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## Stratigraphy and Palaeontology in the mid-20th century at the University of Barcelona

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When the War of '36 came to an end, and life in Catalonia began to return to a certain normality, the University reopened its doors. The circumstances were by then very different from those that had allowed the university to acquire a considerable degree of autonomy during the pre-war years. However, some faculties were less affected by the changes than others that had lost valuable members of their pre-war teaching staff. In the Science Faculty, and particularly in what was then known as the 'Natural Sciences Section', many of the teachers continued giving classes, despite having to cope with the limitations that applied at the time.

Those who aspired to be geologists, despite the inexistence of the qualification as such, had, since 1912, been able to study for the degree of Natural Sciences, which offered some instruction in Geology. The University of Barcelona was one of only two universities that offered this option, the other being the University of Madrid. Established as a result of the celebrated university reform of 1857, this was a 4-year degree containing 16 courses, of which only 3 dealt with geological subjects. The rest focussed on biology, or were subjects common to other Faculty of Science students. The geological classes were initially given by the same two Professors who had begun the teaching of Geology in 1912, Maximino San Miguel de la Cámara and Francisco Pardillo, with the support of a small number of assistants. The transformation that would allow the permanent incorporation of teaching and research staff that we are familiar with nowadays had still not arrived – in fact it took more than 20 years to materialise! In 1942, Maximino San Miguel left the University of Barcelona and moved to Madrid. His place was occupied by two new Professors - his son Alfredo San Miguel Arribas, and Lluís Solé i Sabarís, who had been his assistant.

With such a limited amount of specific material in the degree course, it is no surprise that the training of geologists was to some extent deficient in academic terms. The study programme included: Physical Geography, which was introduced in the second year by Solé i Sabarís, classes in Crystallography and Mineralogy given in the third year by Pardillo, and a combination of Petrography, Stratigraphy, Historical Geology and Palaeontology, which was taught to final year students by San Miguel. This was a real ragbag of material that made it difficult for the student to gain even an adequate grasp of the subjects concerned. In addition, the inevitable personal preferences of the teachers tipped the balance of the presentation in one particular direction, to the detriment of a more even-handed exposition of the various subjects. On the other hand, the nine subjects of more biological content were sufficient to give aspiring biologists a slightly more complete training, even though it must be said a rather old-fashioned one. In reality, the very conception of the degree course, which combined completely unconnected subjects, was clearly aimed at the training of secondary school science teachers, a situation that had existed from the time of its creation following the 19<sup>th</sup> century Moyano Act. That this was the aim of the course was clearly demonstrated by the fact that the immense majority of Natural Sciences graduates chose to take up secondary teaching. Very few dared risk remaining at the university, where indeed there were practically no places available and the idea of a stable position was unimaginable, as was the prospect of working in a profession for which no degree course had yet been established.

The situation began to change in 1944 when the study programme was modified and the degree course was extended to five years in length. However, the real trans-

formation did not take place until 1952, when it was agreed to split the Natural Sciences degree into two. Thus, the separate degrees of Geological Sciences and Biological Sciences were created. The reorganisation of the subjects to be studied led to an inevitable increase in the number of teaching staff. Some years earlier a new Chair had been created, that of Palaeontology, which in 1949 was occupied by Josep Ramon Bataller, while the fifth Professorship, that of Stratigraphy and Historical Geology, was not established until 1969, when the post was taken up by Oriol Riba.

It was in the academic year 1956-57 that the first batch of geologists graduated from the Universities of Barcelona and Madrid. These were the first students to receive the qualification of Geologists. Those who had qualified before, from an administrative viewpoint were simply graduates in Natural Sciences, or '*Naturalistes*' to use the antiquated terminology of the time. At most, their degree certificate might contain the discretionary addendum, in brackets, that they had graduated from the 'Geological Sciences Section'. Amongst the first batch of Geology graduates was Salvador Reguant. In comparison with those who had graduated earlier, Reguant, like his fellow students, had benefited from the extension of the study programme, and the consequent notable improvement in the education given.

It is well known that the true training of a geologist takes place in the field, on the ground. Like lectures and laboratory work, field trips are absolutely indispensable. In the immediate post-war period these visits were few and far between, but as time passed, and the situation improved, there was a notable increase in this type of activity. In order to gain a more complete practical training, those who had a true vocation for geology sought to improve their knowledge by working in the field alongside fellow students from more advanced courses who were preparing their graduate papers or doctoral theses. They worked in the collection of data or materials, or in the production of geological maps. The education of the undergraduates also benefited from their attendance at the seminars that were periodically held at the Geology Laboratory, where the teaching staff presented the results of their research, or visiting lecturers spoke on their specialist field of interest.

Despite the numerous functional deficiencies that existed in the early post-war period, geological research continued uninterrupted. If at first this work was done only by the teaching staff, very soon the newly graduated students became involved too, working on the production of their doctoral theses. This growth continued steadily, though it was not until the new law promoted by Lora Tamayo in 1965 that the universities were reorganised in departments, and new teaching and research staff could be

incorporated, and retained, under the wing of the existing professors. For their research work, students had access to the relatively abundant resources of the Geology Laboratory library. In addition, classic works and collections of early scientific reviews and magazines were always at their disposal in the library of the Geological Museum in the Seminary, a building situated next door to the old University. The fact that Bataller, who was to become Professor of Palaeontology, was the director of the museum, naturally made it easier for students to consult the archives held there.

The geological investigation carried out at the University was of a pioneering nature, and was more advanced than that being done elsewhere in Spain. The Geology Laboratory, under the direction of Solé i Sabarís, had become an active research centre, with numerous international contacts established after the end of the 2<sup>nd</sup> World War in 1945. The burgeoning interest in some specialist areas, such as Sedimentology, was spawned by the Laboratory, which had been responsible for the introduction of this branch of geology into Spain.

It was in this climate that Reguant began his work as a geological researcher. Of the extensive panorama that Geological Sciences embraced, he quickly showed a particular interest in the areas of Stratigraphy and Palaeontology, as can be seen from his earliest publications. At that time, in the 1950's, stratigraphic studies, at least as far as Spain was concerned, were undergoing a process of renovation. Classical Stratigraphy, in its traditional form, was a basic element in regional studies, but now, through its treatment of lithostratigraphic questions, it began to emerge as an autonomous discipline. Sedimentology came to its aid and allowed a notable development. The theses of Carmina Virgili and Oriol Riba, and their subsequent publication, were a clear demonstration of the way ahead and the possibilities that were opening up. Palaeontology, on the other hand, remained the merely descriptive science it had always been, even though the introduction of modern biological criteria and the application of statistical methods had allowed more consistency in taxonomic classifications. In reality, however, Palaeontology was an activity undertaken almost exclusively beyond the walls of the University, in the Museum of Sabadell, in the Seminary Museum, and in a few other places. When Bataller assumed the Chair, some timid palaeontological research began, though most of the work continued to be done in these extra-university centres.

Salvador Reguant began to work on his doctoral thesis some years after completing his first degree, before Oriol Riba took up the Chair of Stratigraphy. However, he was able to count on the support of Carmina Virgili who in fact became the director of his thesis. They were years of slow and meticulous work, but the result was an excellent strati-

graphic thesis which drew heavily on the diverse insights provided by lithostratigraphy, and was complemented by an intelligent use of the palaeontological samples collected, something that allowed the accurate dating of the material studied. He had clearly taken to heart the methodology and techniques of lithostratigraphy, but this did not inhibit him from using fossils in order to identify the biostratigraphic units.

The balance between these two lines of work in fact constitutes a constant theme in his work, the two paths he has trodden throughout his life as a geologist. On the one hand, there are the stratigraphic studies, especially with reference to the marine series of the Lower Tertiary. On the other, there are his palaeontological papers dealing with the foraminifera, and with a group of organisms that are difficult to study, the bryozoa. An analysis of his geological bibliography reveals the way in which his publications have basically oscillated between these two poles, which, with excellent judgement, he has managed to connect whenever the material has so allowed. And this same duality is also reflected in his personal activity as a scientist, as his curriculum shows. If, on the one hand, he received a grant from the CSIC to support his work as a palaeontologist, he also received substantial economic support from the *Fundación March* to enable him to pursue his stratigraphic studies. And at the same time that he made extend-

ed visits to research centres in France in order to improve his palaeontological knowledge, he also took part while he was there in seminars on the stratigraphy of the Lower Tertiary. Should Reguant then be considered a Stratigrapher, or a Palaeontologist? In reality, he is both things at one and the same time. He surely must have asked himself the same question on more than one occasion. And it must have been in one of those moments that the idea of following a third path occurred to him. This path would in some way draw on the knowledge he had of his two fields, and would be one for which his training and personal characteristics made him ideal: that of working in Historical Geology. This subject, linked with both Palaeontology and Stratigraphy, was traditionally the responsibility of Professors of Stratigraphy, and it was here that Reguant would be able to most effectively work as a teacher.

And here we have Reguant, a Catalan from the interior, pragmatic, a Cartesian, renowned for his urge to 'get down to work', who one fine day in 1969, having already begun his career within the CSIC, decides to interrupt his progress. Following the good advice he had received, he sat the relevant exams and re-entered the University, but now as a teacher. With time he rose to the highest teaching and research level, and occupied a position that has allowed him to be so richly productive in the fields of Stratigraphy, Palaeontology, and Historical Geology.