



HIDDEN AMMONITES: AN INSIGHT INTO THE UPPER CRETACEOUS WIEDMANN COLLECTION AT THE PALÄONTOLOGISCHE SAMMLUNG OF TÜBINGEN (GERMANY)

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ABSTRACT

Jost Wiedmann (1931-1993) was an outstanding geologist and palaeontologist from the last third of the 20th Century, who, for almost 30 years, worked at the University of Tübingen (Germany). He focused his research on Cretaceous cephalopods, studying material which he collected from numerous regions around the world. Particularly noteworthy are his works regarding taxonomy and palaeoecology of the Cenomanian-Turonian (100-89 M.a.) ammonites from Europe and Africa (Tethyan faunas), as they have served as a basis for the elaboration of biostratigraphic scales, allowing interregional correlations and important paleogeographic reconstructions. In the present study, authors explore two important parts of his scientific collection, one regarding specimens collected in Spain and Portugal between 1959 and 1962 and another containing fossils from Nigeria, sampled during the eighties. Both sub-collections are housed at the *Paläontologische Sammlung* (GPIT) of the University of Tübingen, and are currently under revision.

Keywords: Cenomanian, Heritage, Museum, Tethys, Turonian.

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1. INTRODUCTION

Professor Dr. Jost Wiedmann (1931-1993), University of Tübingen (Germany), was an outstanding geologist and palaeontologist, who undertook his research in many regions around the world during the last third of the 20th Century. Among his numerous contributions, his research on Cretaceous ammonites has been a fundamental basis for the taxonomic and palaeoecological studies of these cephalopods that inhabited the Mesozoic seas. This includes pioneer works on the Spanish faunas and the assembling of a large scientific collection from the Iberian and Nigerian basins, today housed at the University of Tübingen. Thus, from a perspective of history of geology and palaeontology, Wiedmann stands out as one of those figures where the lead scientific research combined with a remarkable personality and strong humanistic culture, resulted in lasting contributions to unequivocal pillars of knowledge. The authors research focuses on these attributes and depicts his historical collection as part of a collaborative research presently in course.

2. BIOGRAPHICAL REMARKS

Jost Wiedmann, born in Breslau (today in Poland: Figure 1A), studied Geology and Palaeontology at the *Freie Universität Berlin* (founded in 1948 in the former US-American Sector of Western Berlin), and, shortly after, he started to work in some open-pits exploring Cretaceous rocks. Among them, those of Salzgitter (Lower Saxony, Germany). One of his fieldworks for the petroleum partnership Dielmann-CEPSA led him to undertake geological prospections in Spain and Portugal, where he found his future vocation, the study of ammonite taxonomy and biostratigraphy. Specifically, during his doctoral thesis, supervised by Professor Dr. Otto Schindewolf (1896-1971) in Tübingen (Figure 1A), he studied the Cretaceous “Vascogotic” ammonites from Northern Spain (Wiedmann, 1960, 1964). This became the start of his contributions in ammonite biostratigraphy and Upper Cretaceous biozonation. This research line culminated in more than 40 publications particularly on this matter, plus many further articles related to this Spanish geological and palaeontological materials (*e.g.*, Segura & Wiedmann, 1982).

During the seventies his work in the Iberian Peninsula resulted in various geological excursions to Cretaceous sections of Northern Spain (*e.g.*, Wiedmann, 1980) (Figure 1B). There, he presented to students and specialists the bases of the Spanish Cretaceous - stratigraphic complexity, sedimentological, and tectonic questions - and, in addition, he also included Spanish cultural and historical aspects in a multidisciplinary way, showing his great passion as a geologist and docent.

All his studies resulted in the collection of abundant palaeontological material, especially cephalopods, which are mostly housed at the *Paläontologische Sammlung* of the University of Tübingen (Germany; Figure 2A-B), where Wiedmann worked as a docent since 1965, and later became Professor. The institute was formerly called *Geologisch-paläontologisches Institut*

der Universität Tübingen, which was abbreviated as GPIT, which still serves as the acronym of its paleontological collections (Werneburg *et al.*, 2021).



Figure 1. A. Current map of Europe, highlighting the main localities where Wiedmann lived his early years. B. Photograph taken during the field excursion to Altos de la Vega, Tragacete, Cuenca (Spain) at the 1st Symposium of the Cretaceous of the Iberian Range, 1974. Jost Wiedmann is the third participant standing from the left. Modified from Meléndez Hevia & Meléndez Hevia (1974).

3. THE WIEDMANN COLLECTION

Wiedmann studied ammonoids from all over the world to reconstruct part of the Cretaceous palaeogeography. Considering his abundant publications (*e.g.*, see Herm & Troeger, 1996) and palaeontological material, three different research lines can be highlighted: (1) His research on Tethyan faunas took him to study the fossil record in Europe, North Africa, and even South Asia, including countries such as Spain, Austria, Morocco, Turkey, Nepal, and Timor. (2) He was also interested in the Proto-Atlantic Ocean, which, was still opening during the Late Cretaceous, focused on fauna from the Caribbean, South America, and South Africa. These works awakened

his interest in the connexion between the Tethys Sea and the Proto-Atlantic Ocean through the Trans-Saharan Seaway, (3) leading him to also study the biostratigraphy of the Upper Cretaceous of Nigeria (Popoff *et al.*, 1986). Unfortunately, these latter studies were interrupted, as Wiedmann passed away in December 1993.

The history of the GPIT-collections dates back to the early 19th Century through the contributions of Prof. Friedrich August von Quenstedt (1809-1889), an important pioneer on cephalopod studies. In addition to vertebrate paleontology, there is a strong tradition of ammonite research in Tübingen (*e.g.*, see Klug *et al.*, 2019).

Among the Cenomanian-Turonian (Upper Cretaceous) material of the GPIT, the Wiedmann collection stands out, with two large different but complementary assemblages, or sub-collections, which are of high scientific and historical interest. The first, includes specimens from the Iberian Peninsula (Wiedmann, 1960), which have motivated highly important studies on the Upper Cretaceous biostratigraphy (*e.g.*, Barroso-Barcenilla, 2011). The second sub-collection includes Nigerian ammonites sampled during the eighties, and which study was discontinued (Figure 2C). In addition to this material, other types of documentation can be found in the University Archive in Tübingen (collection number: UAT 829), such as maps, manuscript drafts, and photographs (Figure 2D).



Figure 2. *Paläontologische Sammlung* of the University of Tübingen (Germany). A) Photograph of the GPIT main building. B) View into the archive of the collection with published material, as exemplified. C) Nigerian ammonites from the unpublished Wiedmann-sampling. D) Documents from the University Archive Tübingen (UAT) containing maps, manuscripts, and photographs.

4. FINAL REMARKS

The palaeontological work carried out by Jost Wiedmann during the third part of the 20th Century has been crucial to continue studies on the Cenomanian-Turonian ammonite biostratigraphy of the Tethyan and Boreal faunas, which inhabited the Iberian plate during the Late Cretaceous. Most of the Wiedmann collection is housed at the GPIT in Tübingen (Germany), in which authors are currently revising two important sub-collections, one regarding specimens collected in Spain and Portugal between 1959 and 1962, and another concerning specimens from Nigeria, sampled during the eighties, shedding light, on both scientific and historical aspects of this collection.

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