

# Francesc Español (1907-1999), or passion for Entomology

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On 29 June 1999 Francesc Español i Coll, passionate entomologist and teacher of entomologists, left us forever. He was born in 1907, and most of his 91 years of life were dedicated not only to the study of Coleoptera, in which he was an admired and internationally respected specialist, but also to helping other entomologists, particularly young persons working in this field, for which he was respected by all. He dedicated his life in body and spirit to Entomology, and it is worthwhile to remember it now briefly.

## From Valls to Barcelona

Francesc Español i Coll was born in Valls (Alt Camp, Tarragona) on 8 October 1907<sup>(1)</sup>. He completed his secondary school education in Valls, in the school "Hermanos de San Gabriel", and obtained his degree in the city of Tarragona. In Valls, largely due to the influence of one of his teachers, the brother Adrià, whom Español always remembered fondly, he began to become interested in natural history and the world of insects. In fact, he collected approximately forty large boxes filled with insects, especially Coleoptera and Hemiptera, which would later be kept at the Zoology Museum in Barcelona.

In this first stage in Valls he began to study the cave-dwelling fauna, a specialisation which he continued as of that point. Español was a 15 year-old secondary school student when, in early 1923, he met Ricardo Zariquiey on an excursion to the Garraf region. R. Zariquiey, a medical doctor by profession, was also a naturalist well-known for his biospeleological studies who was in contact with the most important experts of the

period. Therefore, it seems that this meeting would have important consequences for the naturalist studies of Español. One year later, he was exploring the Cave of Traça, near Fontscaldetes (Alt Camp, Tarragona) when he made his first discovery of a new species. This was a cave-dwelling Coleoptera which was sent to René Jeannel, at the "Museum national d'Histoire naturelle" in Paris. In June 1930, Jeannel published a description of the new species named *Speophilus españolii* in the journal *Butlletí de la Institució Catalana d'Història natural*. This certainly must have represented a significant event which would consolidate Español's preferences for the study of cave faunas<sup>(2)</sup>.

Between 1926 and 1929 Español completed his military service, in Morocco, in the Ceuta-Larache division. However, rather than being a sterile period, he took advantage of the occasion to spend his free time compiling an interesting collection of North African Coleoptera. The Coleoptera from the Tenebrionidae family, typical of the arid zones, were an especially noteworthy part of this collection. It is quite possible that this stay in North Africa began to awaken his interest for this type of fauna, which would later lead to several contributions to the Entomology of the Sahara and arid zones, and the taxonomy of Tenebrionidae.

As for his academic training, after completing secondary school he decided to study Pharmacy. This took place at the University of Barcelona between 1931 and 1935. During this period as a University student, he maintained his interest in Entomology. Barcelona offered him more opportunities to develop his studies, particularly within the "Institució Catalana d'Història Natural" (Catalan Institu-

tion of Natural History), where he published his first five works between 1932 and 1934, and in the facilities of the Zoology Museum [at that time the "Museu d'Història Natural" (Natural History Museum)], where in 1932 he was formally admitted as curator of Entomology, filling the vacancy which had been left by the transfer of Ascensi Codina. Here he received the valuable support of Pius Font i Quer, one of the most brilliant naturalists at that time. During this period, his speleological research also continued in areas such as the caves of the Sant Llorenç de Munt massif, in collaboration with the "Centre Excursionista de Terrassa" (Terrassa Excursion Centre). This outing was the beginning of his relationship with the Terrassa naturalists Joan Vives and Maria Rambla who, in the coming years, would become leading specialists in Carabid beetles and Opilion arachnids respectively<sup>(3)</sup>.

With a recent bachelor's degree in Pharmacy and holding a post in the Zoology Museum, in September 1935 he participated in the 6<sup>th</sup> International Entomology Congress held in Madrid under the direction of Ignacio Bolivar, the most well-known Span-

ish entomologist of the period. Español went to the Congress as an active member (he enrolled as number 172, out of a total of 400 participants from throughout the world), along with his friend R. Zariquiey; Francisco Garcia del Cid, Professor of Entomology at the University of Barcelona; and Domènec Ventalló, specialist in arachnids from the Zoology Museum. On Sunday 8 September he presented his communication on *A new Iberian Pselaphus*, based on his expeditions to the Prades mountain range, where he studied the endogeous and cave-dwelling fauna. In addition to the academic activities, this was also an excellent opportunity to visit the "Museo Nacional de Ciencias Naturales" (National Museum of Natural Sciences) in Madrid and to personally meet other colleagues. With his usual enthusiasm, just after arriving in Madrid, Español visited the Museum facilities, particularly the Entomology Section, where he had the opportunity to view the extensive collections of Coleoptera. He personally met the director of the Museum, the well-known Ignacio Bolivar, and his son Cándido, who was in charge of this section, as well as

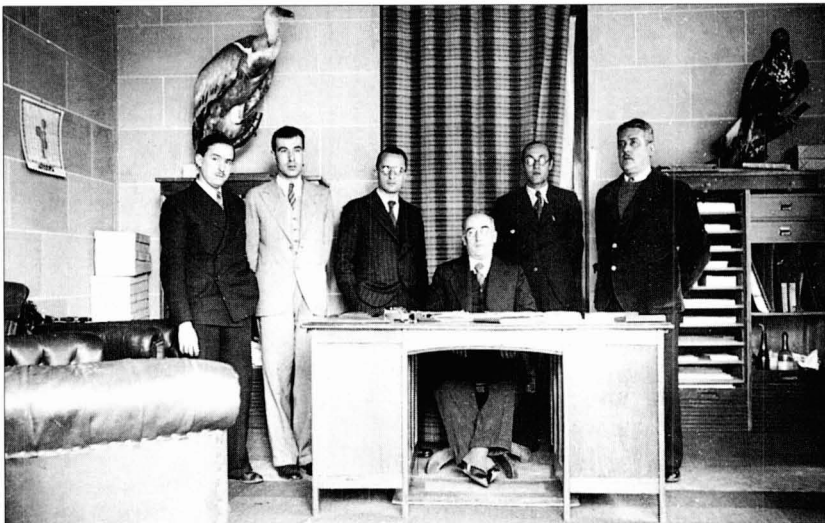


Fig. 1. Francesc Español (second on the left) in 1932 at the Museum of Natural Sciences of Barcelona, directed at that time by F. Pardillo (in the centre, seated).

other entomologists, some already veterans, such as Manuel Martínez de la Escalera, or younger entomologists, such as Gonzalo Ceballos, Ramón Agenjo or Eugenio Morales Agacino<sup>(4)</sup>. This first contact with the Madrid Museum was the beginning of a long relationship. However, the results were not immediately apparent since the Civil War began soon thereafter, which meant a painful parenthesis in nearly all of the activities.

Although he was called to serve, F. Español did not forego his activities as a naturalist. In 1937, his first major work appeared, with the title *Ensayo monográfico del género Dendarus (Coleoptera, Tenebrionidae)* [*Monographic Essay on the Dendarus genus (Coleoptera, Tenebrionidae)*] an extensive review published in the series *Treballs del Museu de Ciències Naturals de Barcelona*, which represents a brilliant beginning of his specialisation in the Tenebrionidae. During this same period, his biospeleological expeditions continued in conjunction with the "Club Muntanyenc Barcelonès" (Barcelones Mountaneering Club), an excursion centre where he had found the enthusiasm and support required for cave explorations. The publications of the period record the expeditions to caves and chasms conducted during the war years, including the celebration, in 1937, of a course on Speleology and Biospeleology organised by Español in conjunction with fellow geologist Nadal Llopis Lladó<sup>(5)</sup>.

### **The post-war period and return to the Zoology Museum**

Several months after the Civil War, on the 7th of October 1939, F. Español wed Josefina cabeza in the Church Sant Josep Oriol in Barcelona. With her sweet and sensible character she has always given him her quiet and unconditional support, fundamental to his development. In 1941 two important things happened. First the birth of her daughter Josefina and second his appointment as technical curator of Entomology of the Zoology Museum when the "Institut Municipal de Ciències Naturals" (Municipal Institute of Natural Sciences) was created. Due to the social context of the time and the filiation of the candidate, this was not an easy appointment and it could only be solved thanks

to the intervention of some colleagues that were then in good terms with the new regime. F. Español had then 34 years and, in spite of the post-war difficulties, he immediately and efficiently resumed his research, particularly that which dealt with the tenebrionids<sup>(6)</sup>. In 1943 he inaugurated a well-known series of works under the generic title *Datos para el conocimiento de los Tenebrionidos del Mediterráneo occidental (Data regarding Tenebrionidae of the western Mediterranean)*. In this series, approximately thirty works were published, as well as the separate monographs and notes.

During this period, he also resumed his relationship with the colleagues who had remained in the Madrid Museum, particularly with G. Ceballos, who had been named director of the recently created "Instituto Español de Entomología" (Spanish Entomological Institute) made up of the former Entomology Section of the "Museo Nacional de Ciencias Naturales" (National Museum of Natural Sciences), which operated under the also recently created "Consejo Superior de Investigaciones Científicas" (CSIC). In June 1943 Español was named Collaborator of the new Institute, a post which at that time was rather honorary, although it involved a modest economic compensation. His collaboration with the Institute led to several publications, particularly on Tenebrionidae, for the study of which he counted on the extensive North African collections of Martínez de la Escalera. Furthermore, the "Instituto de Entomología" (Entomological Institute) offered assistance in the financing of several entomological and biospeleological expeditions, and assigned him to act as representative in scientific meetings such as the international entomological congresses held in Stockholm in 1948 and in Amsterdam in 1952<sup>(4)</sup>.

Shortly after the Spanish Civil War he was visited by Joaquim Mateu, who at that time was a 18 year-old youth who had begun to frequent the Zoology Museum and was interested in studying Coleoptera, especially from the North African area. This was the beginning of a friendship which lasted an entire lifetime, and led to a new stimulus in the study of Saharan Coleoptera fauna, particularly the Tenebrionidae, but also the bostrichid, clerid, pselafid and buprestid beetles. In the 1940's Español completed an

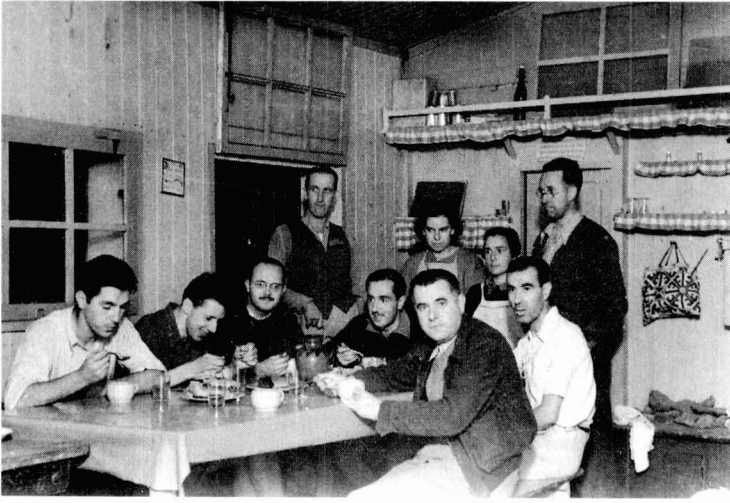


Fig. 2. Rest at the Igaratza shelter, on the biospeleological expedition to the Aralar mountains in August 1945. F. Español is seated at the end on the right. Behind him, standing, J. Elósegui. Seated, from left to right, we can see R. Margalef (second), J. M. Thomas (third) and J. Mateu (fourth).

entire series of works based on the Saharan expeditions of E. Morales Agacino and J. Mateu, as well as those of the "Institut Scientifique Chérifien" of Rabat<sup>(7)</sup>.

At this time he also began to study another aspect which would continue to interest him throughout his lifetime, the island populations. In the Balearic Islands, he was in frequent contact with the naturalist from Sóller, Guillem Colom. During the war he had already published data on the Tenebrionidae of this area. However, in the 1950's he released two major works to the press, on the Tenebrionidae of the Pitiuses (1951) and the Tenebrionidae of all the Balearic Islands (1954). He also established contact with the entomologist from the Canary Islands, José Maria Fernández. This led to the first visit to the Canary Islands and the initial research on the fauna of this region, which began in 1947 with the publication of a work on the Coleoptera of Lanzarote<sup>(8)</sup>.

During this period, he also continued to conduct biospeleological research in conjunction with the "Club Muntanyenc Barcelonès". Besides the explorations in Catalonia, the expedition organised to the Aralar mountains in

the Basque Country in August 1945 is also noteworthy. This expedition included the participation of Joaquim Mateu, Josep Maria Thomas and Ramón Margalef, as well as F. Español. In Aralar, at the Igaratza shelter, colleagues from the society "Amigos del Aralar" (Friends of the Aralar) were looking forward to their arrival, including he who would become their good friend, Jesús Elósegui. This expedition, besides providing new developments in terms of fauna, made known the importance of the karst from the north of the Iberian peninsula and stimulated the creation of local speleological groups<sup>(5)</sup>. This initial contact with the caves in the Basque Country was followed by other expeditions, such as those which took place in the Urbasa and Andia mountains, in Navarra, with J. Elósegui in the autumn of 1947, which were subsidised by the "Instituto Español de Entomología" (Spanish Institute of Entomology).

In 1948 the "Grup d'Exploracions Subterrànies" (Underground Research Group) was formed in the "Club Muntanyenc Barcelonès" (Barcelones Mountaineering Club), with Español as a founding member. The biospeleological expeditions to Cerdanya, in June 1950, and the

Boumort and Tahús mountains, in September-October of the same year, also take place during this period. Due to his dedication to biospeleological research, Español also participated in the 1<sup>st</sup> International Speleology Congress, held in Paris in 1953, along with J. Mateu and J. Elósegui. One year later he was granted the highest award, the GES Trophy, by the "Grup d'Exploracions Subterrànies", for his tireless work in the field of Biospeleology<sup>(5)</sup>.

### **Miscelánea Zoológica and Applied Biology**

In the latter part of the 1950's another noteworthy development associated with F. Español was the creation of the *Miscelánea Zoológica* magazine. This publication began in 1958, when Español was 50 years-old, and has continued up until the present. In the early period it was not only the primary means of publication for the work done at the Zoology Museum, but also represented an important means of expression for our zoologists, which also included significant contributions by specialists from many different countries. It must be pointed out that its continuity was a constant challenge, as often only a third of the budget required by the printing press was available, and true balancing acts were required in order to publish the volumes with a certain regularity.

Español not only participated in organisational tasks in the field of Entomology, but also in zoology in general. *Miscelánea Zoológica* was evidence of this, as was his essential and regular participation in maintaining the so-called "Zoologist's meetings" which offered a forum for discussion between the CSIC, the University of Barcelona and the Zoology Museum. These meetings were initially organised in response to the stimulus of the "Simposio de Biogeografía Ibérica" (Iberian Biogeographical Symposium) held in the summer of 1957, in which Español had submitted an essential work on the evolution of Coleoptera fauna in subterranean caves. Following this symposium, the CSIC, primarily at the request of Enrique Balcells, promoted the Zoology Commission, which favoured the aforementioned meetings of zoologists. Español played an important role in all of these initiatives, adding interest to the meetings, which initially were held at the Faculty of Sciences of the University of Barcelona, and

later on the premises of the CSIC office. The meetings of zoologists continued up until the decade of the 1980's when, due to the consolidation of the recovery of the "Institució Catalana d'Història Natural", they were no longer necessary<sup>(9)</sup>.

Such meetings are indicative of Español's relationship with the CSIC and the University during this period. From the beginning he collaborated with the "Instituto de Estudios Pirenaicos" (Institute of Pyrenean Studies), directed by E. Balcells<sup>(10)</sup>, and the "Instituto de Biología Aplicada" (Applied Biology Institute), with main premises at the University of Barcelona, directed by F. García del Cid<sup>(11)</sup>. During this period, he also maintained contact with the Entomology Institute of Madrid, which continued to commission him to participate in International Entomology Congresses such as that held in Vienna (1960) and London (1964)<sup>(4)</sup>.

His relationship with F. García del Cid and the "Instituto de Biología Aplicada" led Español to extend his wide range of research interests to the xylophagous insects and, as of this point, he began to work on the taxonomy of Anobiidae beetles, the third major field of specialisation in his scientific background after the cave-dwelling Coleoptera and the Tenebrionidae. In 1960, in the journal *Publicaciones del Instituto de Biología Aplicada*, the *Notas sobre anóbidos* (Notes on the Anobiidae) began with a study on the European *Anobium*. This series dedicated to the Anobiidae included the publication of over a hundred works and continued up until nearly the end of his life<sup>(6)</sup>.

In addition to the studies on Anobiidae, there were others on groups of Coleoptera of interest to the woodlands. Some of these studies were performed at the request of the Forest Pest Service which had already begun to seek Español's support and advice soon after it was created. Therefore, throughout the 1960's different publications by Español appeared in the *Boletín del Servicio de Plagas*, which reflected not only his knowledge of taxonomy, but also his work as a naturalist who is able to determine the relations between the different species in a system (whether it is locust tree, or the trunk of a cut pine tree), in short, performing all that which in the future, in accordance with the latest trends, would be referred to as Ecology<sup>(12)</sup>.



Fig. 3. Francesc Español, 1956, reviewing a series of Tenebrionidae in his laboratory in the Zoology Museum. One can see, in addition to the plates of Tenebrionidae, his inseparable tobacco case and the recently purchased Reichert binocular magnifying glass.

Although the study of Anobiidae became one of the main objectives of his research, Español also maintained his interest in the cave-dwelling Coleoptera. In the early part of the 1960's his team of collaborators comes to include the speleologist Oleguer Escolà, who

in the upcoming years succeeded him in the responsibility for entomological research conducted at the Zoology Museum. During this period, he also published several different works, such as the aforementioned study on the evolution of cave-dwelling Coleoptera

fauna, or the review of the Trechidae or the Ibero-Balearic cave-dwelling Pterostichidae. Several new species were also described, including the noteworthy discovery of the *Ildobates neboti*, a Coleoptera found in the caves on Plana Alta which had a significant impact on the biospeleologists of this period. This was also the decade (1965) in which descriptions were provided on the *Speonomus aurouxi* Catopidae, from Pallars Jussà, and *Anillochlamys urgellesi*, from Montsià, dedicated to his collaborators Lluís Auroux and Isidre González Urgells. Furthermore, Español participated in the 4<sup>th</sup> International Speleology Congress held in Ljubljana in 1965.

As for the Tenebrionidae, besides continuing to work on the Ibero-Balearic, African and Canarian fauna, he began to study more dis-

tant fauna, publishing works on the *Solskya* of Pakistan, the *Gondwanocrypticus* of Venezuela, or the surprising new *Atahualpina peruviana* genus and species, of Peru. During this period, his interest in fauna of the islands also led him to study the fauna of the small islands on the Catalan coast, as shown in his works on the Columbrets Islands, the Medes Islands, and the Plana or Nova Tabarca Island.

#### Direction of the Museum and University teaching

In 1966 F. Español was formally named director of the Zoology Museum. At this time he was 58 years-old and was enjoying an extremely successful period of his professional



Fig. 4. Francesc Español in the Zoology Museum in the early 1970's. Next to him, the Reichert photogenic magnifying glass. Although it was a modern instrument with positive features, Español always preferred to work with "his" old Zeiss magnifying glass from the 1920's.

life. This is the period in which the *Ildobates neboti* was discovered, study of the exotic Tenebrionidae began, and the initial research on Anobiidae was conducted. Two years later, in 1969, Español became a member of the "Reial Acadèmia de Ciències i Arts de Barcelona" (Royal Academy of Sciences and Arts of Barcelona). This event was the first formal recognition of importance in his professional life. The paper read at the presentation was of no surprise to anyone: *Fauna cavernícola de Espanya* (Cave-dwelling fauna in Spain), which offers a summary of Ibero-Balearic speleological knowledge from the biogeographic perspective. The response was provided by R. Margalef, who presented one of the most lucid and affectionate portraits that has ever been offered on F. Español<sup>(13)</sup>, a truly essential document.

During this period he began to teach at the University of Barcelona. The Zoology Department of the Faculty of Biology requested that he teach Zoology II (Arthropoda) which was offered in the upper division studies for the bachelor's degree in Biology. Español accepted the request, and he taught this subject from 1970 to 1975. To ensure that it would not interfere with his usual work at the Zoology Museum, the classes were held from 8 to 9 a.m. Nevertheless, in spite of the early morning hours, there was full attendance, and students from higher levels of study who had already passed the subject even came to hear Español's classes. As he had done with the followers who came to see him at the Museum, he adeptly communicated his proverbial enthusiasm for the world of the insects, and his classes became alive experiences of that which he described<sup>(14)</sup>.

Nineteen seventy-two was the year in which the "Institució Catalana d'Història Natural" was recovered, largely due to the work of Ramón Folch. As an initial measure a provisional board of directors was required, which would be responsible for restructuring the organisation of the Institution. It was a thankless task for which a symbolic chairman was required, and F. Español accepted the challenge. He was not only the chairman of the provisional Board, formed on 18 April 1972, but also came to preside over the ordinary Board of Directors of the second stage, which was formed on 6 Decem-

ber of the same year. At that time Español was 65 years-old, but his enthusiasm and spirit of service were those of a youth, just as those of the rejuvenated institution which enthusiastically began to work on its new tasks<sup>(15)</sup>.

During this period there were also other formal recognitions, primarily from the world of speleology and excursions, from those with whom Español had possibly the most cordial relationship and the greatest continuity. Thus, he received the medal awarded by the 3<sup>rd</sup> National Speleology Assembly, the medal granted by the University of Olomouc on the occasion of the 4<sup>th</sup> International Speleology Congress (1973); the silver medal of the "Federación Española de Montañismo" (Spanish Mountaineering Federation) (1974), became an honorary member of the "Secció d'Investigacions Subterrànies del Centre Excursionista de Terrassa" (Underground Research Section of the Terrassa Excursion Centre) (1974)<sup>(3)</sup>, and a dedicatory volume was published in the *Graellsia* magazine (1975)<sup>(16)</sup>.

Nevertheless, these honours did not take him away from his everyday work, and between the late 1960's and the latter part of the 1970's he tirelessly continued his research. The cave-dwelling fauna continued to be the preferred subject of his studies, and his interests went beyond the Iberian peninsula to discover new genera and species in the caves of Morocco, such as the extremely noteworthy Carabid beetle *Subilsia senenti* from the Central Atlas. Furthermore, his activity was not limited to the laboratory, but rather he continued to participate in speleological expeditions at least up until August 1974 when, at nearly 70 years-old, he visited the Janet cave in the Llaberia mountains. In October 1976 he formed part of the Catalan representation in a tiring bus trip to Marbella, in order to take part in the 4<sup>th</sup> National Speleology Congress, where he offered a study on the cave-dwelling Coleoptera of Andalucía.

The work performed on Anobiidae by Español began to represent a considerable volume, and contributes important new data as regards taxonomy. He described some twenty new genera, from the four continents, in an ongoing desire to contribute to the ordering of this family of Coleoptera. On the other hand, the work on Tenebrionidae is much more limited, although he did have time to study and publish works on those





Fig. 5. Homage to Jacques Nègre by the European Association of Entomology in September 1989. Seated, from left to right, F. Español, J. Nègre and J. Vives. Standing, from left to right, J. Ribes, E. Vives, O. Escolà, A. Viñolas, X. Vazquez, X. Bellés, C. Ascaso, M. Blas and T. Yélamos.

captured by J. Mateu in the Ennedi massif, one of the only remaining areas in the Sahara still unexplored from the entomological point of view<sup>(7)</sup>.

#### Official retirement and the final years

In 1977 F. Español reached the official age of retirement. Although he was 70 years-old he had sufficient strength and enthusiasm in order to continue his usual work. Some changes were introduced in the Zoology Museum, and the overall situation took a turn which led to an unfavourable outcome. This was undoubtedly one of the most unfortunate episodes of his life.

On the other hand, the homages and recognition were increasingly frequent. Some of

the most noteworthy of these were the "Encomienda con placa de Alfonso X el Sabio", granted by his Majesty Juan Carlos I, King of Spain (1978); an article of homage in the *Butlletí de la Institució Catalana d'Història Natural* (1978)<sup>(17)</sup>; the falcata ibero-ilergeta awarded by the "Institut d'Estudis Ilerdencs" (1978); the plaque awarded by the colleagues from the Zoology Museum (1979); the medal from the "Amics dels Museus de Catalunya" (Friends of Museums of Catalonia) (1980); the plaque by the "Federació Catalana d'Espeleologia" (Catalan Federation of Speleology) (1981); the homage by the "Escola Catalana d'Espeleologia i la Diputació de Barcelona" (Catalan School of Speleology and the Barcelona County Council) (1981)<sup>(18)</sup>; investiture with Honorary Doctorate Degree by the Autonomous University of Barcelona

(1982)<sup>(19)</sup>, the designation as honorary Emeritus Professor by the University of Barcelona (1982)<sup>(11)</sup>; the dedication to a volume in homage by the "Societat Catalana de Lepidopterologia" (Catalan Society of Lepidopterology)(1982)<sup>(20)</sup>; the distinction as Honorary Member of the "Asociación Española de Entomología" (Spanish Association of Entomology) (1983); the Narcís Monturiol Medal awarded by the "Generalitat de Catalunya" (Autonomous Government of Catalonia) (1984); the plaque-homage by Spanish Speleology on the occasion of the 9<sup>th</sup> International Speleology Congress held in Barcelona (1986); the designation as Honorary Member of the SHILAP Society (1986); the honorary chairmanship of the European Association of Coleopterology (1987); or the homage given by the "Institut d'Estudis Vallencs", and the city of Valls, on the occasion of the publication of a special volume of *Quaderns de Vilaniu*, the magazine published by this Institute (1988)<sup>(21)</sup>.

In this series of homages perhaps the most noteworthy are the events in the world of speleology, and those granted by the University. In terms of form the homage given by the "Federació Catalana d'Espeleologia" (Catalan Federation of Speleology) in conjunction with the Barcelona County Council, in 1981, was especially emotive. The entire field of Catalan Speleology, including the presence of all of his biospeleological followers, met in the "Saló de Sant Jordi del Palau de la Generalitat" (Sant Jordi Hall of the Palace of the Autonomous Government of Catalonia) in order to demonstrate, once again, their affection and appreciation<sup>(18)</sup>. In addition to the usual gifts, the "Federació Catalana d'Espeleologia" (Catalan Federation of Speleology) published a facsimile edition of his biospeleological works, a 680-page volume entitled *Francesc Español, 50 anys d'obra biospeleològica (Francesc Español, 50 years of biospeleological work)*, which includes an unforgettable prologue by R. Margalef<sup>(22)</sup>. The first of the homages by the University world was offered by the Zoology Department of the University of Barcelona when, in 1980, Enrique Gadea, Director of this department, formally submitted the application for the degree of Honorary Professor Emeritus for F. Español, designation which was issued at the ceremony which marks the beginning of the 1982 school year. The in-

vestiture with a Honorary Doctorate Degree by the Autonomous University of Barcelona took place in May 1982. The speech read at that time, entitled *El meu treball entomològic i biospeleològic (My entomological and biospeleologic work)* has the value of a summarised scientific autobiography, with the perspective of 80 years<sup>(19)</sup>.

Neither the displeasure of retirement, nor the satisfaction of the homages would take Español away from his entomological research. The cave-dwelling fauna would continue to be the primary subject of his works. In 1979 he created the "Comisión de Biospeleología" (Biospeleology Commission) in the Catalan Institute of Natural History, which began to work on a review of the cave-dwelling fauna of the Basque Country. The review, which was published in 1980, also included the participation of Xavier Bellés, Marina Blas, Jordi Comas, Oleguer Escolà, Joan Estany, Maria Rambla, Carles Ribera, Antoni Serra, Maria Cristina Vicente and Eduard Vives, as well as F. Español, all of whom were members of the aforementioned Commission. The last participation by Español in a congress was the 9<sup>th</sup> International Speleology Congress held in Barcelona in 1986. Nevertheless, he also continued to publish descriptions of new species and works until the end. In fact, he left an unpublished work with the description of the new *Speleotyphlus*, which is now published posthumously. During this period, he also continued to study the Tenebrionidae and Anobiidae, in which in 1981 he published note number 100, without considering the reviews and other works on this family which were also published up until the early 1990's. An example is the monograph on the Iberian Anobiidae which forms volume 2 of the recently initiated series on *Iberian Fauna*, first published in 1992, or the research started in 1991 on the Anobid beetles from Austral Africa, on which he reached to prepare 8 contributions.

As of the early 1980's he began to publish regularly in collaboration with his closest colleagues and students, starting with O. Escolà, and successively continuing with X. Bellés, A. Viñolas, J. Ribes, J. Comas, C. Vives, P. Oromí or M. Blas. Alone or in collaboration, he continued to publish until the end, although in the final years he often complained of the loss of sight and strength which prevented him from making the ob-

servations and dissections usual in his research. Nevertheless, he conserved his intellectual faculties and memory at all times. Therefore, he was able to participate in the entomological gatherings nearly until the end of his days. He was 91 years old when, still not tired of living, he died in the early morning hours of 29 June 1999.

### Homage

Up until recently, at least in the field of scientific research, this has been a country of singularities. The landscape has been flat and monotonous, with the scattered presence at times of some eminences. In the field of Entomology, Francesc Español was one of the few. Today things have changed a great deal, and we have gone from the singularity to the diversity of researchers. In other words, we are approaching that which could nearly be called normality, a situation which, paradoxically, seems so difficult to attain. Español, who was reticent in the use of grandiloquent words or hyperboles, surely would want to be remembered above all for the role played as a catalyst which contributed to the great diversity of entomologists and naturalists we have today.

It must be emphasised that, as we have already seen, he played this important role in difficult conditions. Nevertheless, he knew how to offer guidance to the large number of young people interested in natural history. At least in Catalonia, most of the entomologists who are presently active have (we have), at one time or another, been guided by Español. It was not easy to establish a relationship with him and work in a field other than Entomology. This was his passion -and the most accurate word to describe his interest is precisely this- for the world of insects, which inevitably became an overwhelming enthusiasm transmitted to all those in his presence, who became inextricably trapped in this world. His charismatic personality and his spirit of complicity also favoured a lasting cohesion among the diversity of entomologists -a world certainly more complex than that of the insects- and led to joint works of interdisciplinary collaboration. This was another important step towards this precarious normality that still requires consolidation.

Entomologists from many different fields will remember Español for the quality of his

contributions. The most emblematic characteristic of his systematic studies was surely his moderation. The many new pieces added to the system (he described 426 species o subspecies and 85 genera o subgenera)<sup>(23)</sup> have served to grant it greater stability. This has a special merit since the instability of the nomenclature has always been one of the pitfalls of biological systematics. In Biospeleology he was a clairvoyant pioneer. The conceptual structure where we presently seek shelter rests on the solid bases constructed for nearly 70 years. In short, the contributions made by Español are a valuable legacy which is inextricably joined to the positive development of the specialities in which he worked.

His friends remember him for all of the time he dedicated to us, for his overwhelming enthusiasm and the energy he invested in his work, his timely personal or professional advice, his unshakeable honesty, his delightful modesty, his untiring generosity, as well as many other reasons which are difficult to explain with words. He leaves us with a very difficult challenge: to follow his example.

### Notes

<sup>(1)</sup> Personal biographic data on F. Español can be found in: RIBES, J., 1988. Apunts biogràfics. *Quaderns de Vilaniu*, 14: 3-8.

<sup>(2)</sup> His biospeleological work has been analysed in BELLÉS, X., 1988. Dels *Trechus* als *Hydraphaenops*. L'obra bioespeleològica del Dr. Francesc Español. *Quaderns de Vilaniu*, 14: 15-18.

<sup>(3)</sup> The relationship between F. Español and the naturalists from Terrassa has been described in: VIVES, E., 1988. Relacions de Francesc Español amb el Cente Excursionista de Terrassa. *Quaderns de Vilaniu*, 14: 73-75.

<sup>(4)</sup> The relationship between F. Español and the "Museo Nacional de Ciencias Naturales" (National Museum of Natural Sciences) has been analysed in: COMPTE, A., 1988. Relacions de Francesc Español amb el Museu Nacional de Ciències Naturals de Madrid. *Quaderns de Vilaniu*, 14: 63-66.

<sup>(5)</sup> The activities by F. Español at the "Club Muntanyenc Barcelonès" (Barcelonès Mountaineering Club) have been described in: MASRIERA, A., 1988. F. Español i Coll i la seva activitat espeleològica en el Club Muntanyenc Barcelonès. *Quaderns de Vilaniu*, 14: 67-70.

<sup>(6)</sup> The work by F. Español on Tenebrionidae

and Anobiidae has been analysed in: BLAS, M., 1988. Els Anobiidae i els Tenebrionidae: contribució de F. Español a la taxonomia. *Quaderns de Vilaniu*, 14: 19-21.

<sup>(7)</sup> The work by F. Español in relation to the Coleoptera of the Sahara has been de14: 27-29.

<sup>(8)</sup> The work by F. Español on the entomofauna of the Canary Islands has been commented in: OROMÍ, P., 1988. L'entomologia canària en l'obra del Dr. Francesc Español. *Quaderns de Vilaniu*, 14: 31-33.

<sup>(9)</sup> The origin and development of the Zoology meetings has been described in: BALCELLS, E., 1988. Relacions amb l'Institut d'Estudis Pirinencs. *Quaderns de Vilaniu*, 14: 45-52.

<sup>(10)</sup> The relationship between F. Español and the "Instituto de Estudios Pirenaicos" (Institute of Pyrenean Studies) has been analysed in: BALCELLS, E., 1988. Relacions amb l'Institut d'Estudis Pirinencs. *Quaderns de Vilaniu*, 14: 45-52.

<sup>(11)</sup> See the work: RIBERA, C. & SERRA, A., 1988. Relacions del Dr. Francesc Español amb el Departament de Zoologia de la Facultat de Biologia de la Universitat de Barcelona i l'Institut de Biologia del CSIC. *Quaderns de Vilaniu*, 14: 53-54.

<sup>(12)</sup> For the works on forest Entomology and relations with the "Servicio de Plagas Forestales" (Forest Pest Service) see the work: ROMANYK, N. & MONTJOYA, R., 1988. Francesc Español i l'entomologia forestal. *Quaderns de Vilaniu*, 14: 23-26.

<sup>(13)</sup> The reference is: Fauna cavernícola d'Espanya. *Memòries de la Reial Acadèmia de Ciències i Arts de Barcelona*, 49: 309-337, 1969. This includes the paper read by F. Español, selected member of the academy and the response by R. Margalef, of biographical nature. It also includes the list of publications by F. Español.

<sup>(14)</sup> The teaching work by F. Español at the University of Barcelona has been analysed in: DURFORT, M., 1988. Francesc Español i la Universitat de Barcelona en el seu aspecte docent. *Quaderns de Vilaniu*, 14: 55-58.

<sup>(15)</sup> The relationship between F. Español and the "Institució Catalana d'Història Natural" (Catalan Institute of Natural History) has been described in: MALUQUER, J., 1988. F. Español i la Institució Catalana de Història Natural. *Quaderns de Vilaniu*, 14: 59-61.

<sup>(16)</sup> *Graellsia*, vol. 31, Madrid, 1975. Volume dedicated to F. Español. Includes a biography signed by R. Agenjo which includes

the list of publications by F. Español.

<sup>(17)</sup> The article mentioned is: Francesc Español i Coll: entomòleg actiu i en actiu. *Butlletí de la Institució Catalana d'Història Natural*, 42: 127-139, 1978. This is a brief biography signed by J. Gosàlbez, followed by the list of publications by F. Español.

<sup>(18)</sup> The relationship between F. Español and the "Federación de Espeleología" (Speleology Federation), and the 1981 homage have been described in: PÉREZ, P. & VIVES, S., 1988. El Dr. Español i la Federació d'Espeleologia. *Quaderns de Vilaniu*, 14: 71-72.

<sup>(19)</sup> See: Autonomous University of Barcelona, Honorary Doctorate Degree, Francesc Español i Coll. Bellaterra, 1982. This includes the speech on his entomological and biospeleological work read at the ceremony of investiture, the list of his publications and the welcome speech by A. de Haro.

<sup>(20)</sup> *Treballs de la Societat Catalana de Lepidopterologia*, vol. 5, Barcelona, 1982. Volume dedicated to F. Español. It includes a brief biography signed by A. Masó and J. J. Pérez de Gregorio. The volume was presented at the Zoology Museum in January 1983.

<sup>(21)</sup> *Quaderns de Vilaniu* (Miscellany from Alt Camp), vol. 14, Valls, 1988. Volume dedicated to Dr. Español with 19 articles on the different aspects of his scientific and human personality. See notes 1-12, 14, 15 and 18.

<sup>(22)</sup> The reference is: *Francesc Español. 50 anys d'obra bioespeleològica*. "Escola Catalana d'Espeleologia" (Catalan School of Speleology), "Federació Catalana d'Espeleologia" (Catalan Federation of Speleology), Barcelona, 1981. The volume includes all of the biospeleological works that he had published and is preceded by the aforementioned prologue by R. Margalef.

<sup>(23)</sup> The taxonomical list described by Español has been compiled in: VIÑOLAS, A., ESCOLÀ, O. & VIVES, J., 1995. Obra taxonòmica del Dr. Francesc Español. *Treballs del Museu de Zoologia*, 7: 1-110.

An early compilation was: COMAS, J., 1988. Relació de taxons descrits per Francesc Español. *Quaderns de Vilaniu*, 14: 77-88.

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Barcelona, October 1999