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BioME



inB

CURRENT ASPECTS AND PROSPECTS

INTERNATIONAL CONFERENCE

MOLECULAR BIOLOGY
CURRENT ASPECTS AND
PROSPECTS

INTERNATIONAL CONFERENCE: Molecular biology

- ◆ Young Researchers in BioSciences ◆
- ◆ Extranuclear Heredity ◆
- ◆ A night at the faculty ◆



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CONTENTS

1. Preface

2. OSpN Activity

- 2.1 A night at the faculty
- 2.2 International Conference: Molecular Biology – Current Aspects and Prospects
„Young Researchers in BioSciences” International Symposium

3. Discussions, speeches and debates

- 3.1 Therapeutic cloning
- 3.2 Interview – Dr. Alexandru N. Stermin

4. Science and Nature

- 4.1 Extranuclear heredity
- 4.2 Climate change: Global impact and possible solutions for diminishing its effects

5. Discipulis Naturae – Great scientists

- 5.1 George Emil Palade

6. Free time

- 6.1 Review: Bite me!
- 6.2 Foreword: „Bacteria eaters”
- 6.3 Photo gallery – Nature in pictures, immortalised by students





PREFACE

Each time, the students from the Faculty of Biology and Geology, together with the Bio-ME team, try to provide readers with the most interesting scientific news and to promote events that have profound impacts on the world. In this issue, we capture moments from the International Conference: Molecular Biology – Current Aspects and Prospects, and share our review on this year's Young Researchers in BioSciences International Symposium. Also, the magazine will intrigue readers with stories worthy of a novel from Dr. Alexandru Stermin's interview, and the review of a series of documentaries on poisonous or parasitic organisms, called „Bite-Me!”. Finally, we try to satisfy our readers' curiosity with a questionnaire addressing therapeutic cloning, which was answered by students from Cluj-Napoca, Bucharest, Iasi and Constanta.

The Bio-ME Team

A night at Faculty

*Rusu Dragoş Raul, 2nd Year Industrial Biotechnology Student ,
Faculty of Biology and Geology,
Babeş-Bolyai University ,Cluj-Napoca*

Have you ever wondered what it would be like to spend a whole night at your faculty, without it involving laboratory work or a long study session at the library, before an exam? Well, this is exactly what happened at the Faculty of Biology and Geology on the night of October 10th, event which was made possible by the organizing committee of the International Conference – “Molecular Biology- current Aspects and Prospects” (ICMB-CAP).

The event started at 9 pm. with a series of interesting and educational activities, such as a first aid course, given by members of OSM (Medical Students' Organization) from Cluj, a course presented by the “Scouts of Romania”, which taught the students how to efficiently use a compass, a book club with Victor Miron, the “Cartile pe Fata” campaign initiator, where we read “The Old Man and the Sea” by Ernest Hemingway and watched the movie with the same name, a book exchange where the participants, bookaholics or simply ambitious students, offered each other novels, books or faculty courses. At the same time took place the projection of the Nobel Prize for Medicine or Physiology announcement and a presentation given by the Dean, Conf. Dr. Ioan



Coroiu, on cryptozoology, which delighted and captivated the audience.

Next came some of the members of “Erasmus Student Network” whose goal was to inform the public on the international programme “Erasmus” and the conferences “On Cambodia- People and Culture” and “Nights in the Jungle” given by Anda Culisir and Dr. Alexandru Stermin, respectively, who went on two equally fascinating journeys. Of course, the night wouldn’t have been complete without a relaxing unplugged concert, by Raluca Marinescu, a “NightQuizz” with prizes from Donuterie and other activities which lasted until morning.

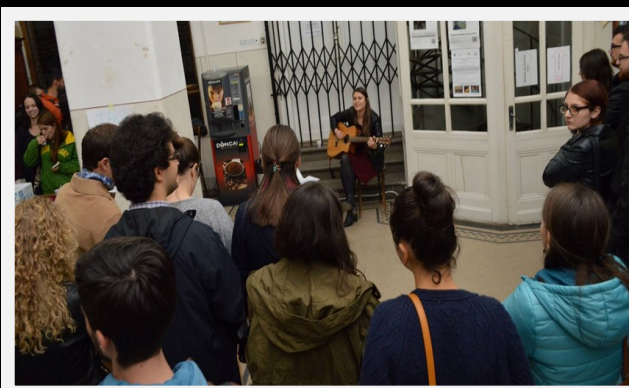


In the aftermath of this event, we asked some of the participants their impressions and what they learnt from the activities they took part in, and they answered with plenty of enthusiasm:

„In my opinion, the programme was very well structured. I really did manage to get to all of the activities that I had set my mind on...I was extremely happy that I was able to find out a lot of new things from the conferences and that I managed to read part of “The Old Man and the Sea”. The coordinators must be some very hard working people if they managed to stage something like this. I

think that they are highly devoted to their cause and that I have a lot to learn from them. It was a success and I really wish we could repeat this experience.”

***Maricel Bocaneala,
President of the “Students’ Organization for Nature” (OSpN)***



„I attended the first aid course, and I can say it was very helpful because I learned how to provide first aid and in what circumstances it is needed. Then I took part in the conferences. The dean showed us that, to my surprise, there is a science that studies the “Kraken” and the “Loch Ness” monster. The conference on Cambodia was an opportunity to learn new and interesting things about the history of this country, and Dr. Stermin’s lecture showed me that philosophy and science go well together. I believe that the event was the perfect opportunity to better get acquainted with new colleagues and to interact with some teachers in a less formal setting, making it very useful for freshmen.”

***Arina Acatrinei,
first year student at the Faculty of
Biology and Geology***



“I have to say only one thing: INFORMAL. Promoting the conference was the primary goal, thus it should have been formal, but, due to the presentation being addressed, mostly, to students, it became informal. Furthermore, the conferences were diverse and specific to students, which was a great bonus... I was brought great amounts of joy when I saw sparks of interest in the audiences’ eyes. I participated in many conferences, but it’s a rare sight to see that people came to learn something, to leave with at least one idea that would motivate them further on. Probably the only thing that bothered me was that people left while there were more things to hear and learn, as such, when it ended, we were only a few left.”

*Anda Culișir,
Graduate of the Faculty of Biology and Geology*



„Firstly, it was an unique event at our Faculty and thus, we weren't quite sure what to expect. It was the first time that students could participate at more than one activity held in the campus, during the night. The activities were diverse and we managed to convince other student organisations to join us. We also managed to bring specialists, in different domains, to hold conferences with interesting themes for the large public. For us, as organisers, this event had as it's main goal, to promote the conference which would be held in november and for which we had invited a Nobel Prize nominee. As such, it was important that the team worked together in order to have the best results at the big event. We consider it a success and we hope that the participants, who came in large numbers, had a great time, considering that the activities started at 9 P.M. and ended at 9 A.M., the following day. Most of the participants were students, but you could also see teachers and other adults as well.”

***Octavia Roman
Organizer***

We hope that everyone felt good spending a night at the Faculty of Biology and Geology, that they gained something from this experience and we hope that there will be more of these initiatives which bring people together in a social and cultural environment and which encourage human interaction and the creation of bonds between people.

International Conference: Molecular Biology – Current Aspects and Prospects



*Cornelia Ungurean, 4th Year Industrial Biotechnology Student,
Rusu Dragoş Raul, 2nd Year Industrial Biotechnology Student,
Faculty of Biology and Geology,
Babeş-Bolya University,
Cluj-Napoca*

In the first weekend of November, Cluj hosted the most important scientific event of the year: "International Conference: Molecular Biology - Current Issues and Prospects", organized by the Faculty of Biology and Geology in collaboration with the Students for Nature Organization.

The idea of the conference started with two MSc students of the Faculty of Biology and Geology, which are Adorján Cristea and Octavia Roman. The event was held on 6-8 November in the Auditorium Maximum. Over 700 participants arrived at the conference, eager to hear the lectures of the 11 speakers, with topics ranging from epigenetic to plant biotechnology.

Among the speakers was one Nobel Laureate for Medicine or Physiology, Sir Dr. Richard Timothy Hunt from the Francis Crick Institute in London, UK. He received the Nobel Prize in 2001 for his discovery of a new family of proteins called cyclins, which regulate the cell cycle. Other speakers were Dr. Gheorghe Benga, professor of cellular and molecular biology at West University "Vasile Goldis", Oscar Vicente, professor of biochemistry and molecular biology at the Polytechnic University of Valencia, Spain, Patriciu Achimaş and Florian Nicula, researchers at the Institute of Oncology "Prof. Dr. Ion Chiricuță" Cluj-Napoca and Nicole Wellens from the

company Lonza Benelux BV in the Netherlands.

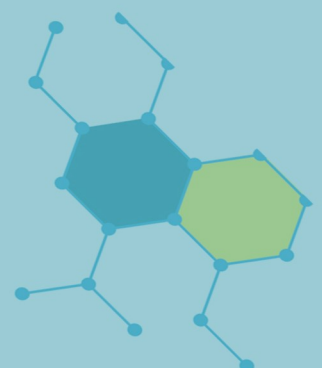


On the first day of the conference, Sir Hunt was awarded the title of Doctor Honoris Causa, then he opened the event with a lecture entitled "How to win a Nobel Prize". *"You see, you must not be very smart to win a Nobel Prize, nor to work hard. I think there are actually two conditions: to be very lucky and have your eyes wide open"*, said Dr. Hunt. The day ended with a scientific evening, where participants had the opportunity to ask the speakers questions and to discuss with them about topics covered during the presentations.

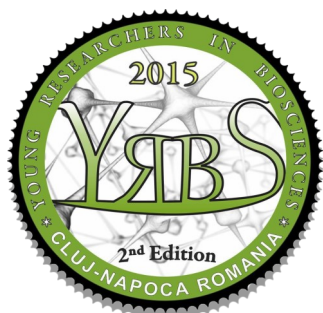
The following day continued with plenary sessions on various topics, such as genetic, epigenetic, plant biotechnology and enzymology, and on Sunday a poster session was held, the best posters being awarded with prizes by the Nobel Laureate. There were three round tables, where students had the opportunity to talk to some of the speakers, the topics covered were "Theory versus practice in the laboratory", "research career in the West and East" and "Interdisciplinarity in research". There, the guests spoke of their experience, and students received different advice depending on the topics discussed.



Students, teachers and researchers attending the conference were delighted with the whole organization of the event and the opportunity to interact with major researchers in the field of molecular biology. Moreover, they expect a second International Conference - Molecular Biology.



International Symposium „Young Researchers in BioSciences”



*Bocăneală Maricel, 3rd Year Biology Student,
Galea Diana, 2nd Year Biochemistry Student,
Faculty of Biology and Geology,
Babeş-Bolyai University, Cluj-Napoca*

YRBS- în overview

For the volunteers of the Students for Nature Organisation and for those who study at the Faculty of Biology and Geology, the month of July is the most anticipated month of the summer, due to its special meaning. In other words, July means the International Symposium “Young Researchers in Bio Sciences”, a symposium which is meant for those students who are passionate about *life sciences*, no matter if they are taking their Bachelor, Master or Doctoral degree. However, YRBS includes memories, friendships, passion responsibility, implication and development well. These are the words that had defined this year’s symposium and transformed it into the most consistent memory from the entire summer.

This symposium has already reached its second international edition, this year had an even larger diversity in participants than the previous one. There are quite a few countries, from which there were participants, like: Pakistan, Norway, Ukraine, USA (Texas), Slovakia, Hungary and, of course, Romania (Cluj-Napoca, Timișoara, Iași). This huge diversity brought by this year was a big surprise for us and it made us more eager to offer the participants pleasant memories, interesting, captivating activities, and, why not, friends from Romania, with whom they could collaborate for possible future projects. Moreover, it should be mentioned that this symposium promotes bonds and collaborations between different generations of researchers and the creation of an international platform for sharing biological information.



This year at YRBS

This year, the symposium lasted four days, from the 22nd of July to the 26th of the same month. These four days were full with activities, novelties, promenades and lots of memories. However, the volunteers' work started way earlier. We tried to grow since the previous edition, to bring new things, to diversify the experience that would follow, to arrange everything in such a way that everyone would experience something unique. In our attempt to offer a diverse and original program, we combined activities like poster and oral presentations with local walks and a trip in nature. The local walks consisted in visiting Cluj-Napoca's most important attractions: the Botanical Garden, and oasis of green and beauty which was welcomed in the summer heat, the Citadel, where a static show of lights managed to leave everyone amazed, Unirii Square, to see the history that is part of all of us, the Zoological Museum and the Vivarium, where one can admire the diversity of non-indigenous plants.



The trip in nature consisted in visiting Râmețului Keys, in Alba, where we managed to get ourselves wet, to acquire scratches and bruises, but we decided that life was too short to not have an adventure there. We also realized that we always learn new things, but we do require breaks as they are vital to us.

All of these activities have created great memories for the participants and for the organizing crew as well.

The theme, on which the oral presentations were based, was quite diverse: bioinformatics, molecular biology, ecology, structural studies on moss, studies on the population of European vegetation, antibiotic-resistant bacteria, the human cognitive capacities, the role of transposons, the evolution and genetic similarities between some species of fish and mammals, the influence the environment has on the number of eggs birds lay, the quantity of heavy metals in cigars, the importance of butterflies for rural agriculture, genetic vegetal engineering, and many more have been discussed there and all of them were welcomed with enthusiasm and curiosity by the community we had formed during the symposium. Each subject was treated with lots of questions and discussions held both during the presentation and on the coffee breaks. Everything happened on a span of four short but very productive days.

In conclusion, YRBS doesn't influence people in only one way, on the professional level, but also influences human relations between those who share the same passion and vision, thus leading to, what we hope, future collaborations between scientists all around the world.

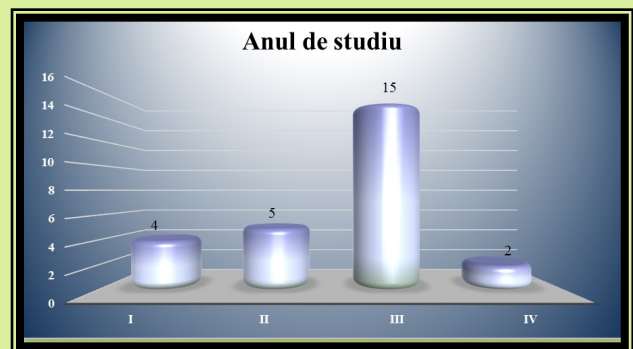


Therapeutic cloning

*Milonean Maria Adelina, 3rd Year Biochemistry Student,
Faculty of Biology and Geology,
Babeş-Bolyai University,
Cluj-Napoca*

The advance of biotechnologies and the researches conducted on stem cells give an enormous potential to the regenerative medicine and in the treatment of genetic diseases although it encounters difficulties. Therapeutic cloning represents of nuclear material from a somatic cell to an oocyte whose nucleus has been previously removed with the purpose to obtain cellular lines which contain the same genome as the donor's. In this way the tissues or the organs obtained through this method are compatible with donor's nucleus and the necessity of administrating immunosuppressants in clinical cases is removed. Therapeutic cloning also gives the possibility in regenerative and reproductive medicine and in the genic therapy it can be used as a vector in gene delivery. (Kfoury, 2007)

Taking into consideration the positive implication of the students and the previous questionnaire, the Bio-Me team proposed for this issue a survey, this

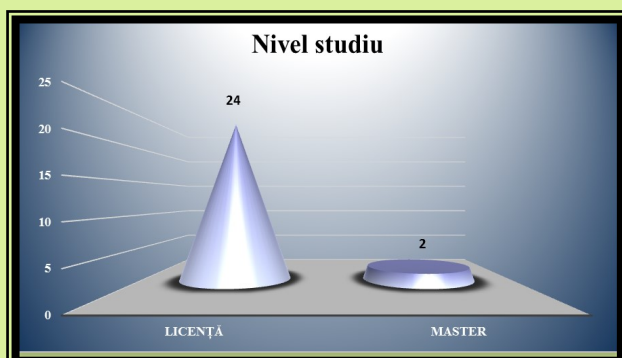


time with the theme of therapeutic cloning. The study had been made on a sample of 26 students from faculties by domain: Faculty of Biology and Geology, Cluj-Napoca, Faculty of Medicine and Pharmacy from Cluj-Napoca, Bucharest, Constanta, Iasi.

1. What other application do you think therapeutic cloning has?

Other applications are: sampling of stem cells, development of tissues and organs in order to conduct transplants, human anatomic and physiologic studies, pharmacology, removal of animal testing.

**Mărgineanu Antonia-Maria,
Molecular Biotechnologies I
(Faculty of Biology and
Geology, Cluj-Napoca)**



Another important application of therapeutic cloning is the obtaining of stem cells in order to thoroughly study them –for understanding the way these cells develop and eventually for finding new treatments for people suffering different diseases (stem cells therapies for each patient alone)

Moldovan Cristian, Biochemistry III (Faculty of Biology and Geology, Cluj-Napoca)

Therapeutic cloning has other applications above organ procurement. This method can be used for producing egg stem cells, highly valued in medicine, being able to use them in hematopoietic stem cells transplant, in tissue and organ regeneration and in research as therapeutic vectors in HIV and autoimmune disease treatment.

Bârzan Harald, Biochemistry III (Faculty of Biology and Geology, Cluj-Napoca)

The expansion of lifespan in tissues and/or the regeneration of them, a process that can have applications in different treatments, as the one used in diabetes treatment or those treatments used in neurodegenerative diseases.

Militaru Simona Biochemistry I (Faculty of Biology and Geology, Cluj-Napoca)

Therapeutic cloning can be successfully applied for duplicating human organs necessary in transplants.

Culda Daiana, Dentistry II (Faculty of Medicine, Constanța)

The preservation of cells for curing cancer (if this one occurs in the future), the acquisition of blood for transfusions, organ transplants.

Munteanu Iulian, IV (University of Medicine and Pharmacy „Carol Davila”, București)



2. Students opinions that are for therapeutic cloning

I am for therapeutic cloning because I consider that this technique has an enormous potential for treating and why not for curing different kind of diseases. Even if in the actual moment the use of this method is limited by some factors, I am convinced that through long studies, different applications will be discovered and applied in the medical field without other methods to be available.

Moldovan Cristian, Biochemistry III (Faculty of Biology and Geology, Cluj-Napoca)

It can replace, in some limits, organ transplants, which represents a problem due to the small number of available organs.

Jeler Raluca-Georgiana, General Medicine III (University of Medicine and Pharmacy „Iuliu Hațieganu”, Cluj-Napoca)

Because I affirm that, during the blastocyst stadium ,we cannot speak about the destruction of a human life and by the provenience of the cloning genome (a living human being, in all his mental functions), it cannot be spoken about the destruction of a human being.

Bârzan Harald, Biochemistry III (Faculty of Biology and Geology, Cluj-Napoca)

In this case probably there would not be so many waiting lists regarding transplants and by this method lives can be saved.

Kiss Asztrid, General Medicine III (University of Medicine and Pharmacy „Iuliu Hațieganu”, Cluj-Napoca)

I think that, by using this technique efficiently we can contribute to: the progress of medicine the minimization of the risks regarding the medicine insufficiently tested on human subjects, the possibility of frequently conducting with higher results the stem cells treatments.

Margineanu Antonia-Maria, Molecular Biotechnologies I (Faculty of Biology and Geology, Cluj-Napoca)

Why am I for the therapeutic cloning? The answer is very simple: the world evolves and I am sure that it is on the right way because only those with major interests can believe in the wrong way of the evolution. The process of therapeutic cloning will be “the power of the life” which we reach only with the help of those people capable of doing it.

Cănilă Rareș, Biochemistry III (Faculty of Biology and Geology, Cluj-Napoca)

This can be a new method for us to think at the medical science, the realization of immunologic studies which will help us to reach a new point in

biotechnology, urgeries, micro-surgeries, etc.

Miroiu Andrei, General Medicine III (University of Medicine and Pharmacy „Gr. T. Popa”, Iași)

I am for this technique because its purpose is to help sick people usually people who have small chances of survival and I do not consider it as being against moral and ethic values.

Pop Emanuel Antoniu, Biochemistry II (Faculty of Biology and Geology, Cluj-Napoca)

This technique will increase the rate of success in transplants, so the patients will not wait as long as usual for an organ donor.

Munteanu Iulian, IV (University of Medicine and Pharmacy „Carol Davila”, București)

3. Opinions of people against therapeutic cloning

From a scientific point of view, therapeutic cloning can improve and lengthen of life those who receive a treatment derived from this method. Finally, a new race of super-human can emerge. It sounds quite well, but this kind of future can also bring along with it negative effects as the rapid grow of the population and the danger of this method to be used in wars.

Militaru Simona, Biochemistry I (Faculty of Biology and Geology, Cluj-Napoca)



I am against cloning because I consider it not being ethic.

**Alexandru Giulia-Diana, Biology III
(Faculty of Biology and Geology,
Cluj-Napoca)**

4. Since this technique uses ovules from which nuclei are extracted (n) and are replaced with somatic nuclei (2n), do you consider this technique ethic?

In my opinion, if the “donor” is correctly informed and agrees with all conditions and risks, the cloning process is legal.

**Munteanu Iulian, IV (University of
Medicine și Pharmacy „Carol
Davila”, București)**

I think ethics is not an argument to stop researchers, since it does not directly influences a living organism which has the ability to feel.

**Mihăese Georgiana, Biology II
(Faculty of Biology and Geology,
Cluj-Napoca)**

I don't think it's good to play with human lives in this manner. We should limit to ethical procedures which we already know in order to save lives. In the end we have to let natural selection and consequently evolution take its course.

**Alexandru Giulia-Diana, Biology III
(Faculty of Biology and Geology,
Cluj-Napoca)**

From my perspective, it is ethic since cells with replaced nucleus will be used for generating of new organs or tissues which are necessary for replacing tissues and organs from ill patients.

**Pop Emanuel Antoniu, Biochemistry
II (Faculty of Biology and Geology,
Cluj-Napoca)**

The used embryo loses its potential to

develop. Due to this, many consider therapeutic cloning a process equivalent to killing a person. Despite this, the embryo can be viewed only as scientific material since the embryo is not inserted inside the uterus and it does not reach a stated of development where it can feel pain. It is a two-faced problem and it is difficult to drag a line between who is right and who isn't.

**Militaru Simona, Biochemistry I
(Faculty of Biology and Geology,
Cluj-Napoca)**

Yes, I consider this technique ethical since the utilized DNA derives from a patient. In addition, the process will stop before the embryo stage, pluripotent cells will be extracted from the internal mass of the blastocyst.

**Moldovan Cristian, Biochemistry III
(Faculty of Biology and Geology,
Cluj-Napoca)**

Yes, since this somatic nucleus (and the genetic material) already belong to a living person and, with a great probability, this technique is done for the benefit of that particular person. Also, the formed zygote is not let to evolve beyond the blastocyst stage, thus the nervous system is not defining.

**Bârzan Harald, Biochemistry III
(Faculty of Biology and Geology,
Cluj-Napoca)**

**5. What advantages do you think
therapeutical cloning has?**

Considering that organs and tissues with the same DNA as the beneficiary are transplanted, rejection is unlikely to appear. Likewise, immunosuppressing methods are not needed in this case.

**Jeler Raluca-Georgiana, General
Medicine III (University of Medicine
and Pharmacy “Iuliu Hațieganu”
Cluj-Napoca)**

Advantages are that it could lead to a revolution in the research domain as well as the medical domain, aiding to discovery of new treatments for a wide range of diseases and would facilitate transplant procedures, eliminating long waiting lists.

Alexandru Giulia-Diana, Biology III
(Faculty of Biology and Geology,
Cluj-Napoca)

The first argument is that this procedure is used for creating of new tissues (bone, skin and even organs) for people who need them and do not have a donor. Moreover, we can multiply cells and use them without any risks.

Miroiu Andrei, General Medicine III
(University of Medicine and
Pharmacy “GR. T. Popa” Iași)

In the case of organ transplants, infection rate or organ rejection will significantly decrease. Organs will no longer be harvested from a second person, and patients with different rare blood types will no longer need to wait years to find a suitable donor.

Militaru Simona, Biochemistry I
(Faculty of Biology and Geology,
Cluj-Napoca)

Advantages are: fast development of embryo and implicitly facilitation of sampling stem cells so necessary for a large variety of treatments, the possibility of progress of different medical studies and tissue culture or human organs as well as embryos, without the famous animal testing and experimenting.

Margineanu Antonia-Maria,
Molecular Biothechnologies I
(Faculty of Biology and Geology,
Cluj-Napoca)

An advantage would be the fact that use of these cells, in case of a patient, will not trigger an immune response since the person's own genetic material was used. Another advantage represents that in the future it is possible to obtain a diversity of organs, thus facilitating transplants without an intermediate donor.

Moldovan Cristian, Biochemistry III
(Faculty of Biology and Geology,
Cluj-Napoca)

The waiting time for the transplant, the agony of patients being less long.

Șamșodan Liana, Biology III
(Faculty of Biology and Geology,
Cluj-Napoca)

I believe there are many advantages – as I previously mentioned, the waiting time for transplant organs will decrease, the organ is new, unused by nobody (until the transplanting succeeded).

Munteanu Iulian, IV (University of
Medicine and Pharmacy “Carol
Davila”, București)

6. What are the disadvantages of therapeutical cloning?

A disadvantage would be that this technique has to be done preventively since obtaining a mature organ, suitable for the transplant, necessitates a rather long period of time. Another disadvantage is represented by the small rate of obtaining viable cells. Other disadvantages are high costs and long time span of harvesting procedures and differentiation.

Moldovan Cristian, Biochemistry III
(Faculty of Biology and Geology,
Cluj-Napoca)

The source for the ovules is the only disadvantage of therapeutical cloning. Nowadays the only ovule sources are fertility clinics which choose to donate leftover ovules for medicine treatments and research. Moreover, treatment of young healthy women with hormones induces hyper evolution which has not yet known long term side-effects and it's dreadful for the donors.

***Bârzan Harald, Biochemistry III
(Faculty of Biology and Geology,
Cluj-Napoca)***

If therapeutical cloning would be done on a global level, it could lead to all sorts of mistakes and abuses, changing the course of evolution in a manner which only people with access to power will be able to decide and I don't think that this is a good aspect for the future of our species.

***Alexandru Giulia-Diana, Biology III
(Faculty of Biology and Geology,
Cluj-Napoca)***

The number of ovules which would have to be donated in order to obtain embryonic cells is very high, taking into account that the cloning process is not efficient enough yet. Since it is a costly process, there is a probability that this technique will emphasise the difference between treatment of a wealthy patient and a less lucky patient. In addition, the increase rate of population (which already is significantly high) would enter in an uncontrollable gallop.

***Militaru Simona, Biochemistry I
(Faculty of Biology and Geology,
Cluj-Napoca)***

It is very cost inefficient, and in our country, Romania, lab equipment and economy are not prepared enough to offer each and every citizen the chance to

benefit this type of treatment.

***Miroiu Andrei, General Medicine III
(University of Medicine and
Pharmacy "GR. T. Popa" Iași)***

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Interview - Dr. Alexandru N. Stermin

*Țugui Claudia, 2nd Year Biochemistry Student,
Faculty of Biology and Geology,
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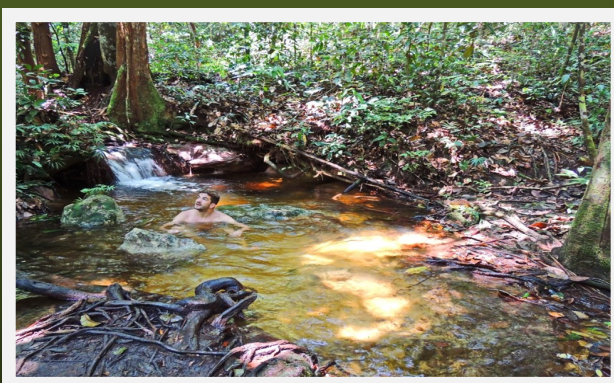
1. We know you took a trip to the Amazon last summer. Can you share with us some of the experiences you went through?

There were six days, me and a guide, a native from a tribe of the forest. I say “of the forest” because, there, the paradigm hasn’t changed yet, the tribe belongs to the jungle, not the jungle to the tribe. I slept hanging in a hammock that was tied to trees, in the middle of the forest. The first day of meeting the jungle was incomprehensible, there was so much of everything, vegetation, birds, insects, sounds, that by the end of the day I was under the impression that I had seen everything, yet I could remember nothing. It was just like that day when, preparing for an exam, you read the courses for the first time, and then at night, after you feel like you’ve understood everything, you realise that you don’t remember anything. Step by step, on the second day, I started to see and get to know the jungle. My guide was showing me plants that they used as a cure or resins used for fire or for gluing shoes. Everything was there, you just needed to know where to look. In the meantime I was walking through the jungle in the search of the *Ara ara-rauna* parrots. I knew that they were rare, and I knew right from the start that I may not find them, but then, on

the second-to-last day, while I was ankle-deep in dead leaves at the basis of a huge tree, I raise my eyes and I see them – they were big and wild. I was looking at them through my binoculars and I was amazed by how different they are, here in the jungle, as opposed to those that were raised in captivity – it seemed as though they were different birds, more alive and more real. Another moment that I remember now is when I bathed in the water of a creek. The water was the same temperature as my body, because to me it felt neither warm, nor cold and it had a unique texture, it was “softer”- due to the organic matter it contained. When it was time to leave I remember how difficult it was to part with the jungle, because the whole experience was much more intense and unique than I had imagined it would be when I first started planning it. There were many moments that remained in my mind, some have lodged themselves and I can narrate them, some are still at the level of experience, of emotion and it is hard for me to verbalize them, but they are in me, which is why sometimes I feel like I should talk about them using the present tense.

2. Considering the “hostility” of the Brazilian jungle, did you encounter any difficulties during your trip?

Perhaps it was due to my comrade, of whom I knew had grown up in the jungle, but during those few days that I stayed there, I was not confronted with unwanted situations. A limit situation was the panic I experienced during the first night, but on the second day Roberto told me what the deal with fear was and how in the jungle I should only be afraid of snakes, they are the only animals against which I can either defend myself or avoid them, should I see them. In regards to the rest, if a jaguar attacks me I will be slaughtered in a second, and if a spider bites me I will die without knowing why and in what context, I can't stand in fear of situations that I can in no way control. I had to accept my place in the jungle and submit myself to hazard, which might seem absurd to someone who was raised in civilization, but this is a vital aspect for those who were raised in the jungle, because you cannot spend your whole life in fear of situations that are not up to you or your



strength. After experiencing the jungle I stopped for a few days in Los Angeles and Beijing and I realised that the “hostility” of the urban jungle is much stronger in comparison to that of the Amazon jungle – the fact that we are educated for decades, both at home and in schools, in order to handle the system of the jungle we created is not for nothing.

3. What can you tell us about the diversity of the flora and fauna of the Amazon basin?

It is so much more than we can imagine and so much more than words can contain. In regards to diversity, I realized that life can take many forms, but that all of those keep, buried in their essence, the same living energy, which is also present in us and has perpetuated starting with the first forms of life that appeared here on earth or somewhere else in the Universe.

4. You teach the Biogeography and Evolutionism seminars and the Compared Anatomy laboratory. What can you tell us about teaching as a career and what made you choose it?

I started to form myself as a teacher at the Children's Palace in Cluj, where I taught the ornithology circle for a year. It was an exceptional experience because there, at the “palace”, children only come if they like it. In order to keep my job I had to have a certain number of groups with a minimum number of kids. The challenge was to make the children come the following week, because they liked it. I think that's what helped me develop the capacity to recognise their needs and try as hard as I can to find a way to make them interested and curious, to make them like it so that they keep coming. Now I believe that it is essential for a teacher to try and teach for a year at the Children's Palace in order to recognize and mobilise in him the capacity to make the children come to the class because they want to, not because the teacher grades them.

I always wanted to be a teacher, a good one, and I still do. I have yet to gain the necessary experience in order to talk about what it means to be a professor but, from my experience as both a pupil and a student, I realised that there were some things that I learned because I had to and some that I learned out of fear and I forgot most of them. However, there are also things that I learned on

my own, because I liked them, but this was due to the fact that there was a teacher who knew how to inspire me and make me want to learn them. He didn't teach me himself, but I learned because of him or them and considering this I want to be the type of professor who inspires his students. Regarding the subject of "teaching" I realise that we shouldn't see things as purely black and white, good or bad and that there is no such thing as good professors and not-so-good professors. Every teacher has his strategy – one might teach more severely, another with authority, there are some teachers who demand a certain discipline during class and some who are more permissive and yet, while different in their manifestations, these teachers are all of equal value because in this way, each and every one of them gets through to a certain type of student, one who is open to the professor's way of teaching. Considering how students are different, it



is good for professors to be different, too. In this context, every teacher has a role in the school in which he teaches and I think that, as you all know from Evolutionism class, variability is good, really good in fact – it is a force and a condition of evolution.

5. How would you describe your relationship with your students?

Most of the students I see at laboratories and seminars are people who came to study Biology out of passion, they came because they liked it and so every

encounter of ours is an opportunity for the accent to fall not on the exchange of information but on the fact that we share a passion, and so that's where we meet to find out things we all enjoy – therefore this is the main idea that I want to define the relationship between me and you.

6. What advice could you give the students of the Faculty of Biology and Geology who want to follow a career either in academia or in research?

I don't know a recipe for success that could be generally applied, but I learned from the people whom I knew and have been successful that, either as a professor or as a researcher, it is important to be consistent and to enjoy what you do. However, in my opinion, the thing that is the most essential, which influences the other two, is to find a way to never lose your enthusiasm. As for the option of being either a teacher or a researcher, I think the scheme of the choice between these two fields is as follows: if you like science and people, you become a teacher, if you like science and you also like people, but not as much, you become a researcher. After all, the same unique rule that applies to biology, applies here as well: "the only rule is that there are no rules".

***I know that I am fairly young and that perhaps I allowed myself to talk with too much certainty and conviction about themes so complex such as career, teaching and academia. I did it because you asked me to and so I allowed my thoughts to go so far, not because I am an expert in any of those fields, but I did it just like Tertulian, in his Treaty on patience, who says he is no good when it comes to patience and that he is not a patient man, but he wrote a treaty about it having figured that sick people talk about health and thus, speaking about it, sick people can enjoy some of its benefits as well.**

Extranuclear Heredity

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Sursă: www.memo.fr

In the context of contemporary society, the way in which genes are transmitted to offspring occupies a leading position in the research taking place at the worldwide level. This problem, however, dates back to the 19th century, when the Augustinian monk Gregor Mendel made hybridization experiments on pea plants. His experiences have laid the foundation of modern genetics, and his observations were generalized, later to be known as "Mendel's laws of heredity".

However, there are also cases where hereditary characteristics were transmitted on a parental line, most often maternal, regardless of the genotype of the maternal or paternal (homozygous recessive, homozygous or heterozygous dominant). This highlights the fact that the hereditary character does not obey the laws laid down by Gregor Mendel. An example might be this: the paternal homozygous dominant parent (AA), the homozygous recessive maternal parent (aa), and the descendants, which will obviously be heterozygous (Aa). This character pattern is dominant, but a specific maternal character exists. This is due to the location of some extranuclear genes in the eukaryotic cell organelles (mitochondria or chloroplasts).



Sursă: bio.as.uky.edu

Extranuclear genes were called plasmagenes, and, as a whole, they are called a plasmatype, the concept of the plasmon also being the equivalent of the genome.

To showcase this theory, the criterion of the "non-identity of hybrids resulted from interbreeding" (Toma N., Gavrilă L., 2000) was used. It resorts to interbreeding parents that have different genotypes (homozygous dominant maternal parent and homozygous recessive paternal parent or vice-versa), which give birth to offspring with the same genotype. For example, maternal line (aa), paternal line (AA) or maternal line (AA) and paternal line (aa), in both cases, the progeny will be heterozygous (Aa).

But if we take into account the factors of extranuclear heredity, the two types of progeny will have different phenotypes. The interbreeding of a horse (*Equus caballus*) with a donkey (*Equus asinus*) will result in different



Source: www.broadinstitute.org

offspring. Therefore, if you are to cross a stallion ($2n=64$ chromosomes) and a female donkey ($2n=62$ chromosomes), the descendant is called a hinny, and if you are crossing a mare ($2n=64$ chromosomes) with a male donkey ($2n=62$ chromosomes), the descendant is called a mule. The hinny and the mule have the same genetic inheritance ($2n=63$ chromosomes, which determines sterility), but they present different



Source: www.zoochat.com

phenotypes. The mule has the power of a horse and the stamina of a donkey, while the hinny has neither of these.

Another known example of extranuclear heredity refers to the direction in which the freshwater snail's shell (*Limnaea peregra*) twists. The normal type has its body and shell twisted dextrally, but, in literature, there are also descriptions of freshwater snails with their body and shell twisted sinistrally. Thus, the direction of the twist is determined by the ovum's cytoplasm, which is being fixed just before fertilisation.

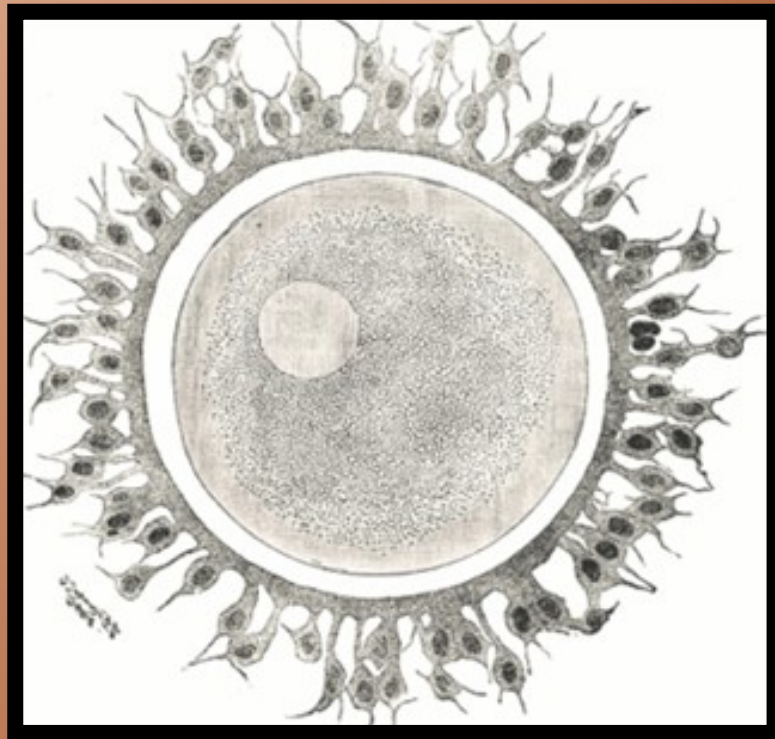
It is important to note the fact that, in the case of plasmagenes, there is no mechanism which ensures their precise,

as there is in cell division (the spindle apparatus), because cytokinesis does not insure an equal distribution of the cytoplasm in daughter cells.

The physical substrate of this type of heredity is represented mostly by mitochondria and chloroplasts. The chloroplast's DNA is usually circular and located in different regions of the stroma, and the mitochondrion's DNA is circular, and present in the mitochondrial matrix. The two types of organelles have their own system of protein synthesis, with prokaryotic ribosomes (60-70 S), which gives them some independence from the nuclear genome.

In conclusion, extranuclear heredity has some special features. Particularities of the maternal parent are manifested in offspring regardless of the paternal genotype. Extranuclear genes can suffer mutations naturally, but also by induction, independently from nuclear genes. Also independent from the nuclear DNA, extranuclear DNA, which represents only 1% of the cellular DNA, replicates itself semi-conservatively.

We can say that "the existence of extranuclear (cytoplasmic) heredity is an indication that in the transmission of hereditary traits, the true major unit is the cell as a whole, in which a functional interdependence between the three relatively independent genomes is formed: the nuclear, the mitochondrial and the chloroplastic genomes" (Toma N., Gavrilă L., 2000).



Source: en.wikisource.prg

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Climate change: Global impact and possible solutions for diminishing its effects

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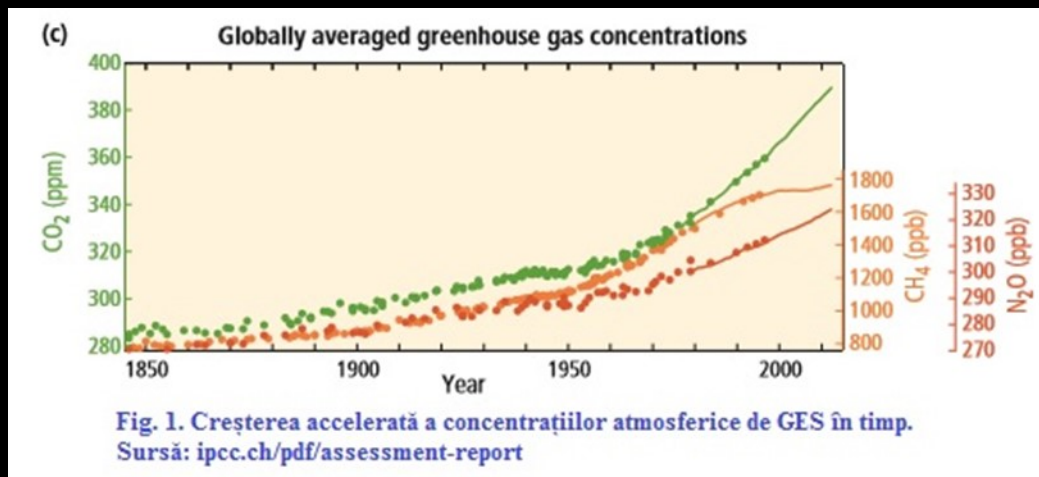
The emergence of a complex problem

During the middle of the 20th century, the negative effects of carbon dioxide (CO₂) emissions have increasingly become more conclusive for the scientific community. With the emergence of computer modelling and accumulation of observational studies from the 21st century, the Intergovernmental Panel on Climate Change (IPCC), founded 1988 with the purpose of evaluating and providing data regarding climate change, has concluded that meteorological phenomena have started to reach extreme limits, world-wide terrestrial and aquatic biological systems respond to these modifications along with man-made generated greenhouse gasses, mainly carbon dioxide, significantly contribute in climate change (CC), commonly known as Global Warming. In 2014, IPCC published the fifth report evaluating climate change (AR5) in which human influence was stated as one of the main reasons of increasing climate change. In addition, the rate with which alterations during the last decade take effect is unparalleled compared to previous millennia. In spite this, the report highlights that humanity possesses

comprising solutions to limit CC that enable economical and human development. However a stabilization of increasing temperature requires an immediate initiative since technological, economic and social difficulties afferent to this effort will escalate in time.

Greenhouse gases

Terra is constantly bombarded with immense quantities of radiation, mainly derived from the Sun, of which approximately 70% is absorbed into the atmosphere, land and ocean. Once all these media are heated, they release heat in the form of thermic or infrared radiation (IR). Yet due to its relatively large wavelength and implicitly due to its reduced energy level, part of this IR cannot escape the atmosphere, radiation remains trapped among “terrestrial” boundaries thus heating Earth, main cause for this event represents high concentrations of greenhouse gases (GHG). This process is known as greenhouse effect which is extremely important for the prosperity of the entire global ecosystem for the reason that it maintains a relative constant temperature vital for all organisms on this planet.

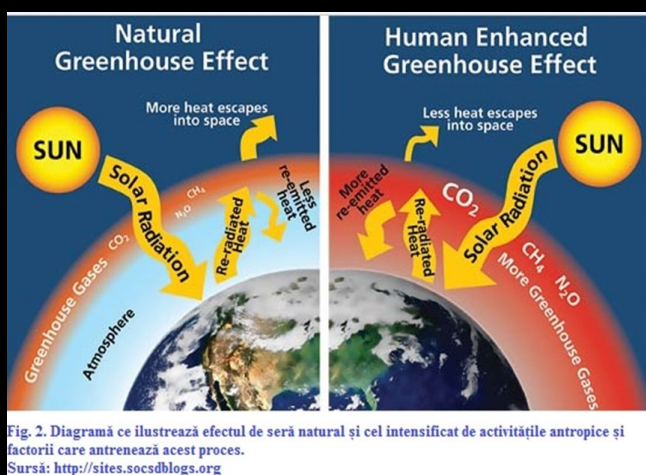


Consequently, the increase of atmospheric GHG is directly proportional to increase of temperature, fact which evolves gradually in accordance with rising gas emissions. The primary gasses of which excessive emissions intensify the greenhouse effect are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). A study published in Carbon Dioxide Information Analysis Center (CDIAC) registered a rise of anthropogenic CO_2 in the atmosphere of roughly 40%, starting from 280 ppm in preindustrial era to 395 ppm in 2013 (Blasing, 2014).

Aftermath over ecosystems

Both biodiversity and processes which occur in waters near the continental coast are strongly influenced by seasonal fluvial forces or/and precipitations, all of which are responsive towards CC (Roland et al, 2012). The build-up of greenhouse effect can change the hydrologic cycle resulting in transfer rates between the biosphere and the atmosphere, which in turn could negatively influence the normal activity of aquatic and terrestrial ecosystems. For instance, an overflow of precipitation could affect organic and inorganic transfer of matter from terrestrial ecosystems towards aquatic ones in continental vicinity, the resulting process is known as

eutrophication. The consequences of such disruption reveals differences in community structures of species identified in a specific ecosystem.



Another negative effect displays mass reduction of icecaps. As a result of increasing temperature, ocean waters become warmer, accelerating meltdown of icecaps and contributing to a rise in sea level. Once the icecaps disappeared, the habitats of species will also disappear thus unbalancing entire ecosystems. For species such as imperial penguins (*Aptenodytes forsteri*) or the Adelie penguins (*Pygoscelis adeliae*), this loss of territory represents a major problem which negatively impacts normal activities of animals such as finding a nesting place and scavenging. Since oceans absorb a large quantity of produced anthropogenic CO_2 , ocean acidity has escalated by 30% while

presence carbonate ions (CO_3^{2-}) has decreased. Insufficient carbonate ions will influence production of calcified exterior shells in species such as *Crassostrea sp.* and will alter already existing shells by dissolving them which in return will escalate mortality rate of such organisms, finally leading to an imbalance in aquatic food chains.

All these modifications which are influenced by abiotic factors have the potential to disturb and produce metabolic and phenologic changes in organisms, giving rise to disruption in species as well as extinctions of species.

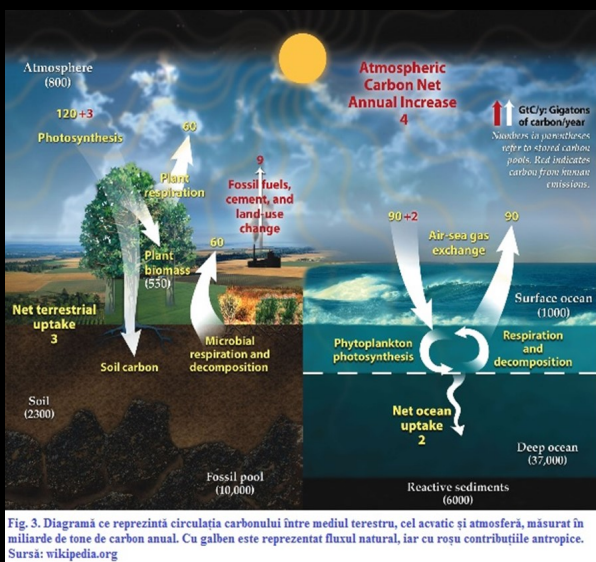


Fig. 3. Diagramă ce reprezintă circulația carbonului între mediul terestru, cel acvatic și atmosferă, măsurat în miliarde de tone de carbon anual. Cu galben este reprezentat fluxul natural, iar cu roșu contribuțiile antropice. Sursă: wikipedia.org

The impact on human population

The human species is not a separate element of the biosphere, consequently any change occurring between these limits will eventually influence human population. The most obvious of all changes will be extreme meteorological phenomena. The National Oceanic and Atmospheric Administration (NOAA) affirmed that the highest mean temperature ever registered was in autumn of 2014, a record in this sense for this particular season. This rise of average global temperature brings with itself inflation of heat waves, drought and wild fire along with precipitations

and variations in wind speed and direction which generate atmospheric circulation. The transformations regulated by these factors will immensely burden humans and society, due to their vulnerability in terms of agriculture, human health, infrastructure and transportation. Some simulations show the fact that populations from underdeveloped countries will most likely sense climate change since they directly depend on natural systems. Suppositionally, it can be stated that countries with high CO_2 emissions relying on fossil fuel are exporting biological effects of climate change to developing countries (Thomas et al, 2008).

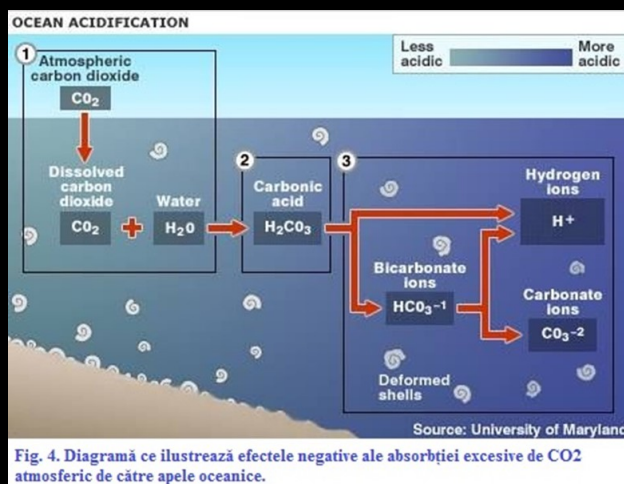


Fig. 4. Diagramă ce ilustrează efectele negative ale absorbției excesive de CO_2 atmosferic de către apele oceanice.

In addition with increase in human population and agricultural resource exhaustion, the accelerated rhythm of climate change threatens alimentary security on a global level. The abundancy and frequency of precipitations in conjunction with increased atmospheric CO_2 concentration could determine agricultural productivity increase in tempered regions situated at high latitudes, however this scenario is less probable to happen considering the fact that negative effects would constitute a major obstacle. For example CC can induce the emergence of new diseases

diseases and pests, hydrologic cycle variations and deterioration of soils to which are added high rated of soil degeneration. These aspects could constitute exogenous stress factors and would most probably inhibit optimum growth and development in plants.

Possible solutions

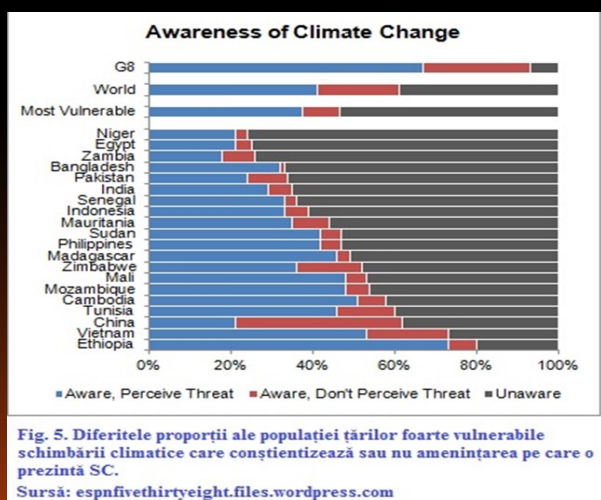
The scientific community is still working to find solutions in order to minimize these alarming predictions about the future, however the decision to act in this manner remains with each government of every capable country to consider a change of perspective and to implement adaptive changes to efficiently regulate and administrate these specific predictions.

A first necessary step would be to evaluate the vulnerability of species towards CC. Evaluation methods include utilizing an integrated framework to determine vulnerable species, habitats and ecosystems as well as ecological and evolutionary aspects which consecutively determine the vulnerability of species. Acquiring such background knowledge can provide guidance for implementing decisions on how to manage such vulnerabilities. In

other words, all these evaluation method have one main purpose, to minimize impacts of already done harm (Williams et al., 2008). Human susceptibility towards CC in terms of vulnerability has to be considered and analyzed from an evolutionary perspective since important elements of this vulnerability come from endogenous characteristics of the human system, be it a country, community, etc. (Hogarth et al., 2014). Regarding agriculture, green biotechnology represents immense potential in ameliorating negative effects of CC. Crops can be modified in order to withstand certain stress conditions, mainly unfavourable abiotic factors: high salinity concentrations, high temperatures, variations in soil humidity. Furthermore, great compensations can be achieved by introduction of polypoid cultures with increased resistance and production rate.

In 2000, IPCC estimated that roughly 46% of global carbon stock from terrestrial ecosystems is stored in forests. Taking into account that deforestation rates significantly exceed reforestation and forestation rates, there is considerable loss of terrestrial global carbon stock. A viable silvic strategy consists of reversing the previously mentioned rates and implementation of a program for soil quality improvement management. Such example was set by China between 1980 and 2005 through forestation and reforestation actions. In this manner, China minimized to a certain extent the effects of CC and managed to appropriate 3 billion tons of CO₂ and approximately 0.4 tons of CO₂ emissions were prevented by decreasing deforestation rates (Yang et al., 2010).

Promoting development and serviceability of solar energy as means of electricity source, establishing of an extensive forestation program, improving scientific modelling and



enhancing international collaboration as well as disbanding of inefficient fossil fuel power plants, all these represent a part of India's national plans to resist against CC (Pandve, 2009).

Energy conservation is essential for any strategy to minimize global warming impact and the best approach for establishing this goal is defined by viable and sustainable green energy. The most outstanding example to illustrate this point is Sweden. Since the 1970's, Sweden has reduced petrol consumption by 53.3% and continues to invest in renewable sources to provide the energy necessary for human activity. Utilizing biofuels however as source of energy has not yet been entirely adopted due to its low yield of net energy compared to biomass and necessary terrain surfaces. However the best approach which displays excellent results in solving such problems is recycling of agricultural waste (Epstein, 2007).

In terms of human settlement, optimized urban development for this global situation would imply introduction of eco-friendly constructions, transportation improvements (hybrid vehicles), as well as implementation of smart grids and lastly reduction of anthropogenic CO₂ emissions. All these factors result in positive outcomes and problem solving for endangered environment and saving necessary funds which can be used for financing further strategies to suppress CC (Epstein, 2007).

For these changes to take place, corporations would have to modify products and practices and governments should provide incentives and infrastructures for a new economy based on environmental sustainability (Epstein, 2007).

Perspectives

Even though we possess the means to improve life on our planet, we still find ourselves at the stage where anthropogenic GHG concentrations are

rising still and where efforts from singular countries do not entirely and sufficiently reduce CC effects on a global scale. Global collaborations between developed and developing states gives a solution mainly to contribute to reduction of GHG emissions and implementation of new durable strategies for prosperity of the entire biosphere. This step represents the best approach to solving not only CC but helps humanity develop even more and to culminate a new point on an evolutionary prospect. Summing up to all previously aspects is the starting point of all changes, that is to raise awareness throughout the entire human population of all the problems caused towards the planet and all its inhabitants. Moreover once we discover the causes, effects and even solutions, we can then contribute in one way or another to sustain this effort of stabilizing the situation on a global level so that one may maintain biodiversity, health of ecosystems and last but not least to offer a breath of fresh air to the following generations.

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George Emil Palade



Sursa: benchmarks.rockefeller.edu

(1912-2008)

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"For a scientist, it is a unique experience to live through a period in which his field of endeavour comes to bloom - to be witness to those rare moments when the dawn of understanding finally descends upon what appeared to be confusion only a while ago - to listen to the sound of darkness crumbling." (G. E. Palade)

Called the "father" of modern cell biology scientific contributions made by George Emil Palade led to understanding fundamental cellular structures and functions and the formation of new branches of study in biology. George Emil Palade became known for his pioneering work in elucidating the mode of synthesis and transport of proteins. Along with his colleagues, he combined techniques such as electron microscopy and cell fractionation to observe and describe with finesse eukaryotic cellular components .

Emil Palade was born on November 19, 1912 in Iasi, Romania. There he begins school preparation that will continue and finish in Buzau. Since then, he impressed with his native intelligence and perfectionism.

Influenced by some relatives he chose to continue his studies in a scientific field. Therefore, in 1930, the young Emil Palade registered as a student at the Faculty of Medicine of the University of Bucharest. During student time he develops a strong interest in biomedical sciences and starts working in the Laboratory of Anatomy under the guidance of his teachers André Boivin and Francis Rainer. In 1940 he obtained a PhD in Medicine with a thesis whose subject, as he himself notes, unusual for a graduate of human medicine: "Dolphin uriniferous tubule. Comparative Morphology and Physiology Study." It was the first of its attempts to unravel the mystery of some tissues, a success that will increase his enthusiasm for misunderstood secret structures.

Subsequently, for a short time, he works as an assistant in internal medicine and simultaneously studies pathology. In 1942 he enrolled in the Romanian Army Medical Corps. After the war, encouraged by Professor Grigore Popa, he agreed to deepen his studies in Biology working in the laboratory of Robert Chambers at New York University. There he met Albert Claude and Palade becomes fascinated by his research on electronic microscopy. Soon after he is invited to work at the Rockefeller Institute for Medical Research in the Department of Pathology of James Murphy. The research group was made by Albert Claude, George Hogeboom, Walter Schneider and Keith Porter. Palade with Hogeboom and Schneider, developed a method based on the use of sucrose for homogenization and fractionation of the liver tissue. In 1951, following the retirement of James Murphy, Palade and Keith Porter will work in the laboratory of Nobel laureate Herbert Gasser. Palade continues Claude research for the development of processes for obtaining more sensitive tissue preparations and easier to observe. Along with Keith Porter, he manages to improve tissue fixation and uses this technique in electron microscopy to reveal a new level of eukaryotic cell research, unexpectedly rich. Emil Palade continues to contribute to the operation of this new "universe". It is the first to discover some loose particles in the cytoplasm that are now known as ribosomes or "particles of Palade." Other Palade's research, conducted alone or in collaboration with other researchers, include describing the structure of mitochondria, refining the knowledge about morphology of endoplasmic reticulum and detailing components chemical synapses.

In 1955, Philip Siekevitz joins the laboratory at Rockefeller, a scientist who accompanies Palade to observe

fragments of the endoplasmic reticulum and the realization that they were the "particles of Palade" that it consisted of ribonucleoprotein particles, hence the current name starting and ribosomes. Also this year the first issue of "The Journal of Biophysical and Biochemical Cytology" was released, E. Palade being one of the editors of this magazine. That magazine is now known as "The Journal of Cell Biology" and its pages arose and developed cellular biology as a independent discipline.

In 1960 he takes part in the founding of the American Society for Cell Biology, a community of biologists studying the fundamental unit of life, promoting scientific research, improving education, personal development. In 1976, Palade is elected as president of this organization.



In 60 years' he continues the study of secretory processes using two techniques sequentially or in parallel: Cell fractionation and radiography. The first technique has led to characterization of the zymogen granules and to the discovery of segregation secretion through the endoplasmic reticulum. The second technique was used to study pancreatic sections. Other studies of this period were the structural aspect of the permeability of capillaries, membrane biogenesis in eukaryotic cells and identifying the Weibel Palade particles. In 1973, after a long series of discoveries and publications, Palade decided to transfer to Yale University,

where he will be the first head of the department of cell biology. In one of his speeches, he mentions that he has chosen to take this step because he wanted to improve scientific future by strengthening the link between traditional fields of cell biology and medicine.

In 1974 he meets with his former colleagues Albert Claude and Christian de Duve, this time not in classic lab coats, but in ceremonial costumes. The three of them share a Nobel Prize for Physiology or Medicine that year, a reward "for their discoveries concerning the structural and functional organization of the cell." Research and discoveries that took place at the Rockefeller Institute events have been essential in the development of modern cell biology. For the official conferral of the Nobel Prize ceremony the chosen theme was "Intracellular aspects in the process of protein secretion".



Emil Palade, throughout his life, has received numerous honors and awards: "Albert Lasker Award" (1966), "T. Duckett Jones Award" (1966), "Gairdner Special Award" (1967), "Louisa Gross Hurwitz Award" (1970) and "E.B. Wilson Medal" (1981). In 1961 he became a member of the American Academy of Sciences, in 1975 was elected honorary member of the

Romanian Academy, and in 1988 he became an honorary member of the Romanian-American Academy of Arts and Sciences. In 1986, Ronald Reagan - US President at the time, gives the "National Medal of Science" for fundamental discovery of crucial series of complex structures with high biological organization present in all cells. Also in 2007, Traian Băsescu - former President of Romania, decorated him with the National Order "Star of Romania" with the rank of Collar. In his memory, Department of Cell Biology at Yale University was named "George Palade professorship." Faculty of Medicine in San Diego honors him renaming the Cellular and Molecular Medicine building into "George Palade Laboratories".

Emil Palade, cartographer of a new world, has impressed with his capacity for concentration, memory and exceptional reliability. Christian de Duve describes his prized colleague with three keywords: perfectionist, multidisciplinary and charming. David Sabatini, one of his students at Rockefeller, described his teacher as a man admired and loved by scientific scene with a strong intellect, sensitive and polite.

He was married 23 years with Irina Malaxa, daughter of an industrialist. After her death, he marries Marilyn Gist Farquhar, a biologist. From his first marriage he had two children: Georgia Palade van Duzen and Philip Palade.

On 7 October 2008, after a long battle with Parkinson's disease, George Emil Palade dies at the venerable age of 96 years. After his death many scientists inspired by the genius of this giant of biology continued to change the world. This is his legacy left to the world.

References:

1. Lindsten, J. (1992, December). Nobel Lectures in Physiology or Medicine 1971-1980.
2. Jamieson, J.D. (2008, November). A tribute to George E. Palade.

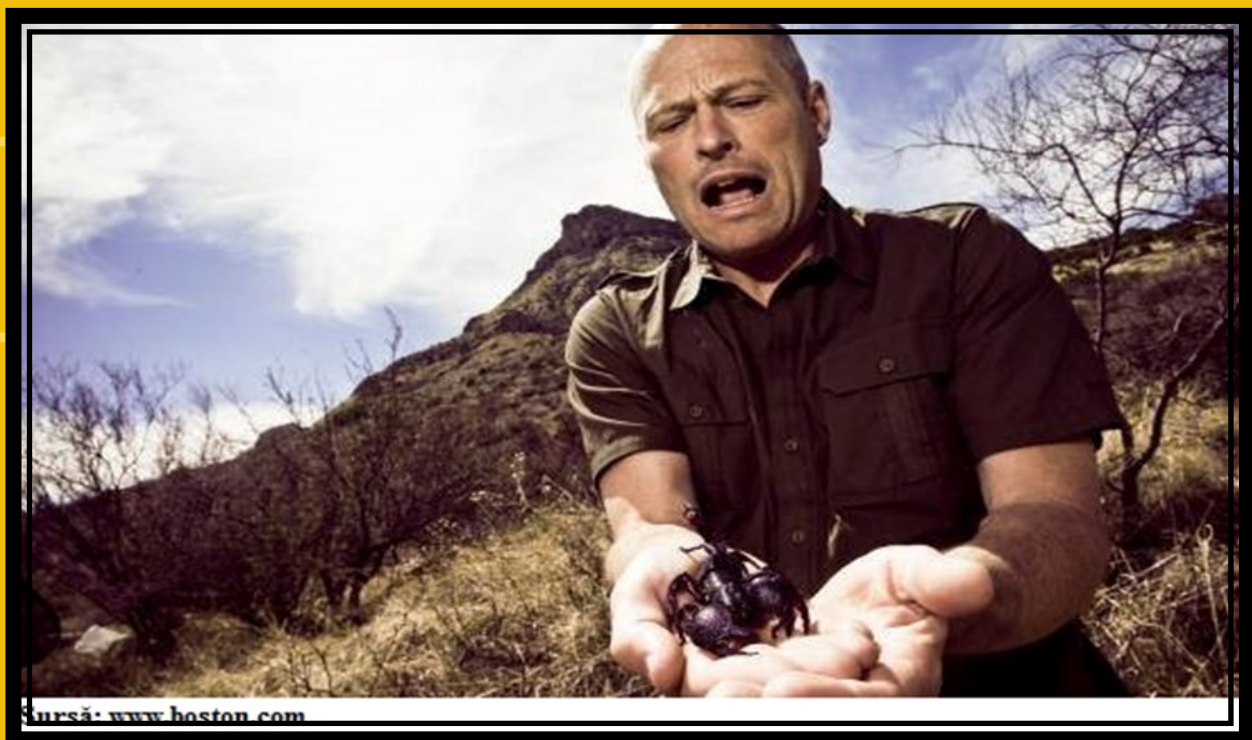
Review:

Bite ME

*Țugui Claudia, 2nd Year Biochemistry Student,
Faculty of Biology and Geology,
Babeș-Bolyai University, Cluj-Napoca*

If you ever ask yourself how many dangers you can encounter at every step you make, every day of your life, you can find out by watching documentary series “Bite me!” with dr. Mike Leahy, virologist by profession, eager for adventure and adrenaline seeker. In the eight-episode series he lets himself bitten, stung, poisoned, infested by parasites, plants and insects.

The shooting places for the series were not randomly chosen but they were chosen by the level of hazard exposed by plant and animals present in these countries: Brazil, India, Vietnam, Australian Outback, Borneo, Coastal Australia, Mexico, Florida/Arizona. This documentary has everything, from irukandji jellyfish and venomous tarantulas from Australia, venomous caterpillars encountered in Vietnam’s tropical rainforests, to toxic plants in Brazil. The charm of this documentary did not consist only in the complexity of the creatures from tropical areas and their arsenal for self-defense but also to the host and shooting team.





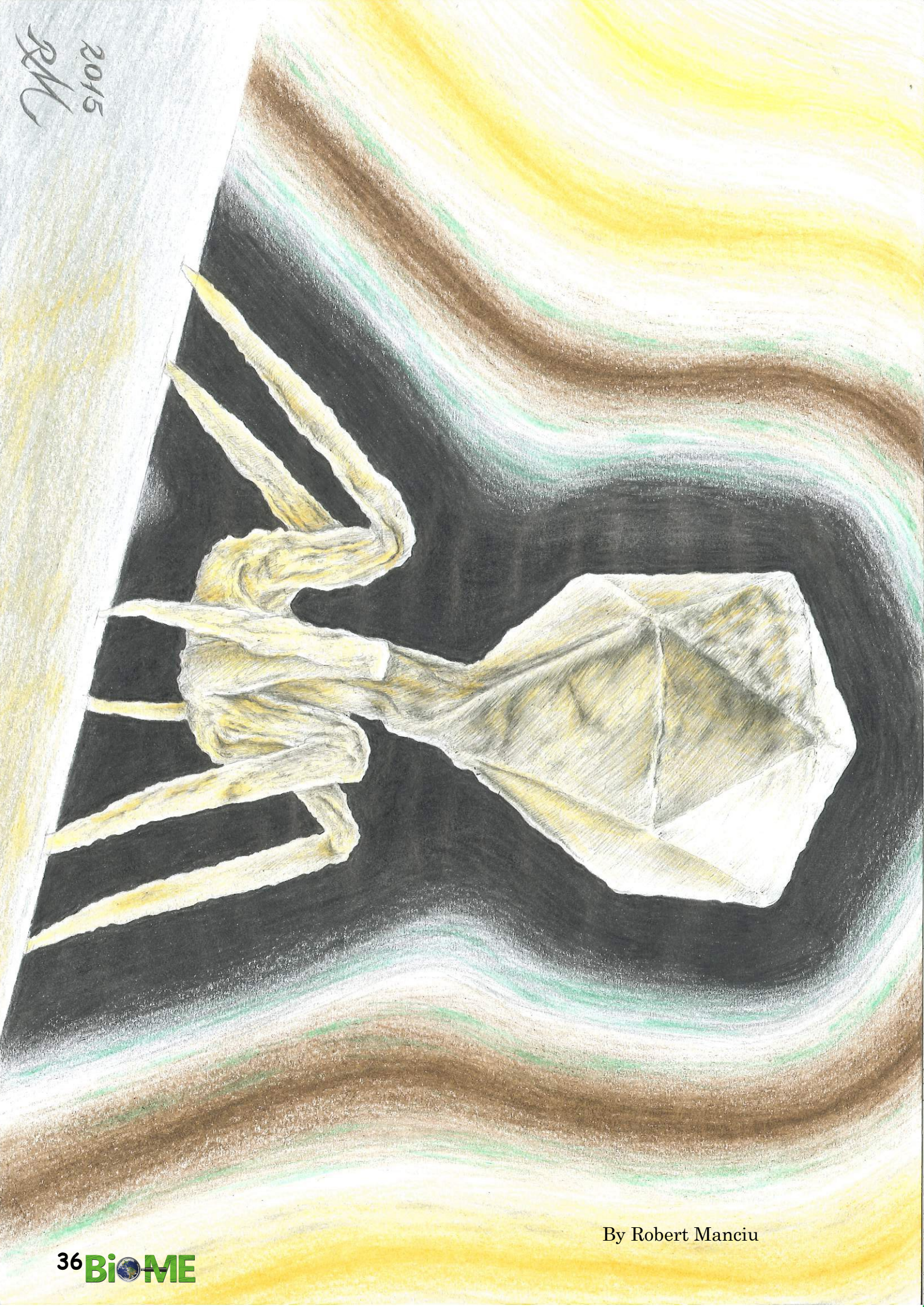
Mike Leahy has the talent to present us the real biological hazards in an original funny way . The danger that he exposed himself in front of the cameras makes the audience to be more attentive. Mike's enthusiasm keeps you captivated in front of the TV and he wants to share it with others. „I want to share my enthusiasm for travel and the places I went to (Mike Leahy in an interview for Channel Guide magazine).

And as a spoiler, the host even swallow a chist, in order to show the audience the dangers that they are exposed to if they do not pay attention.

In my point of view regarding this subject i can assume that i was attracted by the subject especially because I studied Parasitology. The good part in this documentary is that you are ot supposed to be an expert or to be specialized in the subject in order to understand it but curiosity is more than enough.



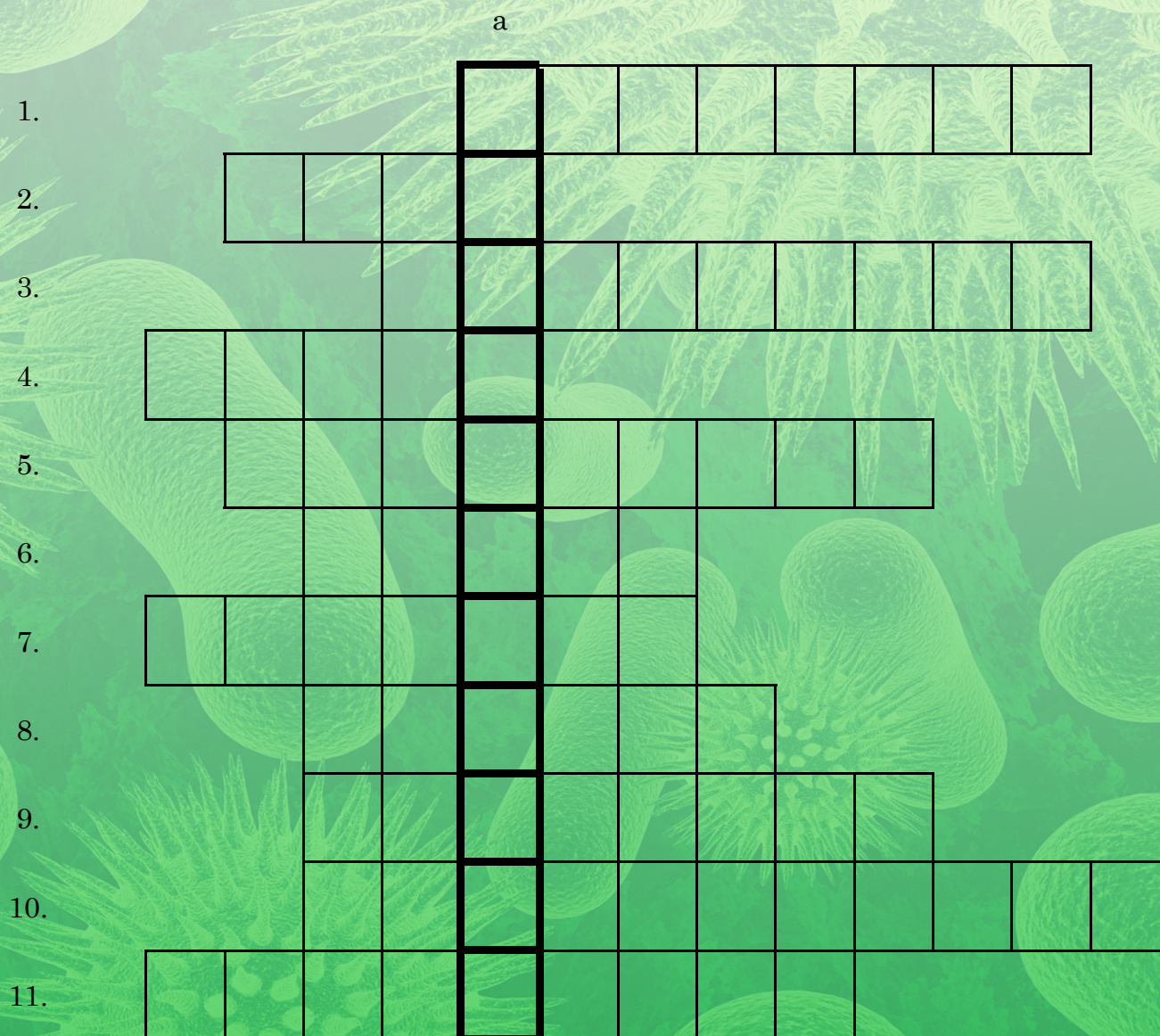
2015
RM



By Robert Manciu

Crossword: „Bacteria eaters”

Milonean Maria-Adelina, 2nd Year Biochemistry Student,
Faculty of Biology and Geology
Babeş-Bolyai University, Cluj-Napoca



On the a-b column you will obtain the word that is defined as a virus which parasitises a bacterium.

1. Prokaryotic unicellular organism.
2. Word which describes the disintegration and dissolution of cells under the action of chemical, physical or biological factors.
3. The word used to define a geometric shape with 20 faces, 30 edges and 12 vertices. Bacteriophages are classified according to their structure in three types: polyhedron with 20 faces with a tail, without a tail, and with filamentous structure.
4. The name of one of the researchers who discovered bacteriophages in 1915 in Great Britain and described the phenomenon of transmissible lysis in bacteria.
5. The name of the researcher who discovered and described viruses bacteria infecting viruses and gave them their name. Moreover, he showed the viral nature of bacteria.
6. Word to characterise an infectious agent known as a biological entity.
7. The protein shell which protects the viral genome and attaches itself to the target cell.
8. A tempered virus, which has its genome integrated into the targeted cell's genome.
9. Process resulted from the penetration and development of pathogenic agents in the body.
10. The phenomenon of DNA transfer from one cell to another by viruses.
11. The phenomenon of integrating the viral genome into the bacterial genome and its transmission to daughter cells.

References:

Bacteria (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/science/bacteria>
Felix d' Herelle (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/biography/Felix-d-Herelle>
Bacteriophage (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/science/bacteriophage>

PHOTO GALLERY

- NATURE IN PICTURES, IMMORTALISED BY STUDENTS



Crina Fertia— *Minois dryas* , Călățele's forest, Cluj-Napoca



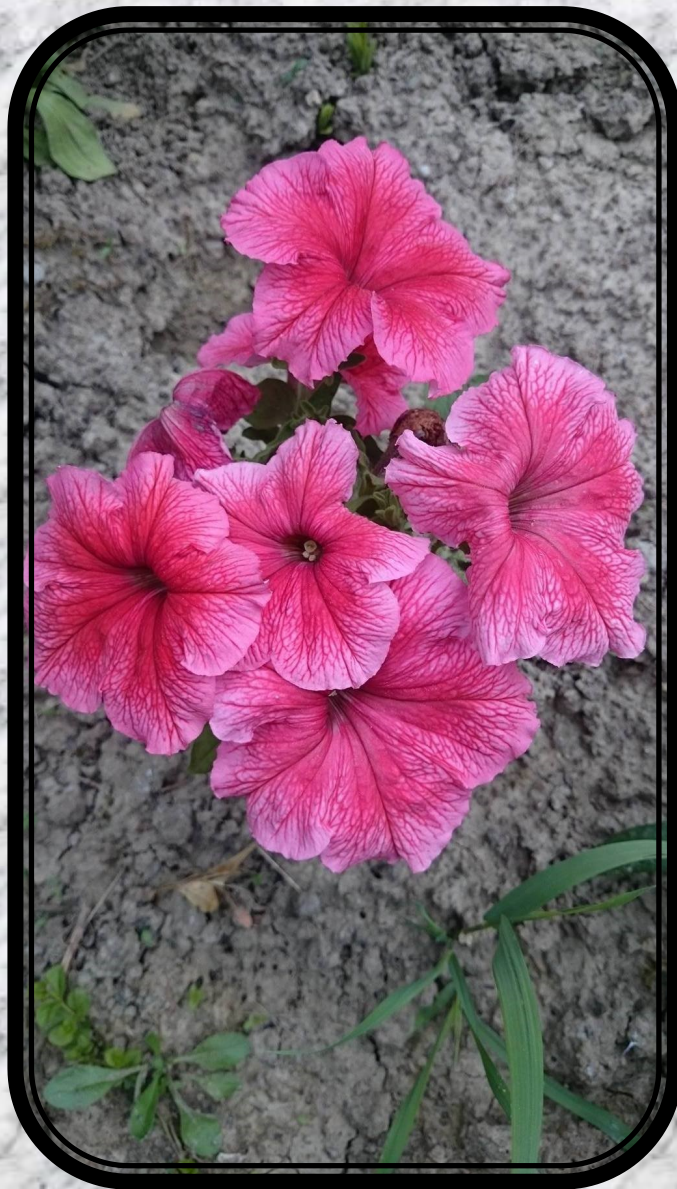
Milena Filip— *Macrolepiota procera* , Lake Vidraru, Romania



Crina Fertea— *Lilium sp.*, Călățele's forest, Cluj-Napoca



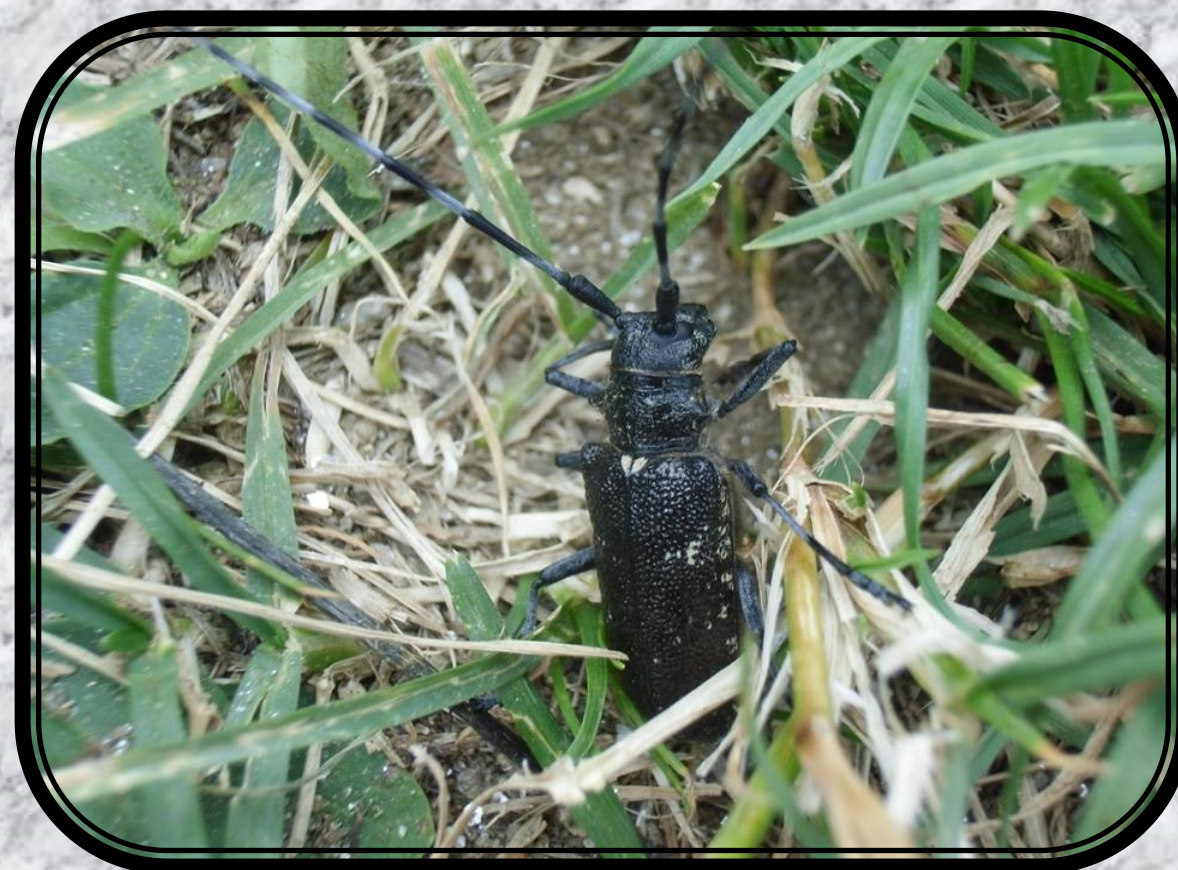
Vlad Ursulescu—*Convolvulus persicus*,
Danube Delta



Vlad Ursulescu—*Petunia sp.*, Botanical
Garden „Alexandru Borza”, Cluj-Napoca



Milena Filip— *Calosoma sycophanta*, Lake Vidraru, Romania



Dragoș Rusu— *Monochamus* sp, Costești-Cetățuie, Hunedoara county, Romania



Crina Fertea— *hybrid of the genus Rosa* , Călățele's forest , Cluj-Napoca



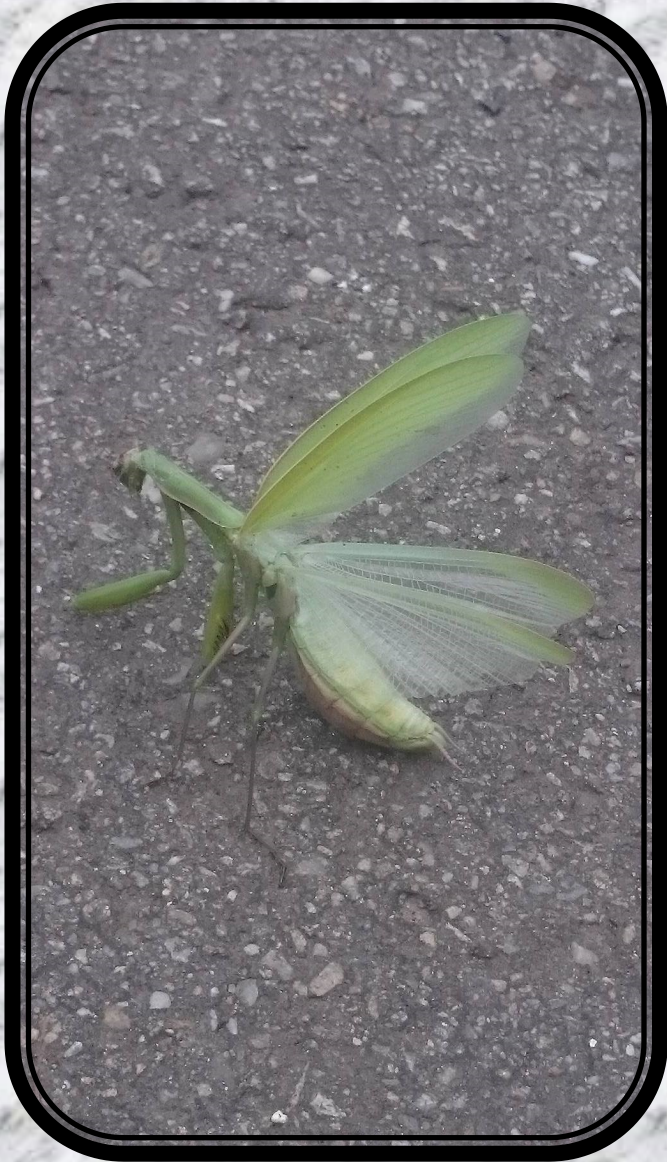
Simona Militaru— *Gaillardia pulchella*, Buzău, Romania



Milena Filip— *Turdus merula*, Lake Vidraru, Romania



Crina Fertea— *Calopteryx virgo*, Călățele's forest, Cluj-Napoca



Vlad Ursulescu— *Mantis religiosa*,
Cluj-Napoca



Vlad Ursulescu— *Erinaceus europaeus*,
Danube Delta



“We are part of this universe; we are in this universe, but perhaps more important than both of those facts, is that the universe is in us.”

-Neil deGrasse Tyson