spiritual damnation.

### The Victorian Governess and Racially Pure English Lady

Jane Eyre’s genteel birth and education/training at Lowood place her in a higher position compared to female servants or working-class victims of white slavery –working women such as the needlewoman or the factory girl. However, the heroine’s financial needs can only be met by becoming a *governess* who –although viewed as part of the middle-class –is treated as a social outcast that is neither a servant nor a member of the bourgeoisie. She is socially marginalised along with the Victorian minister or priest. She is both a maternal figure to her young students and a danger to her male employer whose moral integrity she threatens by means of her femininity and seductive force. The result is that, through her role and status, she makes up a social category of her own [14]. Despite social circumstances that impede her from being considered worthy of marrying well, the governess (and, subsequently, Jane as well) is always perceived as superior to women of colonial Europe or West India due to what the Victorians believed was racial purity.

For instance, the heroine is portrayed in contrast with Rochester’s wife –Bertha Mason –whose tragic destiny illustrates the social status of Creole women in Victorian England. ‘Bertha is a “Creole.” Today, “Creole” refers to a language, combining African and French languages.’ It also refers to ‘French and Spanish settlers in the Southern United States –especially in and around Louisiana’. However, in the social context of Victorian England, ‘it also meant someone born of African and French (or African and Spanish) ancestry.’ [15]

### Equality Achieved and Status Acquired

Contemporaries upheld the belief that, in terms of social class characteristics, the *governess* was not very different from the lady who employed her. However, the *governess* still had to be treated differently on account of the distinct economic/financial circumstances that were setting them apart. As a result, feminist socialist perspectives are the most relevant in terms of analysing the portrayal of the nineteenth-century *governess* in *Jane Eyre*. The barrier between Jane (as a governess) and her employer –Mr. Rochester –is fictitious but it can barely be lowered up to the point when she inherits a fortune that allows her to marry him on equal footing. Towards the end, Rochester becomes blind and crippled and loses the superiority he initially enjoyed in his relationship with Jane, which is why social borders become blurred and she finally achieves equality [16]. By means of what seems to be legitimate upward mobility, the heroine manages to fit in the social system and even reaches the top of its middle-class by becoming a self-assertive and socially active middle-class woman who acquires wealth through inheritance and self-determination.

The tension between female autonomy and masculine dominance lies at the center of Charlotte Brontë’s writing. This tension is explored in relation to the topics of heterosexual romance and women’s self-expression. There are several such issues addressed by Brontë in *Jane Eyre* [17]. Attention is drawn to women’s roles as Jane ‘attacks people who would attempt to confine women to bland domesticity’ and ‘links women’s barely repressed desire for action – and hence for the power of self-determination – with other, wider political struggles’ [18]. Jane, at one point, even says that there are millions in silent revolt against their lot:

Millions are condemned to a stiller doom than mine, and millions are in silent revolt against their lot. Nobody knows how many rebellions besides political rebellions ferment in the masses of life which people earth. Women are supposed to be very calm generally: but women feel just as men feel; they need exercise for their faculties and a field for their efforts as much as their brothers do; they suffer from too rigid a restraint, too absolute a stagnation, precisely as men would suffer; and it is narrow-minded in their more privileged fellow – creatures to say that they ought to confine themselves to making puddings and knitting stockings, to playing on the piano and embroidering bags. It is thoughtless to condemn them, or laugh at them, if they seek to do more or learn more than custom has pronounced necessary for their sex.

When thus alone, I not unfrequently heard Grace Poole’s laugh: the same peal, the same low, slow ha! Ha!  
Which, when first heard, had thrilled me: I heard, too, her eccentric murmurs; stranger than her laugh [19].

### Conclusions: The Importance of Feminist Socialist Perspectives on *Jane Eyre*

It is essential to underline the importance of social feminist perspectives and the inclusion of *Jane Eyre* in the ‘feminist stage.’ In Elaine Showalter’s terms, Charlotte Brontë’s writings can be included in the ‘feminine phase’ (dating from 1840 to 1880) in the evolution of female literary tradition [20]. However, ‘in feminist terms, Jane (also) belongs to [and anticipates] the second

stage of evolution described by Showalter (*the feminist stage [dating from 1880 to 1920]*), dominated by an attitude of rejection/rebellion and a state of autonomy. *Jane Eyre moves from the margin of the system to its centre, by expressing – sometimes aggressively – her self, her id* [21].

The last phase (identified by feminist analyst Elaine Showalter) is the 'female stage' (dating from 1920 onwards) which is 'a period of creation when women are no longer preoccupied with the centrality of men in a phallogocentric order and they try to create their own universe with its independent centre [...] what Virginia Woolf defined as a "room of their own"' [22]. *Jane Eyre* is rather harshly and unjustly criticised by Virginia Woolf who asserts that the heroine is focused on becoming men's equal and rebelling against their authority instead of finding 'a room her own.' As a result, many socialist critics such as Cora Kaplan underline the weak points of Virginia Woolf's feminist perspective on *Jane Eyre* while praising the heroine's revolt and asserting the importance of socialist approaches to the novel [23]. Nevertheless, these two types of critical literary theory most often complement each other well, which is why the novel can be analysed in relation to all three stages ('feminine, feminist and female') by employing and even combining feminist and socialist perspectives within the field of literary sociological research.

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## SABINA, OR THE ROMANTICISED HERITAGE OF THE GYPSY WOMAN IN THE FILM "GADJO DILO"

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### Abstract

Tony Gatliff, whose films abound in Roma-themed storylines, is himself of Roma and Algerian parents, *Gadjo dilo* being the last of a triptych, the previous two films dealing with the same topic, that of the Roma. *Les princes* (1982) followed the lives of the Roma in a Paris suburb and *Latcho drom* (1993) was a documentary that delved into Roma culture across the world, through the prism of dance and music. *Gadjo dilo* debuted at the 1997 Locarno Film Festival, and it managed to appeal to all of us, transcending the limits of arthouse or documentary public. It aims at being wildly passionate while remaining authentic, taking its viewers beyond clichés about the Roma and straight into their houses and beds. It takes us on a musical pilgrimage with a young Frenchman, Stephane, who wishes to find the singer Nora Luca, whom he had heard on a recording made by his father. He is the symbol of a refugee-from the Western world (a culture that is confused and confusing for him) looking for shelter in a culture that seems remote and exotic, on the outskirts of a Romanian village. He bonds with the locals, getting in contact in fact with the "other" planning to take back to his own flawed culture the treasure that can be found only at the periphery of civilization: in a Roma community.

**Keywords:** Roma culture; Gypsy heritage; *Gadjo Dilo* film.

Tony Gatliff, whose films abound in Roma-themed storylines, is himself of Roma and Algerian parents, *Gadjo dilo* being the last of a triptych, the previous two films dealing with the same topic, that of the Roma. *Les princes* (1982) followed the lives of the Roma in a Paris suburb and *Latcho drom* (1993) was a documentary that delved into Roma culture across the world, through the prism of dance and music. *Gadjo dilo* debuted at the 1997 Locarno Film Festival, and it managed to appeal to all of us, transcending the limits of arthouse or documentary public. It aims at being wildly passionate while remaining authentic, taking its viewers beyond clichés about the Roma and straight into their houses and beds. It takes us on a musical pilgrimage with a young Frenchman, Stephane, who wishes to find the singer Nora Luca, whom he had heard on a recording made by his father. He is the symbol of a refugee-from the Western world (a culture that is confused and confusing for him) looking for shelter in a culture that seems remote and exotic, on the outskirts of a Romanian village. He bonds with the locals, getting in contact in fact with the "Other", planning to take back to his own flawed culture the treasure that can be found only at the periphery of civilization: in a Roma community.

Stephane is desperately seeking for the songs and singer of the mysterious Nora Luca. Equipped with his tape recorder, driving his Dacia car, he makes a selection of Roma songs, preparing to take his collection back to Paris. In his quest, Stephane reminds us of the mythical Odysseus on his journey to Ithaca after the ten-year Trojan war, the traveller who faces the mesmerizingly antagonistic culture of Roma life in modern Europe. In this Frenchman on a quest the viewers can identify their own attraction to the Oriental *Other*. In his clumsiness when trying to adapt, we see our own clumsiness, in his attempts at drinking firewater like a man, we reminisce of our own experience of not being able to drink like those used to it, in his steamy love-making with Sabina in the woods, we can recall the animalic instincts in all of us. "The passionate search for the elusive Nora Luca, or the search for a voice, remains inconclusive, as the spectator (and Stephane never knows if the woman/Sabina is the authentic Nora Luca. Yet, the search for Nora Luca drives the narrative and transports the spectator into the Romanian countryside. The search may simply evidence a reflexive search- that of the traveller inside his own self, mediated by the discovery and closeness to the *Other* culture. In the meantime, and thanks to the woman's assistance, Stephane is able to sample sounds and music of a disappearing culture in order to preserve it, as his ethnographer/musicologist father did before him"[1].

The viewer is first encountered with Stephane as he aimlessly wanders in an inhospitably frozen landscape, snow falling on him and on everything around him, monotonously flattening the background to his journey. Suddenly, some mysteriously seducing gypsy music begins while the protagonist starts to spin around in an extatic whirl, as if some magic spell had been cast on him-and us- the result of which is the arrival to a strange destination in which Stephane is adopted by Izidor, a loquacious patriarch among the locals. Izidor adopts him motivated by his nostalgia: his own son had been beaten up and arrested by the police. Stephane's adaption to the new realities is presented in the film as a process of acculturation: he gets in touch with and accepts fully the customs practised by the Roma, practising them proudly, in order to be accepted by them. While he searches for the mysterious Nora Luca, his adoptive father, Izidor shows off with him in front of his own people but also in front of local Romanians. At the outset, they are laughed at and Stephane is considered a homeless chicken thief- a projection of the image often used in connection with the Roma themselves! As time passes, he manages to take part in the life of the community, copying them in all of their habits: spitting on the ground or on each other, gambling, drinking and swearing. Step by step, the protagonist and his adoptive community start to show emotional attachments towards each other. Sabina, a *persona non grata* by local standards as she had left her husband, starts to be a mediator between her community and Stephane. The girl plays the part of a hesitant interpreter for Stephane and her own people because she is a well-traveled girl who lived in Belgium, too. Naturally, she becomes much more than a mediator, the two fall in love with each other, which comes as no surprise: Stephane is an outsider from the start and Sabina is shunned for disobedience to the ancient Roma law: a woman can never leave her husband according to this law. As Stephane becomes a familiar face among the Roma, a sense of too-good-to-be-true starts to infiltrate into our hearts: the moment Stephane and Sabina make love in the woods, Izidor's son Adrian is released from prison and arrives home. With his arrival, chaos is instaurated, the result of which is the burning of the Roma village by Romanian villagers. Adrian tries to escape by hiding in the attic, however, he is found and burnt to death. Sabina and Stephane find his body in a setting of a smoking village, Sabina's scream of terror starts a Gypsy song of lamentation. In this very moment Stephane must realize the perverse hypocrisy of Europeans when confronted with the Roma: "valued for their raw and intoxicating musical culture and yet feared and reviled as neighbors and fellow citizens"[2]. In the final scene, we witness Stephane burying his valued tapes, sprinkling some firewater on them and dancing a farewell-dance in front of the miniature grave. The moment he partook of his beloved tapes-an attempt to civilize wild Roma culture- he acknowledged of the impossibility of his own endeavour, and made the final step of integrating in his new culture: that of the Roma.

Ien Ang has observed that the Roma are "one of the oldest cultural *Others* within Europe's borders, a group of people whose inferior status has not changed for centuries...because they do not form or belong to a *nation*"[3]. Up-to-date analysis of Roma traditions show that, based their law stayed unchanged if we think of their relentless migrations and diasporic existence. Based on their law, a foreigner, a *Gadje*, is "an impure body that is polluted"[4]. Based on this law, their whole existence is clearly divided

between *pure* and *impure*: the upper body is pure, while the lower body is impure; the living are pure, while the dead are impure; their own people are pure, while the foreigners are impure. Considering this information, one witnesses an intricate substitution of the traditional *Other* with a new type of *Other*: the local Roma, through a process of tagging Stephane as outlandishly strange, introduce “a doubly-exoticising gaze” [5]: firstly, the Roma are tagged as exotic, but secondly Stephane is tagged as a bizarre figure in their minds. The Frenchman is ridiculed for his mannerisms by the locals, considered to be a chicken thief, but also a rapist, provoking fear among the villagers, however, in an odd twist of the storyline, they start to question his masculinity as well, due to the fact that many of his habits seem typical of a womanlike being: his voice, the melody of his language, the fact that he cleans the house and cooks for Izidor, etc. This questioning of his masculinity pushes him closer to the women of the village. It is Sabina who aids him in his quest for Nora Luca, Izidor joining them only later.

Roma women have an important role in their cultures, even if they are members of a double minority, just as Sabina, the outcast woman plays a paramount role in the community’s life. In this film, Sabina, ostracised for having fled from her husband, functions as an interpreter between the Roma and Stephane, becoming a mouthpiece for each in turns, a champion of human rights and fair treatment. She is also a singer and a fabulous dancer, her dance moves reminisce of other famous Roma dancers from literature and film, (e.g. Carmen, Esmeralda, Preciosa, Athena, etc.) making her another exoticised Oriental *Other*. As two girls from the village contemplate Stephane’s use of the broom and cleaning Izidor’s house, they are convinced that he is gay; Sabina on the other hand is 100% sure he is not. She is the fallen woman of the community, due to her disobedience, a local Magdalene- thus it is highly important for her to show Stephane she is not impressed by his advances or any man’s for that matter. In order to make him fully understand her rejection, she bites his hand, furthermore, she raises her skirts to show her naked bottom to him in full contempt. “Despite that initial lack of interest, Stephane is soon making love to her hungrily. He is also dancing in a near-trance in Bucharest, drinking vodka and crying out: “May I die! May I rot!” Just as it’s time for him to go back to Paris, tragedy strikes the Gypsies. The question is whether Stephane will stay in this new-found but misunderstood utopia or return to the world he knows” [6].

The male protagonist falls in love with another outcast, scorned by her people not only for having broken up with her husband (who is the owner of the wife in this culture), but also for acting in a different way from them-as she had travelled to Belgium and is more cosmopolitan in her approach to life. The well-travelled Stephane does not identify with those who despise her, offering love and understanding to an outsider. The suspicion of the Roma when it comes to Stephane, is in fact the projection of the suspicion they are faced with day-by-day, from the part of the non-Roma. He is suspected of having stolen something from the house he slept in, or having left behind a curse, or having polluted the bedsheets he used. In consequence, the house must be attentively washed and cleansed after the impure foreigner. A shot of Sabina shows her at the entryway of a tent, contemplating the tense agitation around the newcomer, holding a baby in her arms while contemptuously smoking. She is the easily recognizable Roma woman: “dressed as Roma women from the Kaldarashi tribe as they usually are in Romania-with long, colorful multi-layered aprons, her long dark hair covered by a scarf signifying her matrimonial status. She has a silver tooth, which in the Gypsy culture is considered jewelry, and a sign of richness. Her status in the village is special. We learn that after spending some time in Belgium with her husband and making a living as a dancer, she left him and returned to her father’s house alone. She is considered a *slut* because she has no husband and no children” [7].

Sabina, (and the women in the film), through her dance moves and her singing, turns into a living metaphor of Gypsy music, which “expresses the fear and pain of a people whose soul is hurt. That’s why the Gypsy music is beautiful. Otherwise it’s *anything goes* full of false notes, the instruments are put together with whatever’s on hand. But their music is the cry of pain, an ancestral pain which comes from the soul of a whole nation of people. That is its strength and its beauty. It is pure revolt, nothing is fabricated, all is unleashed” [8]. In the first scene we can hear actress Rona Hartner’s voice singing “Disparaitra (Disappears)”, a song with magically sad lyrics in a few different languages. The first line is: “people/Gypsy/disappears/world” [9]. This is sung while Stephane spins from the frozen landscape of aimlessness into the Gypsy community. He then encounters a carriage on which some Roma girls are being carried, girls who tell/sing to him in Romani some filthy phrases referring to their genitalia: “bite the cock”, “lick my pussy” [10]. The next moment we see Sabina again is when the locals need a translator and call her. As she looks at Stephane through the doorway, the image of her beautiful face covered with a coloured scarf is accompanied by the sounds of a cymbal and Nora Luca’s voice on the tape, a voice that could easily be hers. When asked to translate for Izidor, she resists, even if she is pushed around by the man. Stephane contemplates, but would never interfere with local law. Her resistance persists in the next scene where we see her gathering wood in the frozen woods while Stephane stares at her in an inquisitive way. Being disturbed by his gaze, she uses fowl language, his reaction to her words being an offer to help. She refuses fiercely and when she sees he doesn’t get it, she bites him. “The bite is significant for at least two reasons. It is the first time that Sabina and Stephane touch, foreshadowing their relationship. Furthermore, the bite is an ambivalent gesture: the violence intended by the bite is also the sign of sexual desire. Does she react so violently to Stephane because of her desire for him? And does the bite seduce Stephane? She lifts up her skirt, baring her ass, shouting: *kiss my ass, you dirty Belgian!*” [11]. While the whole group of people listen to Adrian’s letter to Izidor, she chooses to push Stephane away, realizing his desire is aroused, as he stares at her on three consecutive occasions. Nevertheless, Stephane starts to be interested specifically in her fierce attitude, so unusual in a woman. She reciprocates his desire, as in the next scene with her, they are driving to a wedding, in a huge Mercedes. While her hair is being prepared for the party, another Roma girl sings an emotional song and Sabina gazes at Stephane in a wishful way. Of course, he is quick to notice it and to answer with a smile. In this moment, their feelings are not only acknowledged, but also obviously reciprocal. At the wedding, Sabina dances an exotic dance, similar to belly-dancing, pointing to her lower body (a symbolical gesture of fertility) and biting her dancing partner’s tie (a clearly phallic symbol-Sabina’s bite being an erotic invitation). This is the musical/exotic/erotic climax of the film, however, ironically, Stephane is asking around for this mystery singer Nora Luca, not identifying the perfection in the moment. “At this point in the film, the dramatic tension has become ironic: Stephane is searching for the perfect singer, the perfect moment in music, while he lives it. For the Gypsies, this is why he is a *Gadjo dilo*: the Gadje (plural) refuse to appreciate the good fortune they enjoy every day, and do not live in the here and now. The Gadje search for a happiness that remains elusive, while Gypsies are satisfied with the fleeting moments of everyday life” [12].

While the majority of the Roma girls are convinced that Stephane is gay, they plan to con him in order to test his masculinity, and entice him to enter a tent where more girls are having their bath (including Sabina) - feigning outrage at his presence, they chase him away. He does not realize that musical and feminine perfection is within reach, he is running after his delusional obsession. In a bar, Sabina makes an attempt at seducing him with her almost cliché Oriental dance moves while singing *Tutti frutti* to him, but he rejects her by telling her to shut up as she is disturbing his recording process. His European instincts are not strong enough to make him finally realize that Nora Luca is Sabina; that he doesn’t have to chase elusive dreams anymore: his

fantasy world has become real, embodied by Sabina. Only much later in a Bucharest bar, while dancing with her does he realize it: "It's Nora Luca!" [13]. This is the moment his quest ends: he doesn't have to look anymore, he has found her and himself. Their love reaches its climax, too, in a later scene in the woods, where they run naked, enjoying each other and freedom.

The Frenchman's quest is in fact a facade quest: he relentlessly seeks for Nora Luca, the evanescent and incomprehensible singer, getting to a point in his search where he wants to record everything, in his overwhelming greed, not making a careful selection any more. When he first meets Izidor in the street and tries to make the old man react to the music from his tape recorder, Izidor tells him quite calmly that this kind of music is in fact everywhere, it is not a rarity, as Stephane would like to think. Even though the Frenchman understands what the old man wants to say, he will never fully acknowledge it, as his whole journey would be pointless if that valuable song from his late father's past didn't motivate him to go on. Nora Luca was the favourite song of Stephane's late father, an ethnologist (interesting enough, as the great controversy of „Gypsy films” revolves around the question of their ethnologically correct representation) who had spent his whole life traveling and recording folk songs. Stephane's father had been listening to this specific song on his deathbed, assigning Stephane with this quest: to find its singer. The task could bring the father figure closer to Stephane who spent his childhood missing his father. The father's absence remains a mystery to the young man, so, in fact, his quest for the Nora Luca song is superficial, in fact he is searching for an underlying meaning to this overwhelming lack of a father. In a twisted logical conclusion, if he manages to successfully finish his father's quest, finding what his father had desired so much, he could fill the emptiness left in his heart by the former's absence and then death.

Stephane wishes to capture the object of desire in a sterile context, without any intervention, as he wants to take it home with him. Until his relationship with Sabina reaches its climax, she first becomes the connecting point between him and the Roma community, taking him to many musicians (while she questions the validity of his quest), so that he can record as many songs as he wishes, step by step she becomes an unattainable *Other* that is and is not available at the same time. At the wedding, she tries to seduce him with her exotic dance while he is unresponsive, in the bar, she dances and sings for him again, though she is refused by him. The sound of her voice and the thumping of her feet disturb him in his obsessive search. At this phase of their relationship, the Frenchman is still looking-for the perfect music, for the perfect woman, for himself: he is unaware of the fact that if he wants to capture the authentic Gypsy song, he will not be able to do it in studio conditions... as the exact same authenticity he chases so fervently will disappear. When songs are sung, emotions will make the audience clap their hands, stomp their feet, sing along and maybe smash some plates- thus the borderline between artist and audience is faded. Gypsy songs are performed by everyone, that is why there is no specific Nora Luca song- as it is not owned by anyone- everybody who can sing and enjoy it, can become Nora Luca for a moment. The object of desire is elusive, it cannot be possessed, it will slip away, as it is specified in Jacques Lacan's *Seminar VII* about courtly love: "what man demands, what he cannot help but demand, is to be deprived of something real" [14]. If we agree with Lacan, the knight/the man was looking for something that was inexistent in his Lady-she became a mere symbol of his yearning for the absolute, a construction that could be reduced to an illusion: a pretext for the man to start his self-discovery. His "desire is continually blocked and frustrated by the signifier that eludes it. The subject is, thus, constituted through this prohibition of desire, a desire for the impossible object-its representation in the *Other* which can never be attained" [15]. This is the lesson taught to Stephane: that Nora Luca doesn't necessarily exist, and if she does, she could easily be the very real Roma girl Sabina.

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### Filmography

Tony Gatlif, *Gadjo dilo (Crazy Stranger)*, August, 1997, France.



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