

## The palaeontological and archaeological museum “Ildefonso Recio Valverde” (Totanés, Toledo). A new area for understanding our past

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### ABSTRACT

The Palaeontological and Archaeological Museum “Ildefonso Recio Valverde” was recently opened in Totanés (Toledo). The material included in this museum mostly belonged to the personal collection of I. Recio, who donated it to this municipality to contribute to the dissemination of Palaeontology and Archaeology. Its creation, and the even more recent discovery of a Neolithic cromlech in its vicinity, provides this small village with great potential to become a centre for heritage tourism and scientific outreach. This paper presents the process of arranging the museum and cataloguing the palaeontological collection, as well as outlining its value as a local museum.

**Keywords:** Totanés, local museum, heritage, dissemination, Montes de Toledo.

### RESUMEN

El Museo Paleontológico y Arqueológico “Ildefonso Recio Valverde” fue recientemente inaugurado en la localidad de Totanés (Toledo). El material que alberga proviene de la colección personal de I. Recio, quien la donó motivado por su interés por la divulgación de la Paleontología y la Arqueología. La creación de este museo, y el aún más reciente descubrimiento de un crómlech neolítico en sus inmediaciones, proporcionan a esta localidad un gran potencial como centro de turismo patrimonial y de divulgación científica. En este trabajo se presenta la labor de museística y el inicio de los trabajos de catalogación de la colección paleontológica, así como su puesta en valor como museo local.

**Palabras clave:** Totanés, museo local, patrimonio, divulgación, Montes de Toledo.

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### 1. INTRODUCTION

Totanés is a small village located in the Montes de Toledo region (Castilla-La Mancha, Spain) (Fig. 1). In this village, rocks are mainly Paleozoic in age, from which Cambrian trilobites belonging to the genus *Serrodiscus* have been described (Gil Cid, 1981, 1986). However, Ordovician fossiliferous outcrops are dominant in the Montes de Toledo region. In this geological context, the Palaeontology and Archaeology Museum Ildefonso Recio Valverde (PAM-IRV) seems to be a suitable place to house, classify and conserve the geological and historical material from this region, which possesses great scientific value. The original collection was given to the Town Hall of Totanés by the recently deceased ex-agricultural extension agent, Ildefonso Recio Valverde, after whom the museum is named (Figs 2a-b). The collection is made up of fossils, minerals and archaeological remains, providing complementarity information with a high educational potential, enabling the visitor to get acquainted with the disciplines of geology, palaeontology and archaeology all in one place. The palaeontological material comprises specimens of different origins and ages. The majority of the groups of invertebrate animals are represented, as well as scarce vertebrate and plant fossils. Within the invertebrates, trilobites, graptolites, brachiopods and molluscs (cephalopods, gastropods and bivalves) are

dominant (Fig. 2c). In this work, we will focus on the palaeontological material, as the archaeological studies are in progress by other professionals.

The official recognition of the PAM-IRV as local museum is being processed; we consider it falls in this category since it is an *in situ* museum associated with a specific palaeontological context. As it occurs with other small local museums, it is relevant for spreading knowledge dissemination of Earth's History and awareness of our palaeontological heritage (Meléndez *et al.*, 2008).

### 2. ILDEFONSO RECIO VALVERDE AND THE MUSEUM

For more than 30 years, Ildefonso Recio (1937-2017) was performing guided tours and workshops for school students in order to show them his findings and his love for nature and culture (Fig. 3). The collection is mainly made up of material collected by Ildefonso, donations from the neighbourhood, and exchanges with other collectors. A complete catalogue is still pending. Over the years, the collection became exceedingly large and had to be moved from its original location in Gálvez (Toledo) to a bigger venue. In that moment, Ildefonso Gutiérrez Villarreal, mayor of Totanés, asked I. Recio to lend his collection to

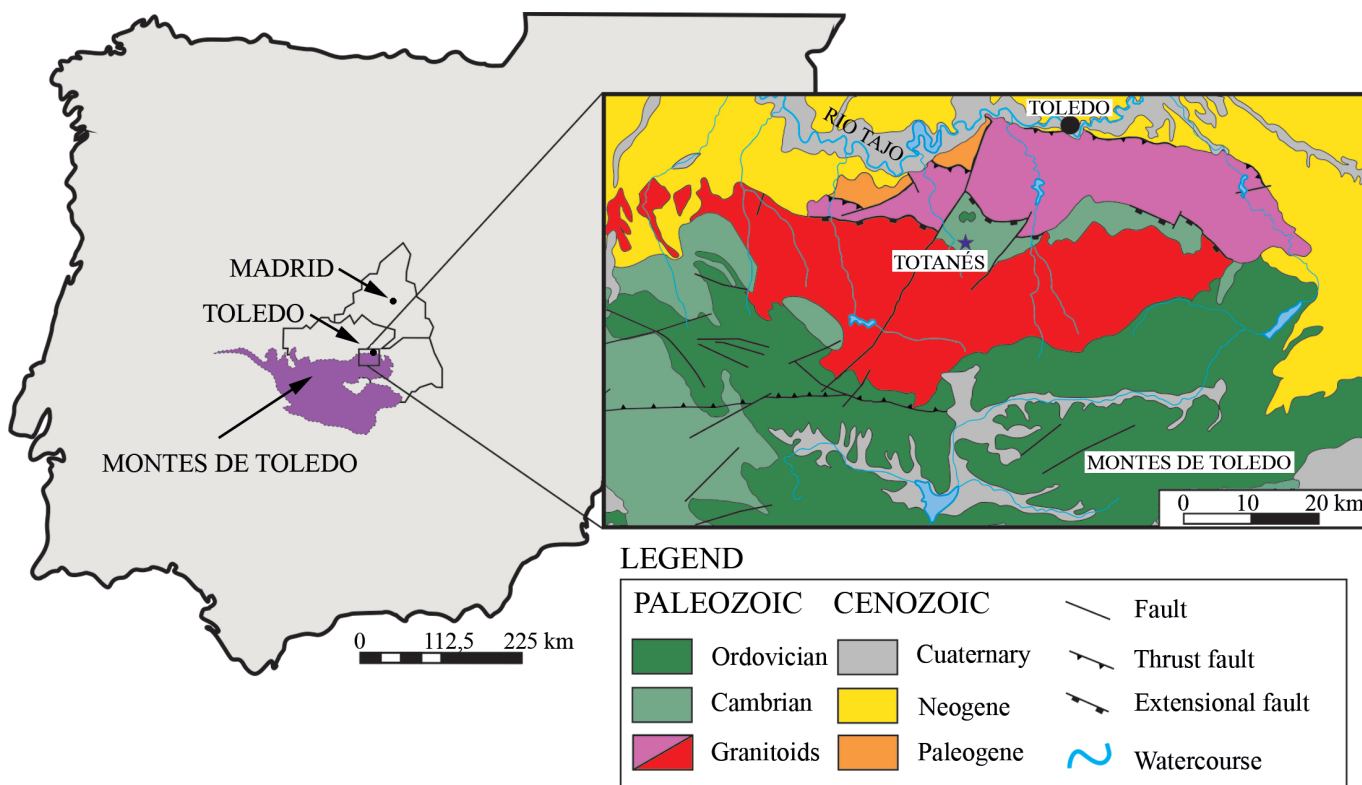


Figure 1. Location of Totanés (Toledo). Modified from Rodríguez-Fernández & Oliveira (2015).



**Figure 2.** a) General interior view of the museum. b) Culture House, where PAM-IRV is located ([www.totanes.es](http://www.totanes.es)). c) Showcase with Mesozoic mollusc specimens.

the village, allocating a room in the Culture House for this project. I. Recio began the arrangement of the museum but unfortunately passed away before it was officially opened.

After his death, the mayor of Totanés and the Culture and Education councillor, Elena Gutiérrez, decided to continue I. Recio's work and, with the

collaboration of Dr. Ángela Fraguas and Daniel Gómez, the PAM-IRV was inaugurated on April 7<sup>th</sup> 2018.

As part of the promotional policies of the museum, an agreement between the City Council of Totanés and the Universidad Complutense de Madrid (UCM) was signed, and three Advanced Palaeontology MSc students carried out their internships at the PAM-IRV.



**Figure 3.** Ildefonso Recio with a group of children from the Totanés School in the PAM-IRV before its inauguration and current arrangement, in front of the trilobite showcase.

### 3. PALAEOLOGICAL COLLECTION

During the MSc students' internships, 467 specimens were catalogued (Fig. 4): 81 graptolites and 386 trilobites. Considering that this is the first systematic arrangement of the PAM-IRV palaeontological collection, the MPT acronym (Spanish initials of Totanés Palaeontological Museum) was created, followed by a numerical sequence to identify each specimen. At the moment, the developed database includes only the specimens belonging to these two fossil groups, for the rest of the collection cataloguing is pending. In this database, the degree of interest for public exposition of each specimen is estimated on a scale from 1 to 4, based on the preservation, presence of diagnostic structures, taxonomic redundancy and/or visual attractiveness.

Regarding the graptolites (Table 1), half of the specimens (50.62%) are *Oktavites spiralis* (Geinitz, 1842) (Fig. 5a), and were collected in Checa (Guadalajara), as well as the specimens of *Monograptus priodon* (Bronn, 1834) (Fig. 5b). The majority of graptolites (83%) are Silurian in age (Table 1), and additionally, two Ordovician species of *Didymograptus* (Fig. 5c) were recognised. The three specimens of the species *Neocolonagraptus praedeubeli* (Jaeger, 1990) (Fig. 5d) were collected in Salas de la Ribera (León) and the rest are from unknown localities.

**Table 1.** List of graptolite specimens.

Genus and species	N	Origin	Age
<i>Didymograptus artus</i>	13	Unknown	Lower Oretanian (Ordovician)
<i>Didymograptus</i> cf. <i>clavatus</i>	1	Unknown	Telychian (Silurian)
<i>Didymograptus</i> cf. <i>murchisoni</i>	1	Unknown	Ordovician
<i>Metaclimacograptus flamandi</i>	3	Checa (Guadalajara)	Telychian (Silurian)
<i>Monoclimacis griestoniensis</i>	2	Checa (Guadalajara)	Telychian (Silurian)
<i>Monograptus priodon</i>	7	Checa (Guadalajara)	Telychian (Silurian)
<i>Neocolonagraptus praedeubeli</i>	3	Salas de la Ribera (León)	Upper Wenlock (Silurian)
<i>Oktavites spiralis</i>	41	Checa (Guadalajara)	Telychian (Silurian)
<i>Pristiograptus bjerringus</i>	2	Unknown	Silurian
<i>Retiolites geinitzianus</i>	1	Unknown	Telychian (Silurian)
<i>Stimulograptus becki</i>	2	Unknown	Silurian
<i>Torquigraptus arcuatus</i>	5	Unknown	Silurian
<b>Total specimens</b>	<b>81</b>		



**Figure 4.** Cataloguing process during the UCM-UAH MSc Advanced Palaeontology internships. a) Cleaning. b) Labelling. c) Identification. d) Photography and labelling.



**Figure 5.** a) *Oktavites spiralis* (Geinitz), MPT-00444. b) *Monograptus priodon* (Bronn), MPT-00324. c) *Didymograptus artus* (Eeles & Wood), MPT-00412. d) *Neocolonograptus praedeubeli* Jaeger, MPT-00405. e) *Neseuretus avus* Hamman, MPT-00235. f) *Asaphellus toledanus* (Gil Cid), MPT-00079. g) *Salterocoryphe lusitanica* (Thadeu), MPT-00270. h-i) *Placoparia cambriensis* Hicks, MPT-00215 (5.8), MPT-00219 (5.9). Scale bars = 30 mm.

Regarding the trilobites (Table 2), all were collected in the Montes de Toledo region. 313 of the 386 specimens (81.09%) were collected in Ordovician rocks, and only 1 specimen is Devonian in age. 73% of the trilobites classified in this work (Table 3) belong to the Order Ptychopariida, which includes the genera *Neseuretus*

(Fig. 5e), *Asaphellus* (Fig. 5f) and *Salterocoryphe* (Fig. 5g), with a notable proportion of *Neseuretus* specimens (40.67%), in which *Neseuretus avus* (Hamman, 1977) (Fig. 5e) is the most abundant species (66.24%). Within the Order Phacopida (8.03%) *Placoparia cambriensis* (Hicks, 1875) (Figs 5h-i) is the dominant species.

**Table 2.** List of trilobite specimens, all of which were collected in the Montes de Toledo region.

Order	Family	Genus and species	N	Age
Ptychopariida	Asaphidae	<i>Asaphellus cianus</i>	1	Lower Llanvirn (Ordovician)
Ptychopariida	Asaphidae	<i>Asaphellus toledanus</i>	26	Lower Llanvirn (Ordovician)
Ptychopariida	Asaphidae	<i>Nobiliasaphus delessei</i>	2	Lower Llanvirn (Ordovician)
Ptychopariida	Asaphidae	<i>Ogyginus ? forteyi</i>	7	Lower Llanvirn (Ordovician)
Ptychopariida	Asaphidae	Gen. and sp. indet.	4	Lower Llanvirn (Ordovician)
Ptychopariida	Calymenidae	<i>Neseuretus avus</i>	104	Lower Llanvirn (Ordovician)
Ptychopariida	Calymenidae	<i>Neseuretus henkei</i>	1	Dobrotivian (Ordovician)
Ptychopariida	Calymenidae	<i>Neseuretus tristani</i>	3	Llandeilian (Ordovician)
Ptychopariida	Calymenidae	<i>Neseuretus</i> sp.	49	Middle Ordovician
Ptychopariida	Calymenidae	<i>Salterocoryphe lusitanica</i>	21	Lower Llanvirn (Ordovician)
Ptychopariida	Calymenidae	Gen. and sp. indet.	55	Middle Ordovician
Ptychopariida	Fam. indet.		8	Lower Paleozoic
Phacopida	Dalmanitidae	<i>Kloucekia drevermanni</i>	2	Lower Llanvirn (Ordovician)
Phacopida	Dalmanitidae	<i>Retamaspis melendezi</i>	1	Lower Llanvirn (Ordovician)
Phacopida	Dalmanitidae	<i>Crozonaspis morenensis</i>	1	Dobrotiviense (Ordovician)
Phacopida	Homalonotidae	<i>Burmeisteria</i> sp.	1	Devonian
Phacopida	Pliomeridae	<i>Placoparia cambriensis</i>	22	Lower Llanvirn (Ordovician)
Phacopida	Pliomeridae	<i>Placoparia</i> sp.	3	Middle Ordovician
Phacopida	Pliomeridae	Gen. and sp. indet.	1	Middle Ordovician
Corynexochida	Illaenidae	<i>Ectillaenus giganteus</i>	9	Lower Llanvirn (Ordovician)
Corynexochida	Illaenidae	Gen. and sp. indet.	1	Middle Ordovician
Trilobita		indet.	64	Paleozoic
<b>Total specimens</b>			<b>386</b>	

**Table 3.** Percentage of the trilobite groups catalogued in this work.

Order	N	Percentage
Ptychopariida	281	72.80%
Phacopida	31	08.03%
Corynexochida	10	02.59%
Trilobita (indet.)	64	16.58%

#### 4. PATRIMONIAL VALUE AND FUTURE

According to Carcavilla *et al.* (2010), there are three ways of bringing geology closer to people: promotion, dissemination and didactics. Promotion aims to encourage visits to different landscapes and museums. Dissemination is the organization and realization of different activities within non-formal education. Finally, didactics is a type of formal education, transmitting knowledge in classrooms and others similar spaces. Although these definitions are

not completely applicable to museums, all these approaches can be developed in PAM-IRV, with the goal of becoming a reference centre for the dissemination of Palaeontology and Archaeology in the region, where scientific knowledge about the History of Life can be brought closer to different sectors of society by: providing itineraries in nearby places of interest, including the Montes de Toledo region (promotion); workshops, guided visits and talks (dissemination); and collaborations with schools and high schools in the area (didactics). To reach this goal, fossils, which are an abundant resource of PAM-IRV, are a teaching tool with great potential for developing different kinds of activities (i.e., Calonge *et al.*, 2003; García-Frank *et al.*, 2016), always according to the Castilla-La Mancha Cultural Heritage Law 4/2013 as it is written in Title III Chapter II Articles 49 to 53 (Ley 4/2013), emphasizing the last Article, in which palaeontological and archaeological materials, found in any context, are considered public property, within the concept of Cultural Heritage.

## 5. CONCLUSIONS

The PAM-IRV is the result of the collaboration between private collectors, public administrations and research organizations, creating a project of Palaeontological and Archaeological curation and dissemination. The history of the museum is still very recent and there is still much work to be done. However, the first completed activities and the potential of the PAM-IRV provide good prospects for this institution, building on the work of Ildefonso Recio Valverde. The authors of this work believe in the great importance and relevance of this museum for the village of Totanés and the region of Montes de Toledo, not only as a place to store palaeontological material for scientific investigations, but also as an informative and pedagogical centre. Therefore, we encourage competent administrations to keep up the work to consolidate this project.

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