

RAMON MARGALEF:

NOT ONLY AN ECOLOGIST OF GLOBAL IMPORTANCE, BUT ALSO A MAN OF KNOWLEDGE

by Xavier Mayor*

Ramon Margalef Lopez was born in Barcelona in 1919 and was married to Maria Mir. He died on 23rd May 2004, convinced of 'having enjoyed an exciting, universal episode': life, his passion.

The story of Ramon Margalef is one that does not occur very often, probably because all the odds seem to be stacked against such events. Even so, they do happen every so often...

As a child, he had an unusual education, which he did not hesitate to describe as '*a bit anarchic*' indeed, he described his formative years as '*a bit rough*', explaining that '*I remember that I went to several schools, which were quite different, I do not have particularly fond memories of any of them*'.

IT IS IMPORTANT TO HIGHLIGHT THE APPLICATIONS OF INFORMATION THEORY TO ECOLOGICAL STUDIES AND THE CREATION OF MATHEMATICAL MODELS FOR STUDYING POPULATIONS

His youth coincided with the Spanish Civil War. '*The war turned everything upside down*'. Between the ages of 18 and 19 he was called up and participated in the Ebro campaign, which was one of the bloodiest episodes of the war. '*When the war ended I had to do military service, so I spent a number of years with plenty of time to meditate*', he recalled. Nevertheless, he considered

this period a valuable time: '*It was very important for my profession*'.

Although he initially trained to be a teacher of commerce, the needs of the post-war period led him to find work in an insurance company in Barcelona. However, his profound interest in discovering the secrets of nature drove him to continue his work in the field of biology. '*Yes, even before the war I had already established my hobbies of collecting butterflies and plants; It was something that I had always liked*', he added contentedly. The subsequent receipt of a scholarship from the National Research Council allowed him to start studying biology: '*I started studying quite late*', he acknowledged. Even so, Margalef had already become known abroad for his research on freshwater algae and eutrophication processes.

Thereafter, his progress was rapid. In this regard, he observed that, '*I started and finished studying 6 or 7 years later than normal. The process was delayed but then sped up...*' and this expert in life processes casually observed that, '*These things happen in life!*'.

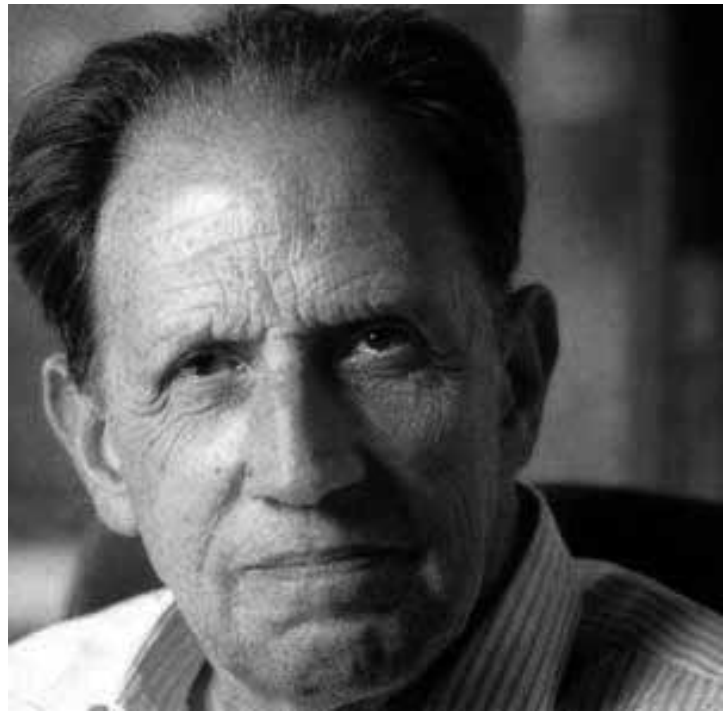
He graduated in Natural Sciences in 1949 and in 1952 obtained his doctorate in Natural Sciences. In 1967, he created Spain's first Chair in Ecology, and between 1987 and 1992 he was Emeritus Professor of Ecology at the Faculty of Biology of Barcelona University.

His scientific activity was prolific and amongst his important contribu-

tion to the consolidation of scientific knowledge, it is important to highlight the applications of Information Theory to ecological studies and the creation of mathematical models for studying populations. In all, he published 537 articles and texts and a dozen books, among which we should highlight: *Natural Communities* (1962), *Perspectives in Ecological Theory* (originally published in English, 1968), *Ecology* (1974), *The Biosphere* (1980), *Limnology* (1983), *Ecological Systems Theory* (1991) and *Our Biosphere* (1997).

It is fair to say that we owe to him the basic training of many of our biologists and the creation of a professional team of land and marine ecologists and limnologists. Furthermore, he sought to train all of these specialists without indoctrinating them, which constituted a distinguishing trait in the teaching context of his time. In this, he remained true to his belief that, *'It is necessary to prepare people, to stimulate them and to tell them things that are provocative... but it is also important to let each of them think for themselves'*.

In the same way that it is evident that the way of transmitting knowledge was of great interest to Margalef, it is also true that he had serious doubts about the effectiveness of the methodology and teaching methods of his time: *'Yes, I have many doubts about this'* he admitted, and he argued that: *'The teaching methods that have been written down and described have changed enormously, but despite this humanity has continued to produce the same proportion of really interesting people (and all of us are interesting in one way or another!)* in every period. *'I think there is something we have not got quite right'*, he thought. However, he went further than that, proposing a new, more empowering and less interventionist pedagogical path: *'I*



think that our lives are organized by age groups and that every age has a special aptitude for picking up certain blocks of knowledge and performing certain activities. What education should do is simply provide the ingredients at the right time, but otherwise not intervene too much'.

His professional value and wisdom came to the attention of the international community, which recognized his superb research work. He received several awards, including: the first Huntsman Award (the 'Nobel Prize' of the sea); the Naumann-Thienemann Prize for Limnology; the Ramon y Cajal Award; and the Gold Medal of the *Generalitat de Catalunya*, which he received in 2003 from the President of the Catalan Government, Jordi Pujol i Soley. He was also awarded honorary doctorates on four occasions and was a visiting professor at the universities of Puerto Rico, Woods Hole, Paris, Chicago, Mexico, Yale, Perugia, Laval, Quebec, Davis and Melbourne.

In the 1970s ecology really made an impact in the media with the coining of a new term: 'Environmentalism'. Nevertheless, Dr. Margalef's interest in such matters was purely scientific, so he did not consider himself to be an 'environmentalist': *'I am not an environmentalist, although in some ways I feel or they make me feel like one.'* His scientific approach, which was based on consistency and robustness in the interpretation of natural phenomena, contrasted with the rigidity and dogmatism that have often accompanied environmentalist arguments. *'I do not believe in the ecological balance. Nature is a dynamic system; things are always changing, sometimes suddenly and other times more gradually.'* He expanded upon this observation: *'... it is this mentality that states that "nature has this equilibrium, and if we do this, we will break the natural equilibrium". No! The limit that we have chosen to define the equilibrium or lack of equilibrium in the system (...) does not exist in nature. Nature must be seen in its full complexity.'* Margalef made these assertions with all the ability that only the truly erudite are able to use to make an idea that is not immediately obvious to the majority more widely accessible.

These reflections did not, however, mean that he felt any less committed to more general and worldly matters. *'I also feel like an environmentalist when I see the destruction caused by what goes on around us...'* In his opinion (in the late 80s), the most serious problems facing humanity were: desertification, man's use of energy, and the differences be-

tween the North and South, though he was also aware that the latter lay beyond the scope of what could strictly be regarded as ecology. He affirmed that, *'In these cases the ecologist primarily feels like a human being'*. He even observed, with the acute attention to detail that so distinguished him, that, *'science has increased man's power, but has (apparently) not increased his sense of responsibility'*. With time, these problems have worsened.

Dr. Margalef's legacy remains with us and it will be projected into the future thanks to the tremendous legacy he has bequeathed us and to the institutional memory of his life and work. In 2004, the *Generalitat de Catalunya* created the Ramon Margalef Prize: an international award worth €100,000 accompanied by a reproduction full of symbolism of a *Picarol margalefii*¹. The aim of the award is to acknowledge people from around the world who have distinguished themselves in the field of ecology. To date, the award has recognized the work of such renowned scientists as Paul Dayton, John Lawton, Harold Mooney, Daniel Pauly and Paul R. Ehrlich, and this year's prize has been awarded to the American Simon A. Levin.

I hope that these few lines help to bring the reader closer to the figure of Professor Margalef through his own words; these words have been respectfully chosen with the intention of directly transmitting the quality of this outstanding academic, whose importance transcends the fact that he was a leading ecologist.

¹ *Picarol margalefii* is the scientific name of a species of plankton. The denomination arose from a comment made by R. Margalef. In Catalan, the word 'picarol' means a small bell. The term *margalefii* was chosen by the team who first described the species as a tribute to Dr. Margalef.

* Most of the phrases in italics have been taken from an interview that Professor Margalef gave to *Televisió de Catalunya* on the 11th January 1987.



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