

## The Answer of Emil Racoviță to the Call of the Homeland

Gheorghe MUSTAȚĂ<sup>1,2</sup>

<sup>1</sup>Academy of Romanian Scientists, Splaiul Independentei nr. 54, sector 5, 050094  
Bucuresti, Romania

<sup>2</sup>Professor Emeritus Univ."Al.I.Cuza" Iasi, Romania

If we carefully follow the history of science and culture in Romania, we shall find that the great personalities of our nation were formed in the country, then went abroad, in more advanced states, where they specialized and polished their personality, affirming themselves through native intelligence and grace received from God, then they returned to their homeland, of which they have never distanced and have contributed, to a great extent, to its progress and prosperity.

It is sufficient to remind the professors and doctors **Gheorghe Marinescu**, one of the greatest neurologists of the world of his time, the bacteriologist **Victor Babeș** and the immunologist **Ioan Cantacuzino**, globally recognized for the services brought to science and health. They all came back home and put their whole being in the service of the country, succeeding in raising it and making it known to the entire world.

After the Great Union, which sanctioned, on December 1, 1918, the formation of Greater Romania, it was necessary to mobilize all Romanians, all the great personalities of the kingdom and all over the world; it was necessary for them to return to the country and contribute to the consolidation of the recovered provinces from the foreign rulers and to their raising to the level of the corresponding century.

At the country's call responded enthusiastically and with great responsibility specialists from various fields which entered through their tremendous work in the gallery of the great personalities of our nation.

We want to highlight one of the great personalities of science, Emil Racoviță, recognized for his merits throughout the world.

Returned to the country, we can say that he simply sacrificed himself for the progress and prosperity of the Romanian people.

*"The country beyond the forests included in the Romanian borders!...*

*Along with the immense joy of victory, the fulfilment of the unwavering will of the nation to reunite the lands whereas being had emerged also generated the*

*immediate need to wipe away the traces deeply dug during the years of dark domination.*

*The next day, even after the people's spokesmen of the nation had made known its major choice in Alba Iulia, **the Grand National Council** set up in Sibiu **the Conducting Council of Transylvania, of Banat and the Romanian Lands in Hungary**, meant to exercise all the executive functions provisionally. Among these is, of course, the reorganization of higher education, having as a priority the setting up of the newly founded university of Cluj.<sup>1</sup>*

The Romanian authorities did not impose the abolition of "Franz Joseph" Hungarian University of Sciences and the establishment of a new university, because they did not want to remove the teachers, who were almost entirely Hungarians, but a fruitful collaboration between Romanians and Hungarians specialists. In this respect, on May 9, 1919, Professor **Onisifor Ghibu**, general secretary in the **Directorate of cults and Public Instruction** of the **Guiding Council**, asked the Rectorate, still in office, that Hungarian teachers should take an oath of faith to the Romanian State.

The answer was definitely a refusal, accompanied by some hostile manifestations from the part of some specialists.

As Emil Racoviță himself writes down: "*This events which took place in May 1919 cannot either be the fault of or be reproached to the didactic staff of the former Hungarian university, this it is self-evident, but the fact that these events could serve as a pretext of calumny of the revolutionary government, it is indeed revolting; in fact, there are few examples of generosity over oppressive ties as the one shown on this occasion by the Transylvanian people of action who, at that time, had assumed the difficult and dangerous task of reorganizing their liberated country.*"<sup>2</sup>.

As a result of the Hungarian teachers' response, on May 12, 1920, the Conduct Council took over the University of Cluj under its authority and formed a committee of great scientific personalities of the country, whose mission was to ensure its structure and functioning.

The Commission was headed by Professor Sextil Pușcariu, from the University of Chernivtsi, who then became the first Rector of the **Upper Dacia University**.

From the beginning, the Commission intended to attract the closest Romanian scientists from Romania and from abroad to form a nucleus in Cluj in order to further attract the brightest talents of the young generations of Romanians.

At the request of the Commission, some personalities of the time responded promptly, among whom: the lawyer Vasile Dimitriu, the physician Constantin Livaditi and the mathematician Dimitrie Pompeiu.

On July 27, 1919, Sextil Pușcariu sent to his countryman in France, Emil Racoviță, already recognized as a great personality of biological sciences, an invitation to become a professor at the Romanian University of Transylvania.

*"... You will understand, therefore, honoured colleague, why I come in quality of general commissioner, charged by the Conducting Council from Sibiu with the reorganization of the University in Cluj, to beg you to accept the Department of Zoology of the University of Cluj. I know that, in your situation, to propose you to establish in Transylvania means to ask you for a sacrifice; however, I do not doubt that our prayer cannot fail to vibrate that fiber in your heart which, in the special moments we live, requires us any sacrifice for the new cause of Romanianism"<sup>3</sup>.*

Emil Racoviță was strongly impressed by this letter and, of course, by the honourable invitation made from the country.

However, he did not act like an adventurer.

Emil Racoviță had become a world-renowned zoologist and oceanologist, his merit being not only the participation in the famous Antarctic Expedition; he had already asserted himself as the founder of a new science – **Biospeology**.

How did Emil Racoviță become the zoologist of the great expedition? We could think that he was just a Romanian titled and settled in France. Things are more complex. It is known that Emil Racoviță was sent to France by his family to study law. But the young student who enrolled at the Faculty of Law was also attracted by natural sciences and he attended, in parallel, some university courses in this field. After graduating the bachelors in Law, Emil Racoviță enrolled at the Faculty of Sciences at the Sorbonne. Here he enjoyed the sympathy and support of two reputed zoologists: Professor **Henri de Lacaze-Duthiers** and Associate Professor **Georges Pruvot**, who were impressed by the native intelligence and passion for research of the young student.

After graduation he remained in France to prepare his PhD thesis at "**Arago**" **Ocean Laboratory from Banyuls-sur-Mer Research Center**, a Lacaze-Duthiers foundation. At this resort, under the direct guidance of his professor, he developed his doctoral thesis "*Le lobe céphalique et l'encéphale des annélides polychètes (anatomie, morphologie, histologie)*", which he defended with a resounding success in 1896.

The elucidation of the cephalic lobe in polychaetes and of the encephalon required highly complex and subtle analyses of comparative and evolutionary

anatomy, the polychaetes having an extremely varied and complex cephalic capsule.

The jury who analysed the doctoral thesis, formed of eminent zoologists, congratulated the young doctor, and considered him as being one of the most valuable young zoologists of his time.

After presenting the doctoral thesis, Emil Racoviță had to return to the country for the military service. After a month, however, he received an invitation to take part in an expedition to the Antarctic shores. The expedition was to be led by Marine Lieutenant Adrien de Gerlache de Gomery.

Carried on in the period 1897-1899 the expedition had a resounding success, and Emil Racoviță proved to be a prime rank explorer.

As zoologist of the expedition he proved to be an exceptional explorer. With a robust psychic structure and a high moral tone, Racoviță had a special role in encouraging the exploration team and in overcoming the heaviest moments of tension.

The biologist of the expedition drew and conserved over 1,200 pieces of zoology and 400 pieces of botany, from a totally unknown continent, a real "black box" of scientific research.

The researches on seal species - *Lobodon carcinophaga*, Rosemary, *Ommatophoca rossi* (Ross seal), *Leptomychotes weddelli* (Weddell seal), *Ogmorhynchus leptomyx* (Sea leopard), and Penguins: *Pygoscelis adeliae*, *Pygoscelis antarctica* and *Aptenodytes fortsters* outweighed by far their systematic interests, being complemented with high-value observations on their behaviour, thus contributing essentially to the development of ethology as a branch of biological science synthesis.

The observations made on the following three whale species – *Balaena australis* (southern right whale), *Megaptera nodosa* (Humpback whale) and *Balaenopteramusculus* blue whale) are undoubtedly highly valuable.

Returned from the expedition, Racoviță continued to do researches of marine biology together with his friend G. Pruvot on the Roland ship in the Mediterranean Sea.

Attracted again by the behaviour of the sea shells in their fascinating bridal dances, he also followed the anchovies and the sardines and returned to the diving activity by carefully scrutinizing the populations of *Pinnanobilis*.

A decisive factor in his scientific research was the visit in the year 1900 of the famous Cave of Dragon (Cuevas del Drach) in Majorca Island. In his cave researches he discovered a small isopod crustacean, *Thyphlocirolana maraques*

(new genus and species), depigmented and blind, perfectly adapted to the conditions of the underground environment. He has practically discovered a new universe, a mysterious world, totally unknown.

In his **speech of reception** at the Romanian Academy, on June 13, 1926, he made fascinating confessions about his unexpected turn in oceanography and marine biology researches towards the underground world that would mark his entire life and lay the foundations of a new science - **Biospeology**.

*"What is right," Emil Racoviță confesses, "the beginning of my career I made it under the fiery arrows of the southern sun, on the shores burnt by heat and on the always blue waters of the Mediterranean Sea; then, I woke up in the eternal ices of the Antarctic countries with snow drifts, and after a new period of research under the hot sun and the warm waters of the most beautiful sea in the world, here I am wandering under the earth, through underground caves mastered by the fear of wet and cold darkness"*<sup>4</sup>.

With good reason, the eminent hydrobiologist Constantin Motaș, Racoviță's successor to the leadership of the Institute of Speleology, appreciates in his book **Figures of Naturalists**: *"Racoviță proposes himself the foundations of a natural history of the underground domain"*<sup>5</sup>.

In the field of speleology, Racoviță did not start alone. He co-opted a young and active collaborator, particularly passionate for the knowledge of nature – René Jeannel. He devoted his entire spare time to the research of caves. The collected scientific material was processed and offered to the systematic specialists for determination. The obtained results in speleological researches were published in a journal devoted to this field – **Biospeology**.

Racoviță thought that the science studying the environment of caves could be called **speology**, giving up the term used by Riviere – **speleology**. Thus, in the paper *Essai sur les problèmes biospéologiques*, (**Biospeologia**, vol. 1, Arch. De Zool-expér. Et gen., tVI, 15 mai, 1907), he replaced the term of speleology with that of speology. This term was quickly adopted and supported by A.E. Martel, R. Jeannel and P.A. Chappeuis.

One cannot make an imagine on the rhythm of researches and the efforts made by Emil Racoviță and René Jeannel and their collaborators in the researches of biospeology, if one does not follow the published works concerning: **Enumeration of the visited caves during the periods: 1904-1906; 1913-1917; 1918-1927**. As unbelievable as it may seem, the number of exploited caves exceeds 1,000, and the number of published fascicles reached 54. It is sufficient to mention that 20 campaigns were carried out in France, Italy, Romania and Serbia.

These preliminary investigations began in 1905 with the collaboration of Dr. R. Jeannel, who was from the first moment his collaborator and who, at the end of his medical studies, was also preparing his degree in science, being ready to leave a "practical" career to devote himself to natural history and especially to underground entomology.

*"On July 30, 1905, I started the research campaign in my wife's company by visiting the cave called "grotte de gargas"; on August 4, Jeannel joined us to visit "the petite grotte du tunnel de Camans". Since then, I have been pursuing, so to say, without interruption, the "prospecting" of caves and the inventory of their fauna, helped by more and more numerous collaborators.*

*After more than twenty years of researches, in which I explored more than 1,000 caves, I collected more than 15,000 tubes with biota and more than 50 final memories emerged under the collective title of "Biospeologica" (4,500 pages, 1,500 figures and 175 drawing boards), one may say that I and my collaborators are still during the preliminary research period."*<sup>6</sup>

I insisted on these aspects in order to be able to understand, on the one hand, the scale of the researches, and on the other hand, the riches of the accumulated scientific material.

Let us return to the invitation of Sextil Pușcariu on behalf of the Conducting Council to Emil Racoviță to come to Romania and to contribute to the consolidation of the Upper Dacia University in Cluj.

Considering the created situation Racoviță believed that he could not accept such a proposal bringing some surprising arguments, but conformably to the reality of his position:

*"I am very flattered with the offer you are willing to make and I am fully aware of the importance of a good organization of the University of Cluj. But, just because I realize this importance, I feel compelled, to my great regret, not to accept your flattering proposal.*

*My profession is not to be a "professor "; I have never taught lessons of classical zoology to prepare pupils with a view to license or other elementary exams. My specialty is the administration of researching works, the management of institutions of natural history and oceanographic or terrestrial explorations!*

*Such functions I have accomplished so far and these are the specializations to which I feel competent.*

*I'm already an old man, I cannot count on only a few years of scientific activity. I do not think that by changing my specialization now, I could achieve a*

*satisfactory result, both for the University of Cluj and for the perfection of the personal works that I have undertaken.*"<sup>7</sup>

Emil Racoviță's response could be interpreted differently. We believe, however, that both Sextil Pușcariu and the leadership of the Conducting Council deeply understood the position of the illustrious zoologist in the field of marine biology and oceanology researches.

Moreover, in order to find a solution, Emil Racoviță recommended Professor Ioan Borcea, recognized as an expert in zoology.

The arguments presented by Emil Racoviță could not be ignored; yet such a personality must be understood. The solution had to be found by the eminent bacteriologist Victor Babeș. He proposed to the Conducting Council to return with the invitation and to find a solution that would offer to the reputed zoologist both the coordination of some researches, as well as a chair he would guide without having professorship obligations.

I sincerely admit that such an understanding could have only the high-academic ranking; these did not upset or even give up to the winning of a great science man.

The repetition of the invitation was made on 1 September 1919 by Onisifor Ghibu:

*"The university commission was of the opinion to create for you the position that you will appreciate as the most convenient at the Faculty of Sciences in Cluj as you will have no professional obligations in the usual sense of this word, but that of guidance in scientific research."*<sup>8</sup>

Moreover, Onisifor Ghibu informed him that he could develop the researches of biospeology and even to set up the bases of an institute in this field.

Onisifor Ghibu's letter had a special effect and changed Racoviță's decision. As a result, on December 13, 1919, he drafted a memo to which he also attached a **"Project for the creation of an Institute of Speleology at the University of Cluj"**, in which it is mentioned among others:

*"I therefore propose to transport to Cluj this institute, which is not a promise of the future, but an old organization with obvious results; we will install it with all its dowry in a wing of the building containing the Zoological Institute of the Hungarian University."*

*Such an institute responds - I am convinced - not only to the wishes of the Conducting Council, but also to the didactic interests of the Faculty of Sciences."*<sup>9</sup>

It must be mentioned that on January 27, 1920, was issued the royal decree which sanctioned the appointment of the new professors at the University of Cluj; Emil Racoviță was appointed as a full professor of Biology and director of **the Institute of Speleology**, and René Jeannel as professor of the same discipline and as a subdirector of the Institute.

Thus, leaving Banyuls definitively, his workplace in France, the director of the Speleology Institute passed without delay to the organization of the famous speleological research institution.

There were two major problems: the formation of the research team and the transfer of the scientific dowry that the **Biospeology** had accumulated in France at the Higher Dacia University in Cluj.

In order to be able to put into operation the institute, he had to take people on the staff in accordance with its organizational chart.

The first to join his team was his faithful friend René Jeannel, who followed him to the country without hesitation.

The associate professor Constantin N. Ionescu from Iasi, the candidate for a doctor's degree of the eminent evolutionist Ernst Haeckel, who had received help from the part of Emil Racoviță in the elaboration of some biospeology works, was asked to join for the position of Deputy Director. C.N. Ionescu had published, beginning with 1912, a series of papers on Colembols from the Carpathian caves, many of them being new species for science. Having some family problems and suffering he could not respond positively to this honourable solicitation; we consider that it was not a refusal, but a gesture of common sense, as it was a demanding position which required a high academic presence.

The assistant positions stipulated in the contract were filled by Valeriu Pușcașu in 1922, who became one of the greatest and most constant nature patrons and by Letiția Chevereșanu; only in 1930, were appointed Radu Codreanu and his wife.

The principles established by Racoviță in the structure and functioning of the Institute prove the exceptional qualities of manager of the scientist:

*"The research institute must preferably be a university institution..."*

*The research institute must have in its program not only pure science but also its application.....*

*The research institute must be specialized; its program should not be too broad to avoid going beyond the possibilities of a focused and effective organization, not too narrow, not to limit too much the scientific and educational horizon.....*



*The research institutes should preferably be devoted to a synthetic discipline...*"<sup>10</sup>

The transferring of the world caving centre from France to Romania did not lead to an interruption of the research activities, nor to the diminution of the global interest for this direction. In the balance made a decade after its establishment, 358 caves were surveyed, of which 222 were in Romania in the Carpathians; 15 fascicles from the **Biospeological Collection**, totalling 1,650 pages, were published. To these are added dozens of other publications of the researchers from Speological Institute published also by Emil Racoviță in: **The Works of the Institute of Speology in Cluj and the Bulletin of the Society of Sciences from Cluj**.

We cannot present here the difficulties faced by Emil Racoviță as a result of the economic crisis that affected Romania too and of the World Conflict. It is sufficient to mention that in 1931 the government led by the great scientist Nicolae Iorga cut all the funds for scientific researches.

We can imagine the disappointment of the great scientist, who in 1932 wrote in a report: *"In what concerns the Institute of Speleology, the material state is clear: not a penny was collected since the first quarter of 1931 on! The Institute's permanent fund is frozen at the Blank Bank; then the Institute does not receive any kind of student fee or of other nature. It so results that since April 1, 1931, no centime has entered in the pay office of the Institute. From these material reasons, the report can only signal the scientific activity of the staff, which could not be destroyed by the misery of the times."*<sup>11</sup>

In order to illustrate the appreciation enjoyed by Emil Racoviță at the University of Cluj, we must mention that, according to the orders of that time, the University had to designate its representative for the legislative forum. Contrary to traditions, the University elected Professor Emil Racoviță, as an independent, to be a representative of the University College in Cluj.

Regarding this choice, in 1922, the eminent neurologist Gheorghe Marinescu wrote him the following: *"I was glad to know your choice as an independent representative of the University College in Cluj. It is for the first time that a Romanian university gives the vote to an independent. Until now, the candidate was the representative of a political party, and the political parties were leading the universities, which made the level of culture low, because the party politics derives from a mentality that is not superior and diminishes the prestige of the universities. It will be a long time before the University of Bucharest will know how to break the bad tradition followed so far."*<sup>12</sup>

It is not the case to insist here on the position and the achievements of Emil Racoviță during his four-year period as long as his Senator mandate lasted, but we must mention that the scientist was involved, as always, in the social life.

In a letter addressed by Emil Racoviță to the authorities of the country's universities in 1926, it is stated: *"The action of an isolated senator, roaming through ministries in order to collect small pieces of budgetary boiled wheat for his university, it seems to me a niggardly spectacle similar to the one that offers it to the other MPs (member of Parliament) who are begging voter posts and favours for the electoral agents.*

*But when four university senators, agreeing to a program of development of the Romanian universities, present themselves in front of the Government, the show the spectacle of the government is quite different, because they appear with dignity, have the right to speak up and down, and nobody dares, no matter how representative of particular interests would be, not to keep their word and reject their competence.*

*Our action, of the university senators, has been confirmed in the last session of this manifesto: The university interests have been defended by us in the most complete unity of vision and unity of action, with the results you know; for the first time in Romania, the needs of the university received a start of satisfaction in comparison with the gravity of the university situation"<sup>13</sup>.*

The hero on the **Belgica** would face troubles and more powerful social storms in the country than the natural ones from Antarctica. In a letter addressed **to the President of the Romanian Teaching Staff Federation**, his old friend, Dragomir Hurmuzescu, he presents the situation in which the education is found.

*"That the situation is very serious I know it better, the more I have presented it exactly in advance and I was able to follow its development; that the disorganization of education is done with a catastrophic progression, anybody finds it".*

But what seems to me more worrying for the future than anything, it is that there is no one left in the University to fight against to the current state of affairs.

*"Moi je ne marche plus" at least as an eventual delegate; I refuse to represent the people of various rhythms of which none is "new", but all are ancient.*

*I will confront myself to fight as a simple academic citizen, as a simple militant; for I am trained in lonely struggle; and I do not let myself fight because I cannot leave myself with a character that has been holding me for almost fifty years."<sup>14</sup>.*

Impressive! So much dignity and so much dedication proven by a "**simple academic citizen**" you no longer meet today. Thus, Emil Racoviță withdraws from the Association of university professors after a decade of hard work.

Emil Racoviță was the man who engaged with all his being in the development of science and culture; he was the scholar who was involved in solving some social problems and others linked to the development and progress of Romanian education; it is the progressive intellectual who voluntarily divided the land to the peasants and made huge efforts to save his soul institutions both in Romania and France.

I feel the need to sketch in big lines the great personality of the scientist Emil Racoviță, but I think I will not really succeed, so I appeal to the illustrious biologist Constantin Motaș who, with his perfect talent, wrote in the book **Figures of Naturalists**:

*"In his work, Racoviță knew how to rise from well-chosen facts and rigorously weighed to general views, he managed to embrace at a glance everything, from miniaturized diatoms to phosphorescent euphasia, from this to the strange penguin and the gentle seal to the huge whale. He has drawn in broad traits, with unequal narrative talent, the admirable agreement of all parts with the whole, with the whole of nature, where every creature is a chain from an endless chain, in which the man is integrated, and who through his genius managed to master the blind forces of nature and defeat all the dark forces that oppose to understanding and collaboration among peoples - the only pledge of the safety of a better and happier future."*<sup>15</sup>

You cannot help being impressed by the great power of work and the prowess with which the great scholar resolved some very complex problems. On February 1, 1920 he received the title of full professor at the University of Cluj; on April 26, of the same year, the Institute of Speleology is officially and functionally open and the first issue **of the Works of the Institute of Speleology in Cluj** appeared.

Only his capacity of work and the exceptional managerial qualities made it possible to set up the Institute, taking into account the material and scientific dowry gained in France.

As Emil Pop appreciates, the illustrious professor of Cluj: *"The richness and soul generosity of the founder transforms it (the institute) into a temple of science and culture with wide open doors."*<sup>16</sup>

Emil Pop justifies his appreciations: *"We could say that in his personality is concretized a synthesis of the Romanian culture from the source of which he knew and could turn a fruitful wave across the whole country of the cultural life from his homeland."*<sup>17</sup>

In 1920, it comes into being at Cluj, under his direction, **the Society of Sciences** of Cluj, whose president he was until his death. Taking over the leadership of the Society of Sciences he contributed to the issue of the **Bulletin of the Society of Sciences** in Cluj.

In 1920, he was elected Full Member of the Romanian Academy. In his speech of reception - **Speology, A science of the ancient subterranean mysteries** he presents the field of research of this new science.

In the 1926-1927 period, he was elected **President of the Romanian Academy** and re-elected in the years 1927-1928 and 1928-1929.

In 1928, he organizes, as president, **the First Congress of Naturalists from Romania**, presenting a memorable speech at the opening ceremony.

Returned to Romania, Racoviță struggled like Sisyphus with all the shortcomings and all human baseness for the progress and prosperity of the Romanian people. Although hardships overwhelmed him, he maintained his optimism and hopes because he always put the good before.

At the end of his speech from the Naturalists Congress in Romania, he mentioned: *"Do we not know that when the torch of the truth falls into weakened hands like mine, would there ever be always others who raise it? As much as tortuous it would be in semblance, the road of mankind so far the direction has always been before and not backwards, before towards a more and more rational social organization and towards ever and ever general collaboration.*

*The old evolutionist who is unable to finish this speech but with these optimistic convictions."*<sup>18</sup>

Reading these thoughts of the great scholar I realize that, nowadays (which will not be the last days) we not only need to have Racoviță's healthy optimism, but to strengthen it through our work and will. It is true that the great scholar had struggled with human injustice and human misery, but these did not even reach the quota of our days.

Emil Racoviță manifested himself as one of the most active supporters of the **Ethnographic Museum** in Cluj. At its inauguration in 1928, he held a resounding speech. It is worthwhile to make known some of his ideas. *"The crowd of our people has been united for millennia; there was not yet Iașiu, nor Rome, at that time this people formed its own nature and private household, that is, those traits and industry that still distinguish it from other nations. The community of our people is not made up of recent settlers, bimilenarians, but of old natives, whose origin must be looked, perhaps, among the peoples of polished stone and, of course, among those of bronze."*<sup>19</sup>.

In 1929, he publishes at the **Astra** Publishing House the book, **Evolution and its Problems**, a magnificent work that places him among the great evolutionists of Europe of his time.

As a Rector of the University of Cluj, from 1930 to 1931, he carried on an extraordinary activity in order to increase its prestige and ensure the material basis.

The Scientist Emil Racoviță was, through his way of being and through the intellectual structure a tenacious and fearless fighter both for the University, for the Institute of Speleology and for the progress of the Romanian education. In his numerous reports, he uses harsh expressions when he refers to the ruling class.

As Emil Pop presents us: "*In his first visit to Timișoara (where the Faculty of Sciences in Cluj, nn) was in refuge, in November 1940, the rector of the university found Racoviță working on a memorandum towards the ministry, in an unheated room of the dean, with the coat on his back, at the light of a candle stick on a piece of plank found in the yard.*"<sup>20</sup>.

About his didactic talent Constantin Motaș talks to us, thus: "*A brilliant professor, through his winged verb, through the lectures full of core, and verve, Racoviță knew how to infuse to generations of students the love of truth and the research of nature, to sneak into their young and generous souls the impetus for the achievement of a happier world in which to reign the social justice, the freedom of conscience and of expression.*

*An unbeaten pedagogue, Racoviță convinced himself through his professional experience that our education suffers from a serious shortcoming; the too much development of instruction in the damage of the integral education. That is why, in his reform projects, he foresees an education that, like the one in the antiquity schools, would address to the mind, to the heart and to the body at the same time, and he values on the educational power, not only psychical and emotional, but also somatic of some synthetic sciences: geography, oceanography, limnology, speology.*

*With his fine humor, Racoviță strengthens those who claim that the average education should be focused on mathematics and the study of classical languages. For him, on the contrary, the pivot around which this education must gravitate is the natural sciences and the Romanian language.*"<sup>21</sup>

Emil Racoviță refused the first invitation to come to the University of Cluj motivating that his profession was not that of a teacher, but of researcher and manager. Being perfectly understood, as I have already mentioned, a special position of professor was created without teaching duties, its main function being to coordinate scientific research. For the **general biology** course he appealed to

René Jeannel. He honoured this course and also wrote a university hand book too of high academic scope on **general biology**, which is, in fact, the first course of **evolutionism** published in Greater Romania.

Being aware of the evolutionary issues, Jeannel still surprises us today by the modern way in which he devised his handbook and well-filtered scientific information, up-to-date and presented in academic style.

Personally, as a student, I learned genetics of the micurist type, or, better said, a lăsenchist. Micurist was one of the world's largest plant breeders, the size of Luther Burbank. It cannot be accused of the fact that the politicians have transformed the modern genetics of the American imperialism. When it fell in my hand and read R. Jeannel's manual, I could not believe that such a masterpiece could be made in Romania.

Emil Racoviță, though he was not teaching general biology, printed in 1929, as I have already mentioned, **Evolution and its problems**, "*a monumental book, which makes light in the understanding of evolution as a cosmic phenomenon.*"<sup>22</sup>

René Jeannel being forced to return to France in 1933, it was necessary for Racoviță to take over the course of general biology, drawing up his lectures. Being an evolutionist of Lamarckian nuance, Emil Racoviță considered that the environment has a direct action on the organisms, determining both the biological progress and the evolution.

The scientist was himself confronted, in what concerns the understanding of the role of the environment in the process of adaptation and evolution, with the most varied types of environment: the warm waters of the Mediterranean, of those cold and even super-frozen of Antarctica, and with the underground environment offered by multiple types of caves.

The understanding of the environment and its role in the process of evolution could be possible just to varied environments, some of them extreme, in which he made researches on the biota:

*"The environment is variable in time and space; the biota in order to continue to live in it must constantly adapt to it without cease under the direct influence of external factors (what it did in the past and what many of them do today by the most varied means or oppose to this influences through the isolation of its internal environment. The evolution caused by the action of the external environment results in the progressive formation of an increasingly "impermeable" environment to the influences of external factors."*<sup>23</sup>

The scholar understood perfectly the role of the internal environment in the process of adaptation and in that of evolution:

*"To the external environment it opposes another important part of the vital environment, namely the **internal environment**, on which all the beings have organized themselves with great toil and terrible suffering through the multitude of millennia, under the impulse of the environmental factors and with the reaction of more or less successful of the primary factors (climate...) and biological."*<sup>24</sup>

Perfectly perceiving the relationship between the external environment and the internal environment, Emil Racoviță formulates a law according to which *"the innermost environment of the most isolated one corresponds, in general, with the most perfect organization at the scale of the living creatures"*<sup>25</sup>, what confirms the modern ecology, too.

Racoviță understood these aspects only too well:

*"In the course of their history, the living beings, the biotae, increasingly avoided the influence of the environment in which they live by creating an increasingly" internal environment "against these external actions. The evolution caused by the influence of the external factors tends to suppress more and more completely this influence."*<sup>26</sup>

Emil Racoviță's thinking is surprising because he regards the living organism as a cybernetic system, brilliantly intuiting such a mechanism without knowing cybernetics:

*"I still draw attention on one important point for the understanding of the biological evolution and of the history of evolutionary doctrine. As we have seen, the internal environment is a sort of microcosm, of more or less broken up world, but often very well isolated from the influence of the external environment; a small world but so great of complexity, rich in different material elements, full of all sorts of energetic manifestations, like the big world; a kingdom of dwarves, of which, also to unceasing imbalances, responds, at least as long as it lasts what we call life, the unrestrained tendency to restore the balance."*<sup>27</sup>

We discover here that, from 1929, when he published the **Evolution and its problems**, he perfectly intuited the cybernetic principles of direct and inverse connections. The scholar discovers what modern ecology strongly advocates that the transformation of the external environment into the internal environment that counteracts the action of the external environment represents the essence of the living.

Concerning the species, Emil Racoviță proposes a conception that revolutionizes the evolutionary thinking:

First, since 1912, he has defined the species as *"an isolated colony of ("cosângești") colony"*, thus arguing its definition: *"Such a colony is inevitably destined to differentiate morphologically and physiologically from its origin; it*

*deserves to be highlighted as it has become the new entity of the biological world and a new factor of evolution.*"<sup>28</sup>.

Coming up against difficulties in the creation of new species just on morphological criteria Racoviță tries some solutions to break a deadlock *"I have, of course, tried to precisely determine the collected material. This incursion into taxonomy has brought me a lot of disappointments over the methods, as well as the obtained results by this discipline; she also gave me the conviction that it is not possible other taxonomy than that based on phylogeny and on geographic distribution and that it is impossible to correctly place a species in the classification of beings without knowing its origin in time and its extension in space. Taxonomy cannot be but applied phylogeny."*<sup>29</sup>

Racoviță could not separate the species of its origin and neither of geographical space in which it was living; this is because the species being in a perpetual becoming starts from an origin, does not accidentally appear in the local horizon.

*"To conceive the species as a purely actual phenomenon is, of course, a serious error, which considerably lowers the value of the old works until to transform them often into a very detrimental bibliographic ballast to the progress of researches. Indeed, to continue today the same mistakes, after all the works already published on the problem and with all the precise and convincing examples contained in the literature of the last years, is unforgivable.*

*The species must be considered as an entity, which is both morphological, historical and geographical. The taxonomy cannot be something else than applied phylogeny.*"<sup>30</sup>

Starting from these considerations, Emil Racoviță proposes as biological unit **spits (spița)**, thus arguing his proposal:

*"Through the fact that I have linked the species to its past we have linked it to the species or the species from which it was born; forced to present to our eyes instead of a supposed "taxonomic unit" a chain of "units" of such a nature, in close descendancy, in close connection with kinship, in a word a spit, **a lignée**, as the Frenchman says. Of course, if we could know in great detail, its entire history of life on earth, I have found all the related spits all together, all reunified in a more or less close past; they would appear to be more and more ruddy branches of a common trunk."*<sup>31</sup>

Full of wisdom, Emil Racoviță used to present to his disciples the essence of life and of philosophy.



Thus, by paraphrasing Shakespeare, Emil Racoviță considered that the dilemma is not "*to be or not to be*", derived from Hamlet's troubled mind for Denmark, but "*to know or not to know*":

“Not to know” – he says – means superstition, blind selfishness, wild competition, misunderstanding, enmity, war, famine, disaster.

"*To know*" means for man: to live your time "*to be*" with thanksgiving and to wait for the moment of not to be!

He loved his country, his nation, and sacrificed himself for science, even if he had in the last part of his life to live in poverty.

Instead, he was rewarded and honoured as a reputed scientist and culture man both at international and national level.

Abroad, he was awarded with many medals, decorations and orders such as: the **Knight of the Leopold II Order** of Belgium (1899) and that of **Knight** (1922) and of **Commander** (1927) **of the Legion of Honour of France**.

In the country, he was awarded with medals and decorations such as: **The Star of Romania** (Officer in 1899 and 1922), **Great Officer in 1928** and **Great Cross in 1942**, **Bene Meriti** (1<sup>st</sup>Class in 1900), **the Crown of Romania** (Great Cross in 1930), **The cultural Merit for theoretical and practical science** (**Knight** in 1931, **Officer** in 1934, and **Commander** in 1943), **The Faithful Service** (Great Officer in 1939).

If Roald Amundsen, participant in the Belgica Expedition as first officer, then became the researcher of the South Pole, considered Emil Racoviță as a "an invaluable comrade of pleasure and an explorer full of stimulus", we must mention that besides his great scientific merits and the involvement in the social life of his country, Emil Racoviță impressed through his way of being, through the elegance of his behaviour, through the perfect oratory talent and the native distinction with which he conquered the partners but also imposed respect.

For all his qualities Emil Racoviță has been appreciated by the international scientific community and honoured by various Scientific and Cultural Societies such as: **Titular member of the Zoological Society of France** (1893) and **its president** (1925), **Member of the Geography Society of Paris** (1900), **of the Society of Geology of France** (1901), **Corresponding Member of the Zoological Society of London** (1910), **Member of the Speleological Society of Paris** (1910), **Member of the National Anthropology Institute in Paris** (1922), **Honorary Member of the Naturalists Society from Romania** (1900), **Member of the Romanian Ethnographic Society** (1923), **Doctor Honoris Causa of the University of Lyon** (1930).

The last years of his life were pressing. In 1940, he was obliged following the **Vienna Dictate**, to leave Cluj and to take refuge, together with the Faculty of Sciences in Timișoara, Northern Transylvania being taken over by Hungary. The Institute of Speleology remained in the care of Alfred Chappuis, considered a citizen of neutral Switzerland.

After returning to Cluj, he used all his powers to put again in function the Faculty of Sciences. He did not have either the power or the time to deal himself with the Institute of Speleology. The illness brought him out of his working cabinet, being hospitalized, and on November 11, 1947, he entered into the world of the spirits.

Emil Racoviță was a world-recognized scholar and a fighter for social justice and progress, who paid a heavy tribute to the conscientiousness with which he tried to perform in all domains of activity, not only research.

Emil Racoviță can be considered the greatest Romanian biologist of all times; he is part of the category of the great biologists of the world; he can be considered the biologist who undertook the first researches of the Antarctic fauna and flora; the biologist who made light in the world of darkness, being the founder of biospeology; he is the biologist who perfectly understood the role of the environment in human evolution; he is also the scientist who militated for the protection of nature and launched an alarm signal on imbalances provoked by man in nature, **Homo sapiens** being the only species that is considered above nature and endangering it.

Emil Racoviță, the explorer of Antarctica, the founder of Biospeology as science, and of the first Institute of Speleology in the world, the researcher who made scientific investigations in over 1,000 caves, the former President of the Romanian Academy, remains a living example to be followed in what concerns the answer to the call of the motherland in moments of necessity.

This example must be known by millions of Romanians who left the country, most without the intention of returning to save it from disaster and disintegration.

The haemorrhage of highly qualified specialists, trained in the country, exhausts Romania and it can have irreversible effects.

If some Romanian presidents allowed to recommend to Romanians, especially to young people, to emigrate to solve their problems of existence, it is now necessary for Romania's elite to make a common front and to call all the alienated Romanians to return home and take the country out of the disaster and hell in which it collapses.

## NOTES

1. Racoviță Gheorghe, 1999. **A ști sau a nu ști. Adevărurile vieții lui Emil Racoviță**, Editura Academiei Române, p. 258;
2. Racoviță Emil, *L'Institut de Spéologie de Cluj et considerations générales sur l'importance, le rôle et l'organisation des instituts de recherches scientifiques* (Premier rapport de la Directeur – Période 1920 à 1924), citat de Gheorghe Racoviță 1999, p. 259
3. Citat din Scrisoarea lui Sextil Pușcariu adusă lui Emil Racoviță, prezentată de Gheorghe Racoviță în opera sus – menționată, p. 260;
4. Emil Racoviță, 1924, **Speologia, o nouă știință a străvechilor taine subpământesti**. Academia Română, Discursuri de recepțiune, nr. LXI, București;
5. Motaș Constantin, 1960, **Figuri de naturaliști**, Editura Științifică, București, p. 322;
6. Idem, p. 275;
7. Gheorghe Racoviță, 1999, Opera citată, p. 261;
8. Idem, p. 262;
9. Idem, p.264;
10. Idem, p. 289;
11. Idem, p. 336-337;
12. Idem, p. 338-339;
13. Idem, p. 34;
14. Motaș Constantin, 1960, **Figuri de naturaliști**, Ed. Științifică, București, p. 339;
15. Pop Emil, Viața lui Emil Racoviță, în Racoviță Emil, 1964, **Opere alese**, p. 29;
16. Idem, p. 28;
17. **Discursul la Congresul Naturaliștilor din România ținut la Cluj la 18 aprilie 1928**, din Racoviță Emil, 1964, **Opere alese**, p. 58;
18. **Discursul ținut la inaugurarea Muzeului Etnografic din Cluj, 17 iunie 1928**, în Racoviță Emil, 1964, **Opere alese**, p. 70;
19. Pop Emil, Viața lui Emil Racoviță, în Emil Racoviță, 1964, **Opere alese**, p. 35;
20. Motaș Constantin, Opera citată, p. 333-334;
21. Racoviță Emil, **Biospeologica, Idei conducătoare, program, stadiul publicației**. Extras din Travaux de l'Institut de Speologie le Cluj. T.I (1920-1924) Cluj, 1926, în Racoviță Emil 1964, **Opere alese**, Edit. Academiei RSR, p. 364;

22. Emil Racoviță, 1929, **Evoluția și problemele ei**, Cluj, Ed. de Subsecție Eugenică a Astei, p. 14;
23. Idem, p. 44;
24. Idem, p. 44-45;
25. Idem, p. 49;
26. Emil Racoviță 1964, **Opere alese**, p. 632;
27. Emil Racoviță, 1929, **Evoluția și problemele ei**, p. 53;
28. Idem, p. 61;
29. Emil Racoviță, 1964, **Opere alese**, p. 631;
30. Emil Racoviță, 1929, **Evoluția și problemele ei**, p. 63;
31. Idem, p. 61.