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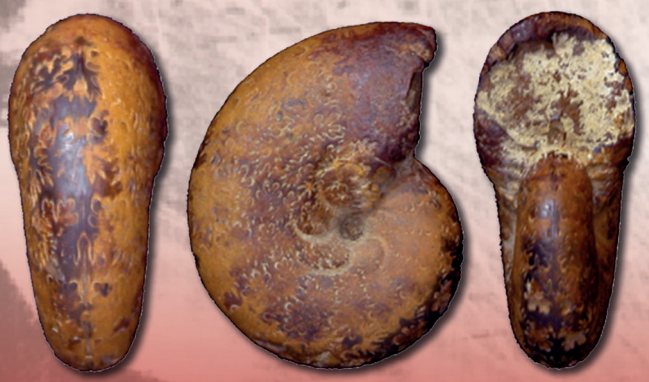

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The d'Orbigny Palaeontological Collection of the National Museum of Natural History and Science, Lisbon, Portugal: Historical perspective and revision of Cretaceous Cephalopoda

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ABSTRACT
The study in course of the materials rescued from the fire that in 1978, destroyed much of the palaeontological collections of the current National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência) of Lisbon, has allowed the rediscovery of several Cretaceous cephalopods (and the corresponding original labels) that the renowned palaeontologist Alcide d'Orbigny, according to the wishes of the emperor Napoleon III, offered to the king Pedro V in 1855, in order to re-establish the good relationships between France and Portugal. These historical specimens correspond to nautiloids: *Angulithes triangularis* de Montfort, 1808; ammonoids: *Phylloceras* (*Hypophylloceras*) *tethys* (d'Orbigny, 1840), *Ptychophylloceras* (*Semisulcatoceras*) *semisulcatum* (d'Orbigny, 1840), *Neolissoceras grasianum* (d'Orbigny, 1840), *Pleurohoplites* (*Pleurohoplites*) *renauxianus* (d'Orbigny, 1840), *Acanthoceras rhotomagense* (Brongniart, 1822), *Coilopoceras requienianus* (d'Orbigny, 1840) and *Turrilites* (*Turrilites*) *costatus* Lamarck, 1801; and belemnoids: *Duvalia dilatata* (de Blainville, 1827), *Hibolithes subfusiformis* (Raspail, 1829) and *Belemnitella mucronata* (von Schlotheim, 1813). All of them come from outcrops relevant for the French stratigraphy, and they seem to have been selected by d'Orbigny with a representative criterion.

KEY WORDS
Alcide d'Orbigny,
historical types,
Nautiloidea,
Ammonoidea,
Belemnitida,
Cretaceous.

RÉSUMÉ
La Collection paléontologique de d'Orbigny du Muséum national d'Histoire naturelle et de la Science, Lisbonne, Portugal : Perspective historique et révision des céphalopodes du Crétacé.
L'étude en cours des matériels récupérés après l'incendie qui a détruit, en 1978, une grande partie des collections paléontologiques du Muséum national d'Histoire naturelle et de la Science (Museu Nacional de História Natural e da Ciência) de Lisbonne, a permis la redécouverte de plusieurs céphalopodes du Crétacé (et de ses étiquettes originales associées) que le célèbre paléontologue Alcide d'Orbigny a offert au roi Pedro V, en 1855, selon les souhaits de l'empereur Napoléon III, pour rétablir les bonnes relations entre la France et le Portugal. Ces spécimens historiques correspondent à des nautiloïdes : *Angulithes triangularis* de Montfort, 1808 ; à des ammonoïdes : *Phylloceras* (*Hypophylloceras*) *tethys* (d'Orbigny, 1840), *Ptychophylloceras* (*Semisulcatoceras*) *semisulcatum* (d'Orbigny, 1840), *Neolissoceras grasianum* (d'Orbigny, 1840), *Pleurohoplites* (*Pleurohoplites*) *renauxianus* (d'Orbigny, 1840), *Acanthoceras rhotomagense* (Brongniart, 1822), *Coilopoceras requienianus* (d'Orbigny, 1840) et *Turrilites* (*Turrilites*) *costatus* Lamarck, 1801; et à des belemnoïdes : *Duvalia dilatata* (de Blainville, 1827), *Hibolithes subfusiformis* (Raspail, 1829) et *Belemnitella mucronata* (von Schlotheim, 1813). Tous proviennent d'affleurements importants pour la stratigraphie française, et semblent avoir été sélectionnées par d'Orbigny avec un critère représentatif.

MOTS CLÉS
Alcide d'Orbigny,
types historiques,
Nautiloidea,
Ammonoidea,
Belemnitida,
Crétacé.

INTRODUCTION

The young king Dom Pedro V of Portugal (born in Lisbon, 1837; proclaimed in 1853; died in Lisbon, 1861) was an enthusiastic for Science, with a marked passion for Natural History, and a connoisseur in Ornithology and Conchology, who was also acquainted with Palaeontology (Fig. 1A). His memoirs, and especially the included comments about his voyages in Europe in 1854 and 1855, show a critical but constructive attitude, and they report (among others) his state visits to the British Museum (Natural History) in London, the UK, and especially to the National Museum of Natural History (Muséum National d'Histoire Naturelle: MNHN) in Paris, France (Antunes & Taquet 2002).

During his stay in the French capital in 1855, under the auspices of the emperor Napoleon III (1808-1873), Pedro V met several professors and naturalists of the MNHN, among which Alcide Dessalines d'Orbigny (1802-1857), one of the world's greater and renowned palaeontologists, and author of the encyclopaedic work *Paleóntologie Française*, published between 1840 and 1860 (Fig. 1B). These visits, and the interest revealed by the king, represented an appropriate occasion for France to compensate the war requisitions of several hundred specimens of Brazilian mammals, birds, reptiles and fishes held at the Royal Museum of Ajuda, in Lisbon, Portugal, made during the Napoleonic invasion of 1807-1808 (Daget & Saldanha 1989; Almaça 1996).

As an important contribution to re-establish the good relationships and the fruitful cooperation between France and Portugal, and according to the wishes of Napoleon III, the MNHN gave to Pedro V an important collection of 312 taxidermy birds, and d'Orbigny offered him a large collection of fossils, mainly Mesozoic invertebrates selected from his personal study material. This precious gift, composed of 1722 palaeontological specimens, belonging to 586 Palaeozoic and Mesozoic species, and accompanied by a handwritten catalogue, arrived to Lisbon in 1856, where it was held at the Royal Museum (d'Almeida 1868; Costa 1938) (Fig. 1C). Soon after the premature death of Pedro V, both the d'Orbigny Collection and the remaining valuable mineralogical, zoological and botanical specimens of the Royal Museum, were donated in 1863 to the recently created National Museum,

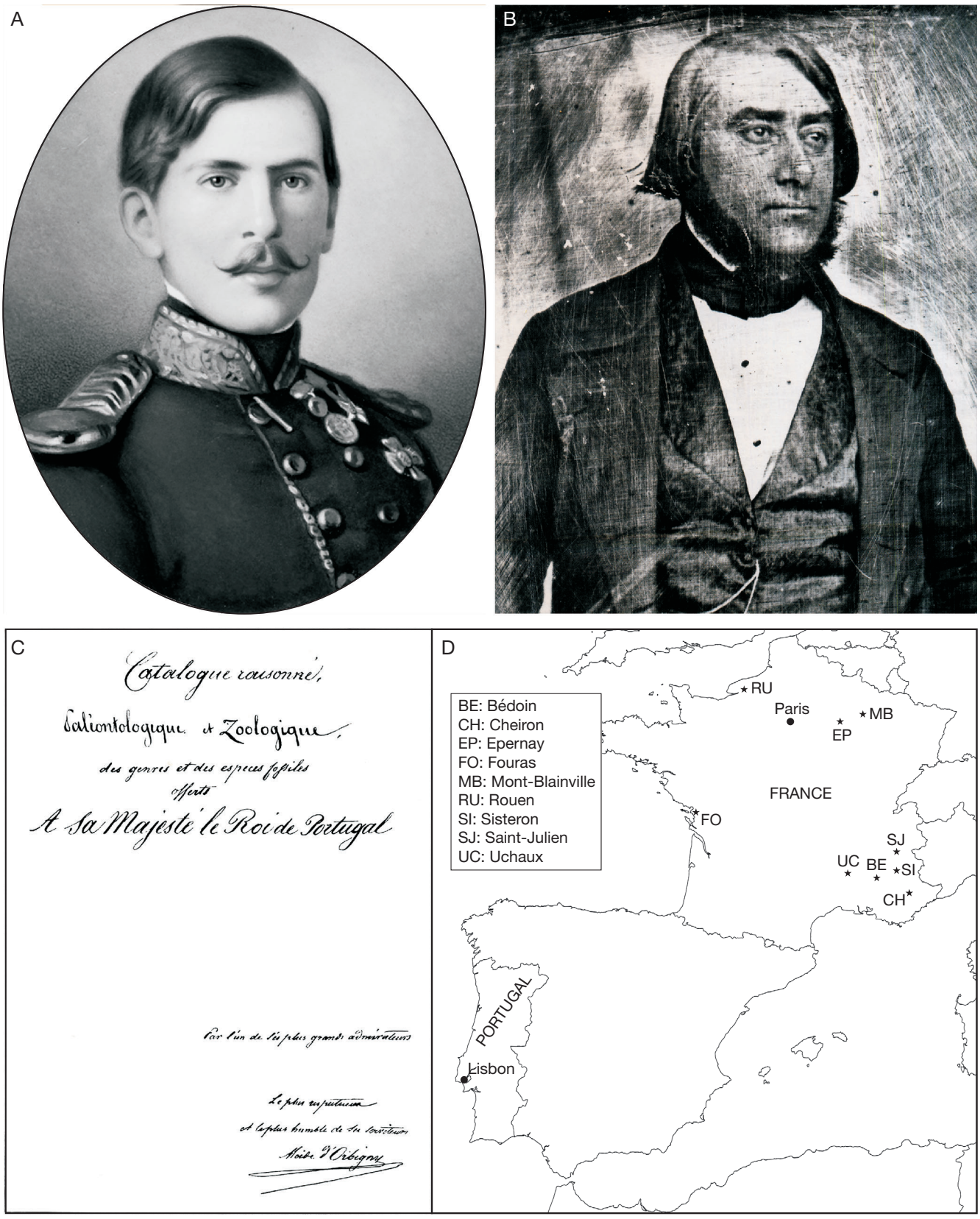

FIG. 1. — **A**, The king Dom Pedro V of Portugal (1837-1861), in a *c.* 1861 enamel on copper (modified), Royal Collection Trust, London, UK; **B**, the famous French palaeontologist Alcide d'Orbigny, in a 1843 daguerreotype, Muséum national d'Histoire naturelle, Paris; **C**, cover page of the original handwritten catalogue of the collection offered by d'Orbigny to Pedro V (Costa 1938); **D**, geographic location of the sections where the here studied types of Cretaceous cephalopods of the d'Orbigny Palaeontological Collection of the National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência) were collected and other cited outcrops.

housed at the Polytechnic School of Lisbon, being definitively incorporated into its rich scientific heritage (Choffat 1885; Felismino 2014).

The National Museum, called at that time as National Museum of Natural History and currently as National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência: MUHNAC), suffered on March 18, 1978 a devastating fire that destroyed much of the historical building, mostly affecting the Zoological and Mineralogical exhibition and storage rooms, with the loss of most scientific and historical collections. As usual in this kind of sinister, the water used to extinguish the fire was as harmful as the fire itself to the contents of the affected areas. That dramatic night unique items disappeared, including many inherited from the former 18th and 19th centuries royal collections. These losses included all the bird specimens offered by Pedro V to the Royal Museum and, seemingly, the original handwritten catalogue of the fossil invertebrates selected and donated by d'Orbigny. Fortunately, a great part of specimens of this palaeontological collection, including many of the original labels, were rescued from the disaster (Antunes & Taquet 2002).

The research in course over the palaeontological historical collections held at the Science Museum of the University of Coimbra, Portugal (Callapez *et al.* 2015), and at the MUHNAC, has already allowed the rediscovery of the holotypes of the significant Upper Cretaceous ammonite species *Vascoceras gamai* Choffat, 1898 (type of the genus) and *Vascoceras barcoicense* (Choffat, 1898) (Barroso-Barcenilla *et al.* 2015), which have been considered lost for many years. With this paper, the authors revise part of the d'Orbigny Collection, presenting the recovered Cretaceous cephalopods with their original labels, most of them figured here for the first time, and analysing these historical specimens in detail from a systematic and biostratigraphic point of view.

HISTORICAL PERSPECTIVE

After an auspicious beginning at the second half of the 18th century, when the Royal Museum of Ajuda (Museu Real da Ajuda), in Lisbon (1769), the Cabinet of Natural History of the University of Coimbra (Gabinete de História Natural da Universidade de Coimbra), in Coimbra (1772), and the Royal Academy of Sciences (Academia Real das Ciências), in Lisbon (1779) were created for the advances on collecting and experimental studies of Natural History in Portugal, these institutions were considerably affected by more than three decades of political instability and intermittent conflicts. During the Peninsular War, the country was invaded for several times by the Napoleonic army, and permanently occupied between 1807 and 1808. The rich Natural History collections of the Royal Museum of Ajuda lost many of their valuable specimens, which were wisely selected and sent to Paris, under orientation of Geoffroy Saint-Hilaire (1772-1844), a predecessor of d'Orbigny at the MNHN (Sequeira 1949; Antunes 1986, 2000).

The next two decades were also marked by the rising of Liberalism against the instituted Absolutist monarchy, a process that culminated with a civil war (1828-1834) that left the country exhausted and bankrupted. Most scientific activities were ceased at that time, and for their renewal it was necessary to wait for the year of 1837, when a new liberal government promulgated innovative laws destined to modernize the education, encouraging the regeneration of collecting and experimental studies. The Polytechnic School of Lisbon (Escola Politécnica de Lisboa) (1837) was created within this spirit, and supplied with a museum and a botanic garden to support the study of geological and biological sciences, as a modern alternative to the University of Coimbra (Universidade de Coimbra).

By this time, most remaining collections of the Royal Museum of Ajuda were transferred to the Royal Academy of Sciences. Later on, in 1858, the lead teacher and naturalist José Barboza du Bocage (1823-1907) was able to demonstrate that the Polytechnic School of Lisbon was the obvious place to house all these collections of Natural History, as the bulk of a true National Museum (Museu Nacional) with large exhibition rooms and capability for research, experimental and teaching activities. By royal decree of March 9 of 1858, Pedro V ordered the incorporation of the collections to this institution, having the idea to stimulate the birth of a large and modern museum inspired in those of Paris and other European capitals.

By the year of 1863, the d'Orbigny Collection was incorporated in the Mineralogical Section (Secção Mineralógica) of the Museum, together with other royal collections donated by the king Dom Luís I (1838-1889), after the premature death of his brother Pedro V, for many known as the "King Naturalist" (Ferreira 1893). The specimens of d'Orbigny were already mentioned in early catalogues of the collections (d'Almeida 1868; Ferreira 1893), and by Costa (1938) in the centenary of the Polytechnic School of Lisbon. António Sousa Torres (1876-1958), keeper of collections between 1919 and 1946, also paid special attention to this historical legacy. With the purpose of a review accordingly to an updated taxonomic classification, this naturalist requested a government scholarship to visit the MNHN, a work carried out between December 1931 and January 1932, under supervision of the French palaeontologist Marcellin Boule (1861-1942). However, due to the priority given to other issues, Sousa Torres never published the results of his researches in Paris, and the current whereabouts of his work notes is unknown (Brandão 2011).

Almost 40 years after the devastating fire of 1978, and bearing in mind that additional specimens and labels are being recovered, and that the curation of this collection is still being improved, an estimated number of 1150 specimens from the 1722 original samples has been rescued and remain carefully stored at the MUHNAC. Despite the absence of the handwritten catalogue of 1856, the observation of specimens and labels, and their comparison with the partial listing available from d'Almeida (1868), allow to infer the original purpose of systematic and biostratigraphic representativeness of the collection.

Most of specimens are Jurassic and Cretaceous invertebrates from France described in the *Paléontologie Française* (d'Orbigny 1840-1860) and the *Prodrome de Paléontologie Stratigraphique Universelle* (d'Orbigny 1850), and organised accordingly to the Mesozoic stages recognized by the palaeontologists of that time (Fischer 2002; Lauriat-Rage 2002). By this way, the d'Orbigny Collection of the MUHNAC stand out as a large biostratigraphic sample with doubles of the original one housed in the MNHN (Costa 1938), being especially useful to compare with correlative fossil assemblages of Portugal. For this purpose, the Swiss geologist Paul Léon Choffat (1849-1919) that undertook for the Geological Services (Serviços Geológicos) of Portugal the detailed study of the Mesozoic of this country, has frequently used specimens of the d'Orbigny Collection, including its cephalopods.

This taxonomic group was undoubtedly one of the most representatives of the original collection. D'Almeida (1868) referred to 116 species of non-heteromorph ammonites ("genero *Ammonites*"), including several of colossal size ("grandeza collossal"). Specifically, the Cretaceous stages were recorded by 54 ammonite species (Neocomian [including the Urgonian]: 24; Aptian: 9; Albian: 14; Cenomanian: 6; Turonian: 1). There was also a set of 5 nautiloids (Neocomian: 2; Albian: 1; Cenomanian: 2) and 4 belemnitids (Neocomian: 2; Aptian: 1; Senonian: 1), thus totalizing 63 species of Cretaceous Cephalopoda.

REVISION OF CRETACEOUS CEPHALOPODA

To date, 31 specimens and 11 original labels, corresponding to 11 genera and 11 species of Cretaceous cephalopods, have been recovered and identified as belonging to the d'Orbigny Collection. All of them come from classical outcrops relevant for the French stratigraphy, as well as for the faunal characterization of the Cretaceous stages defined by d'Orbigny. They seem to have been selected with a systematically and biostratigraphically representative criterion, corresponding 9 of these 11 species to genotypes or subgenotypes (Fig. 1D).

Conventions

The supraspecific classification used here for the recovered specimens follows that proposed by Kummel (1956) for Nautilida Agassiz, 1847, by Fischer & Gauthier (2006) for Phylloceratina Arkell, 1950 and Belemnitida von Zittel, 1895, and by Wright (1996) for Ammonitina Hyatt, 1889 and Ancyloceratina Wiedmann, 1966. The terminology used for the descriptions of nautiloids and ammonoids is based on the glossary of morphological terms proposed by Barroso-Barcenilla (2008).

All the recovered original labels were glued over a green cardboard (corresponding to the Cretaceous) and are headlined by the title: "D'Orbigny Collection belonging to H. M. THE KING (*Collecção d'Orbigny pertencente a S. M. EL-REI*)". They include several data of the related specimen, specifically its number (*Nº*), classification, stratigraphic level (*Andar*), period (*Terreno*) and locality (*Localidade*).

Abbreviations

MHNA	Museum of Natural History of Avignon (Muséum d'Histoire naturelle d'Avignon), Avignon;
MNHN	National Museum of Natural History (Muséum national d'Histoire naturelle), Paris;
MUHNAC	National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência), Lisbon;
HUB	Museum of Natural History of the Humboldt University (Museum für Naturkunde der Humboldt-Universität), Berlin.

SYSTEMATIC PALAEONTOLOGY

Class CEPHALOPODA Cuvier, 1797
Subclass NAUTILOIDEA Agassiz, 1847
Order NAUTILIDA Agassiz, 1847
Family Nautilidae de Blainville, 1825
Genus *Angulithes* de Montfort, 1808

Angulithes triangularis de Montfort, 1808
(Fig. 2A, B)

Material. — An internal mould without written or glued indications. Original label: *Nº* 459/*Nautilus triangularis* (Montf), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Fouras (Charente inf.re). See Figs 1D; 2C.

Description

A medium-sized, compressed and involute nautiloid with a markedly subtriangular whorl section. Angular to arched venter, formed by strongly converging flanks, and extremely narrow umbilicus. Suture line with a pointed ventral saddle, a broad and shallow lateral lobe, and a moderately high saddle on the umbilical margin. Siphuncle unobservable, and ornamentation inexistent.

Discussion

According to d'Orbigny (1840: 80), specimens of this species are relatively abundant in the "grès verts" of Fouras (France), where they were collected by him and by d'Archiac. The morphologically closest form to this middle-upper Cenomanian species, type of the genus, is *Angulithes mermeti* (Coquand, 1862), considered as a mere subspecies of *A. triangularis* by Wiedmann (1960). Nevertheless, *A. mermeti* shows a more compressed section, a more sinuous suture line and a smaller range, seemingly limited to the upper Cenomanian *Neolobites vibrayeanus* zone (Wiese & Schulze 2005; Barroso-Barcenilla *et al.* 2011; Nagm & Wilmsen 2012; Segura *et al.* 2014; Meister & Piuz 2015; Benyoucef *et al.* 2016). *Angulithes vascogoticus* Wiedmann, 1960, exhibits a more depressed section and a more sinuous suture line, being to date only reported from the upper Cenomanian and lowermost Turonian of Spain (Wilmsen 2000; Barroso-Barcenilla 2006). *Angulithes fleuriausianus* (d'Orbigny, 1840) has a narrowly rounded venter and a less compressed subtrigonal whorl section, being known from the lower Cenomanian (Cobban & Kennedy 1994). In the last years, *A. triangularis* has been studied by Wilmsen (2000), Fischer & Gauthier (2006) and Frank *et al.* (2013), among others.

Subclass AMMONOIDEA von Zittel, 1884
Order AMMONITIDA Agassiz, 1847
Suborder PHYLLOCERATINA Arkell, 1950
Family PHYLLOCERATIDAE von Zittel, 1884
Genus *Phylloceras* Suess, 1865
Subgenus *Phylloceras* (*Hypophylloceras*) Salfeld, 1924

Phylloceras (***Hypophylloceras***) ***tethys*** (d'Orbigny, 1840)
(Fig. 2D-F)

MATERIAL. — Three pyritized (and partially limonitized) internal moulds without written or glued indications. Original label: *Nº* 360/*Ammonites Tethys* (d'Orb), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Arredores de [environs of] Sisteron (Basses Alpes). See Figs 1D; 2G.

DESCRIPTION
Small-sized, compressed and involute phylloceratid ammonites with suboval whorl sections. Arched venters and flanks with the maximum width located at their middle part, and narrow and deep umbilici with abrupt walls. Very tenuous ornamentation reduced to small and weak ventrolateral ribs. Notably complex and slightly proverse suture lines, with large folds in the external saddles showing a tetraphyllic tendency.

DISCUSSION
This Berriasian(?)-Hauterivian species was initially presented as *thetys* by d'Orbigny (1840: 174, pl. 53, figs 7-9), and already named *tethys* by d'Orbigny (1850: 64) by the Titan daughter of Uranus and Gaia in the Greek mythology. As highlighted by Joly (1993), the morphologically closest species is *Phylloceras* (*Hypophylloceras*) *serum* (Oppel, 1865), but this Tithonian-lower Hauterivian form exhibits flatter flanks and more complex suture lines. In the last years, *P.* (*H.*) *tethys* has been studied by some authors, such as Joly (1993, 2000), Reboulet (1996), Fischer & Gauthier (2006) and Joly & Mercier (2012).

Genus *Ptychophylloceras* Spath, 1927
Subgenus *Ptychophylloceras* (*Semisulcatoceras*) Joly, 2000

Ptychophylloceras (***Semisulcatoceras***) ***semisulcatum***
(d'Orbigny, 1840)
(Fig. 2H-J)

MATERIAL. — Two pyritized (and partially limonitized) internal moulds without written or glued indications. Original label: *Nº* 359/*Ammonites semisulcatus* (d'Orb), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Sisteron (Basses Alpes). See Figs 1D; 2K.

DESCRIPTION
Small-sized, compressed and involute ammonites with subrounded whorl sections. Highly bended and continuous venters and flanks, and narrow umbilici with arched walls. Ornamentation formed by five deep and aborally convex periumbilical constrictions per whorl. Notably complex suture lines with large folds in the external saddles showing a tetraphyllic tendency.

DISCUSSION
The specimen of d'Orbigny (1840: seemingly pl. 53, figs 4-5), originally collected from the Valanginian of Sisteron (Alpes-de-Haute-Provence), France, and nowadays held at the MNHN with number MNHN.F.R00489, has been designated by Joly (2000) as the lectotype. The relatively high morphological variability of *P.* (*S.*) *semisulcatum* has allowed the proposal of several subspecies, such as *diphyllum* (d'Orbigny, 1840), without conspicuous periumbilical constrictions and recently studied in detail by Joly & Mercier (2012). The morphologically closest species is *Ptychophylloceras* (*Semisulcatoceras*) *ptychoicum* (Quenstedt, 1845), but this Kimmeridgian-lower Berriasian form exhibits conspicuous external varici. In the last years, the Berriasian-Valanginian species *P.* (*S.*) *semisulcatum*, type of the subgenus, has been studied by Joly (1993, 2000), Reboulet (1996), Fischer & Gauthier (2006) and Joly & Mercier (2012), among others.

Suborder AMMONITINA Hyatt, 1889
Family HAPLOCERATIDAE von Zittel, 1884
Genus *Neolissoceras* Spath, 1923

Neolissoceras grasianum (d'Orbigny, 1840)
(Fig. 3A-C)

MATERIAL. — Three internal moulds (two of them pyritized) without written or glued indications. Original label: *Nº* 357/*Ammonites grasanus* (d'Orb), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* S.t Julien (Hautes Alpes). See Figs 1D; 3D.

DESCRIPTION
Small-sized, markedly compressed and moderately involute ammonites with subrectangular whorl sections, showing the maximum width at their external part. Slightly arched venter, conspicuous ventrolateral margin, nearly flat and divergent flanks, and wide umbilici with bended walls. Relatively complex suture lines showing a phylloid tendency and with wide saddles, being the first lateral one larger that the ventral. Ornamentation inexistent.

DISCUSSION
This Berriasian-Hauterivian species was firstly reported in Saint-Julien (seemingly, Saint-Julien-en-Beauchêne: Hautes-Alpes), France, by d'Orbigny (1850: 63). As highlighted by Avram & Grädinaru (1993) and Vasicek (2002), the morphologically closest species is *Neolissoceras desmoceratoides* Wiedmann, 1966, but this Valanginian form exhibits less compressed section, arched flanks and wider umbilicus with sloping wall. In the last years, *N. grasianum*, type of the genus, has been studied by some authors, such as Reboulet (1996), Busnardo *et al.* (2003), Wippich (2003), Ettachfini (2004), Lukeneder (2004), Fischer & Gauthier (2006) and Joly & Mercier (2012).

FIG. 2. — Cretaceous nautiloid and ammonites of the d'Orbigny Collection of the National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência): **A**-**C**, *Angulithes triangularis* de Montfort, 1808 in oral (**A**) and lateral (**B**) views, and original label (**C**): *N°* 459/*Nautilus triangularis* (Montf), *Andar* 20° Cenomaniense, *Terreno* Cretaceo, *Localidade* Fouras (Charente inf.re); **D**-**G**, *Phylloceras* (*Hypophylloceras*) *tethys* (d'Orbigny, 1840) in ventral (**D**), lateral (**E**) and oral (**F**) views, and original label (**G**): *N°* 360/*Ammonites Tethys* (d'Orb), *Andar* 17° Neocomiense, *Terreno* Cretaceo, *Localidade* Arredores de [environs of] Sisteron (Basses Alpes); **H**-**K**, *Ptychophylloceras* (*Semisulcatoceras*) *semisulcatum* (d'Orbigny, 1840) in ventral (**H**), lateral (**I**) and oral (**J**) views, and original label (**K**): *N°* 359/*Ammonites semisulcatus* (d'Orb), *Andar* 17° Neocomiense, *Terreno* Cretaceo, *Localidade* Sisteron (Basses Alpes). Scale bar: 2 cm.

Family Hoplitidae Douvillé, 1890
Genus *Pleurohoplites* Spath, 1921
Subgenus *Pleurohoplites* (*Pleurohoplites*) Spath, 1921

Pleurohoplites* (*Pleurohoplites*) *renauxianus
(d'Orbigny, 1840)
(Fig. 3E, F)

Material. — An internal mould with matrix and without written or glued indications. Original label: *Nº* 464/*Ammonites Renauxianus* (d'Orb), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Mont-Blainville (Meuse). See Figs 1D; 3G.

Description
A medium-sized, compressed and moderately involute ammonite with suboval whorl section. Bended venter and flat flanks, and wide umbilici with arched walls. Ornamentation formed by approximately 15 small umbilical bullae per whorl that give rise to pairs of tenuous and proverse ribs. These ribs are straight on the inner flanks and projected on the outer flanks and the venter, thickening on the venterolateral margins, where they resemble to blunt and oblique nodes. Nearly unobservable suture lines.

Discussion
This upper Albian species was firstly reported in Mont-Blainville (Meuse), France, by d'Orbigny (1850: 145). Some other close species of the genus are *P. subvarians* Spath, 1928, *P. epigonus* Spath, 1928, *P. serpentinus* Spath, 1928, and *P. robusticostatus* Immel & Guoxiong, 2002, usually with stronger ribbing. In the last years, *P.* (*P.*) *renauxianus*, type of the genus, has been studied by Latil (1995), Fischer & Gauthier (2006) and Kennedy & Latil (2007), among others.

Family Acanthoceratidae de Grossouvre, 1894
Genus *Acanthoceras* Neumayr, 1875

Acanthoceras rhotomagense (Brongniart, 1822)
(Fig. 3H-J)

Material. — Six phosphatised internal moulds, one of them with a glued indication (463). Original label: *Nº* 463/*Ammonites rhotomagensis* (Lamarck), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Rouen (Seine inf.re). See Figs 1D; 3K.

Description
Relatively large-sized, evolute and ornamented ammonites with subpoligonal whorl section. Tabular venter, conspicuous ventrolateral margins, arched flanks and wide umbilici with bended walls. Ornamentation formed by 24-28 straight ribs per whorl, with umbilical, inner ventrolateral, outer ventrolateral and siphonal tubercles. During ontogeny, whorl section changes from depressed subrounded to compressed subpolygonal. Relatively simple acanthoceratid suture lines.

Discussion
Already cited in the Sainte-Catherine Mountain of Rouen by d'Orbigny (1840: 348), as characteristic of "des craies chloritées, des craies tufau [sic], ou des grès verts supérieurs" of France. This morphologically highly variable middle Cenomanian species, type of the genus, was attributed to Lamarck by some authors, such as d'Orbigny (1850, p. 146). Wright & Kennedy (1987) included within its synonymy numerous taxa proposed by different authors, as detailed by Barroso-Barcenilla (2004). Among the morphologically closest forms of the genus, the stratigraphically overlaying species *A. jukesbrownei* (Spath, 1926) has less numerous and more distant ribs with strong umbilical bullae, and weak inner ventrolateral tubercles that decline to give a characteristic trapezoidal (rather than polygonal) whorl section. In the last years, *A. rhotomagense* has been studied by some authors, such as Kennedy & Juignet (1993), Kaplan *et al.* (1998), Fischer & Gauthier (2006) and Kennedy *et al.* (2011).

Family Coilopoceratidae Hyatt, 1903
Genus *Coilopoceras* Hyatt, 1903

Coilopoceras requienianum (d'Orbigny, 1840)
(Fig. 4A, B)

Material. — Two partly silicified internal moulds with glued indications (518). Original label: *Nº* 518/*Ammonites Requienianus* (d'Orb), *Andar* 21º [corrected] Turoniense, *Terreno* Cretaceo, *Localidade* Uchaux (Vanduse) [sic]. See Figs 1D; 4C.

Description
Medium-sized and involute oxycones, with sublanceolate compressed section, whose maximum width occurs close to the inner third of the flanks. Sharp venter, arched flanks and very narrow umbilici. They have large siphuncle and weak ornamentation, with juvenile whorls showing very tenuous and clavate umbilical tubercles that become feeble and projected falcoid ribs, and adult spires exhibiting smooth surfaces. Suture lines with shallow and dentate external lobes and saddles of similar height, and numerous lateral elements.

Discussion
The specimen of d'Orbigny (1840: pl. 93, figs 1-2), originally collected in Uchaux, and nowadays belonging to the Requien Collection of the MHNA, has been designated by Kennedy & Wright (1984) as the lectotype. This species was firstly reported in Uchaux (Vaucluse), France, by d'Orbigny (1850, p. 189). Cobban & Hook (1980) suggested that many of the forms assigned to the genus *Coilopoceras* must be considered as mere synonyms of *C. requienianum*. In their detailed revision of this upper Turonian species, Kennedy & Wright (1984) included *Coilopoceras*? *grossouvrei* Hyatt, 1903, within the wide morphological variability of *C. requienianum*, and proposed the existence in the same species of sexual dimorphism formed by smooth and ribbed forms. Some other species of *Coilopoceras* include the type of the genus, *C. colleti* Hyatt, 1903, *C. springeri* Hyatt, 1903, and *C. inflatum* Cobban & Hook, 1980, usually with wider and less deeply incised suture lines. In the last years, *C. requienianum* has been studied by Meister & Rhalmi (2002), Fischer & Gauthier (2006), Nagm *et al.* (2010), Ayoub-Hannaa & Fürsich (2012), Nagm & Wilmsen (2012) and Robaszynski *et al.* (2014), among others.

Fig. 3. — Cretaceous ammonites of the d'Orbigny Collection of the National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência): **A**-**D**, *Neolissoceras grasianum* (d'Orbigny, 1840) in ventral (**A**), lateral (**B**) and oral (**C**) views, and original label (**D**): *N*º 357/*Ammonites grasanus* (d'Orb), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* S.t Julien (Hautes Alpes); **E**-**G**, *Pleurohoplites* (*Pleurohoplites*) *renauxianus* (d'Orbigny, 1840) in lateral (**E**) and ventral (**F**) views, and original label (**G**): *N*º 464/*Ammonites Renauxianus* (d'Orb), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Mont-Blainville (Meuse); **H**-**K**, *Acanthoceras rhotomagense* (Brongniart, 1822) in oral (**H**), lateral (**I**) and ventral (**J**) views, and original label (**K**): *N*º 463/*Ammonites rhotomagensis* (Lamarck), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Rouen (Seine inf.re). Scale bar: 2 cm.

Suborder ANCYLOCERATINA Wiedmann, 1966
Family TURRILITIDAE Gill, 1871
Genus *Turrilites* Lamarck, 1801
Subgenus *Turrilites* (*Turrilites*) Lamarck, 1801

Turrilites* (*Turrilites*) *costatus Lamarck, 1801
(Fig. 4D-E)

MATERIAL. — Four phosphatised internal moulds without written or glued indications. Original label: *Nº* 466/*Turrilites costatus* (Lamarck), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Rouen (Seine inf.re). See Figs 1D; 4F.

DESCRIPTION
Medium-sized turrilitid ammonites with subpoligonal whorl sections. Deeply incised inter-whorl junction and highly acute apical angle. Ornamentation formed by approximately 20 coarse oblique ribs per whorl, located on the exposed face, and obliterated in their lower part by a wide spiral groove. The ribs exhibit a row of strong and elongated tubercles below the groove, and two rows of tenuous tubercles above it. Nearly unobservable suture lines.

DISCUSSION
According to d'Orbigny (1840: 600), specimens of this species, characteristic of the "craie chloritée moyenne", were collected in Rouen (France) by him and by Brongniart, Passy, d'Archiac, de Vibraye and Largilliert. This middle Cenomanian heteromorph ammonite, type of the genus, has been recently studied by some authors, such as Wright & Kennedy (1996), Matsumoto & Takahashi (2001), Fischer & Gauthier (2006), Wilmsen & Nagm (2014), Robaszynski *et al.* (2014) and Meister & Piuz (2015). Some other morphologically close forms of the genus are *T. scheuchzerianus* Bosc, 1801, with coarse entire ribs at the later growth stages and lack of tubercles, and *T. acutus* Passy, 1832, with more depressed and less ornamented whorls.

Subclass COLEOIDEA Bather, 1888
Order BELEMNITIDA von Zittel, 1895
Suborder PACHYBELEMNOPSEINA
Riegraf *in* Riegraf, Janssen & Schmitt-Riegraf, 1998
Family Duvaliidae Pavlow, 1914
Genus *Duvalia* Bayle, 1878

Duvalia dilatata (de Blainville, 1827)
(Fig. 4G-I)

MATERIAL. — Five internal moulds (one of them fragmentary) without written or glued indications. Original label: *Nº* 351/*Belemnites dilatatus* (Blainville), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Cheiron perto de [near of] Castellanne (Basses Alpes). See Figs 1D; 4J.

DESCRIPTION
Elongated and compressed guards with rounded apex orientated towards the dorsal side. Dorsal and ventral sides bended, nearly parallel flanks and subelliptical cross-section. Apical region usually showing a row bulge at the dorsal side. Nor grooves or alveoli can be observed.

DISCUSSION
According to d'Orbigny (1840: 42), this species characterizes the Neocomian of the surroundings of Castellane, specially the locality of Cheiron (France), where it was already reported in 1825 by Émeric. Its wide morphological variability has allowed the individualization of three subspecies in literature, *D. dilatata dilatata*, *D. dilatata majoriana* Stoyanova-Vergilova, 1970, with a deeper alveolus, and *D. dilatata binervioides* Stoyanova-Vergilova, 1965, with a more compressed and a smaller adult size. Despite this, as detailed by Combémorel (1973), Janssen (1997) and Fischer & Gauthier (2006), some of the specimens assigned by d'Orbigny (1840) to *D. dilatata* have been subsequently remitted to other forms, such as *Pseudoduvalia polygonalis* (de Blainville, 1827), *Pseudoduvalia trabiformis* (Duval-Jouve, 1841), *Duvalia binervia* (Raspail, 1829) and *Duvalia emericii* (Raspail, 1829). In detail, as already noted by d'Orbigny (1847), *P. polygonalis* and *P. trabiformis* show slenderer shapes with the lower parts of the flanks sharper, giving subquadrate dorso-ventral cross-sections. *D. binervia* reaches a lower compression and a more angular morphology, and *D. emericii* exhibits a wide and deep lateral depression over each side. In the last years, the Hauterivian-lower Barremian species *D. dilatata*, type of the genus, has been studied by Avram & Grädinaru (1993), Janssen (1997, 2009), Janssen & Fözy (2004), Fischer & Gauthier (2006) and Janssen *et al.* (2012), among others.

Family MESOHIBOLITIDAE Nerodenko, 1983
Genus *Hibolithes* de Montfort, 1808

Hibolithes subfusiformis (Raspail, 1829)
(Fig. 4K-M)

MATERIAL. — Three internal moulds without written or glued indications. Original label: *Nº* 352/*Belemnites subfusiformis* (Raspail), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Cheiron (Basses Alpes). See Figs 1D; 4N.

DESCRIPTION
Elongated guards with subfusiform outline and very acute apex. Arched dorsal and ventral sides and flanks, and subcircular cross-section. Ventral region showing a groove at the anterior part. No alveoli can be observed.

DISCUSSION
According to d'Orbigny (1840: 51), this species is recorded in the surroundings of Castellane (close to Cheiron, France), from where it was sent to him since 1825 by Émeric, an active collaborator of Raspail (1829). Combémorel & Howlett (1993) proposed to use *Hibolites* Mayer-Eymar, 1883, non *Hibolithes* de Montfort, 1808, as generic name, on the basis that the original drawing of the latter author does not seem to correspond to the usual interpretation of this genus. D'Orbigny (1847) included this species in the synonymy of *Belemnites pistilliformis* de Blainville, 1827, but, as justified by Combémorel & Gayte (1981), they seem to belong to different genera. In fact, *Vaunagites pistilliformis*

FIG. 4. — Cretaceous ammonites and belemnites of the d'Orbigny Collection of the National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência): **A**-**C**, *Coilopoceras requienianus* (d'Orbigny, 1840) in lateral (**A**) and ventral (**B**) views, and original label (**C**): *Nº* 518/*Ammonites Requienianus* (d'Orb), *Andar* 21º [corrected] Turoniense, *Terreno* Cretaceo, *Localidade* Uchaux (Vanduse); **D**-**F**, *Turrilites* (*Turrilites*) *costatus* Lamarck, 1801 in lateral (**D**) and basal (**E**) views, and original label (**F**): *Nº* 466/*Turrilites costatus* (Lamarck), *Andar* 20º Cenomaniense, *Terreno* Cretaceo, *Localidade* Rouen (Seine inf.re); **G**-**J**, *Duvalia dilatata* (de Blainville, 1827) in dorsal view (**G**), section (**H**), lateral view (**I**), and original label (**J**): *Nº* 351/*Belemnites dilatatus* (Blainville), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Cheiron perto de [near of] Castellanne (Basses Alpes); **K**-**N**, *Hibolithes subfusiformis* (Raspail, 1829) in dorsal view (**K**), section (**L**), ventral view (**M**), and original label (**N**): *Nº* 352/*Belemnites subfusiformis* (Raspail), *Andar* 17º Neocomiense, *Terreno* Cretaceo, *Localidade* Cheiron (Basses Alpes); **O**-**R**, *Belemnitella mucronata* (von Schlotheim, 1813) in dorsal view (**O**), section (**P**), ventral view (**Q**), and original label (**R**): *Nº* 556/*Belemnitella mucronata* (d'Orb), *Andar* 22º Senoniense, *Terreno* Cretaceo, *Localidade* Epernay (Marne). Scale bar: 2 cm.

shows a circular posterior cross-section without groove. In the last years, the upper Valanginian-lower Barremian species *H. subfusiformis*, type of the genus, has been studied by some authors, such as Janssen & Fözy (2004), Fischer & Gauthier (2006), Janssen (2009) and Janssen *et al.* (2012).

Suborder BELEMNOPSEINA Jeletzky, 1965
Family Belemnitellidae Pavlow, 1914
Genus *Belemnitella* d'Orbigny, 1840

Belemnitella mucronata (von Schlotheim, 1813)
(Fig. 4O-Q)

Material. — Two internal moulds without written or glued indications. Original label: *Nº* 556/*Belemnitella mucronata* (d'Orb), *Andar* 22º Senoniense, *Terreno* Cretaceo, *Localidade* Épernay (Marne). See Figs 1D; 4R.

Description
Large and stout guards of subcylindrical outline and acute or obtuse apex with well-defined mucro. Subcircular cross-section, but with a ventral region slightly flattened and showing a straight fissure at its anterior part. Alveoli with large angle.

Discussion
Belemnitella mucronata was firstly reported in Epernay (Marne), France, by d'Orbigny (1850: 211). Christensen *et al.* (1975) redefined this species and selected a belemnite from the upper Campanian of Misburg (Germany) as neotype, but Riegraf (2000) indicated that an original specimen of the type series was rediscovered in 1996 in the HUB. *Belemnitella mucronata* is usually recorded with the belemnite species *Gonioteuthis quadrata* (de Blainville, 1827), with non-circular alveolar aperture and characteristic granulate surface. In the last years, the lower Campanian-lower Maastrichtian species *B. mucronata*, type of the genus, has been studied by Christensen (1995, 1997, 1998a, b), Riegraf (2000), Fischer & Gauthier (2006) and Jagt (2012), among others.

CONCLUSIONS

The research in course over the palaeontological collections rescued from the remains of the devastating fire that in 1978 destroyed much of the ancient building of the current National Museum of Natural History and Science (Museu Nacional de História Natural e da Ciência) of Lisbon, Portugal, nowadays held at this institution, has allowed the rediscovery of numerous fossils, including many original labels, with high historical and scientific interest. Among them, there are several specimens of the valuable palaeontological collection that d'Orbigny, according to the wishes of Napoleon III, offered in 1855 to Pedro V as an important contribution to re-establish the good relationships and the fruitful cooperation between France and Portugal.

The Cretaceous cephalopods of this historical collection and the corresponding original labels currently recovered are presented here, being most of them figured for the first time in this work, and studied in detail from a systematic and biostratigraphic point of view. These invertebrates correspond to 11 genera and 11 species that include nautiloids: *Angulithes triangularis* de Montfort, 1808; ammonoids: *Phylloceras* (*Hypophylloceras*) *tethys* (d'Orbigny, 1840), *Ptychophylloceras* (*Semisulcatoceras*) *semisulcatum* (d'Orbigny, 1840), *Neolissoceras grasianum* (d'Orbigny, 1840), *Pleurohoplites* (*Pleurohoplites*) *renauxianus* (d'Orbigny, 1840), *Acanthoceras rhotomagense* (Brongniart, 1822), *Coilopoceras requienianus* (d'Orbigny, 1840) and *Turrilites* (*Turrilites*) *costatus* Lamarck, 1801; and belemnoids: *Duvalia dilatata* (de Blainville, 1827), *Hibolithes subfusiformis* (Raspail, 1829) and *Belemnitella mucronata* (von Schlotheim, 1813). All of them come from relevant French outcrops, and they seem to have been selected by d'Orbigny with a systematically and biostratigraphically representative criterion, corresponding 9 of these 11 species to genotypes or subgenotypes.

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REFERENCES

Agassiz L. 1847. — *An Introduction to the Study of Natural History, in a Series of Lectures Delivered in the Hall of the College of Physicians and Surgeons, New York: Classification of the Mollusca, Lecture Number 5*. Greeley & McElrath, New York: 20-24.

Almaça C. 1996. — *A Natural History Museum of the 18th century: the Royal Museum and Botanical Garden of Ajuda*. Museu Nacional de História Natural (Museu Bocage), Lisboa, 28 p.

Almeida F. X. d' 1868. — *Notícia das colecções da secção mineralogica do Museu Nacional de Lisboa*. Typographia Lisbonense, Lisboa, 125 p.

Antunes M. T. 1986. — *Sobre a História da Paleontologia em Portugal, História e Desenvolvimento da Ciência em Portugal, 2*. Publicações do II Centenário da Academia das Ciências de Lisboa, Lisboa: 773-814.

Antunes M. T. 2000. — Paleontologia e Portugal. *Colóquio/Ciências* 25: 54-75.

Antunes M. T. & Taquet P. 2002. — Le roi Dom Pedro V et le paléontologue Alcide d'Orbigny : un épisode des relations scientifiques entre le Portugal et la France. *Comptes Rendus Palevol* 1: 639-647. https://doi.org/10.1016/S1631-0683(02)00042-8

Arkell W. J. 1950. — A classification of the Jurassic ammonites. *Journal of Paleontology* 24 (3): 354-364. https://www.jstor.org/stable/1299580

Avram E. & Grădinaru E. 1993. — A peculiar Upper Valanginian cephalopod fauna from the Carpatic Bend (Codlea town area, Romania): biostratigraphic and paleobiogeographic implications. *Jahrbuch der Geologischen Bundesanstalt* 136: 665-700.

Ayoub-Hannaa W. & Fürsich F. T. 2012. — Cenomanian-Turonian ammonites from eastern Sinai, Egypt, and their biostratigraphic significance. *Beringeria* 42: 57-92.

Barroso-Barcenilla F. 2004. — Acanthoceratidae y zonación de ammonites del Cenomaniense superior y del Turoniense inferior en el Área de Puentedey, Cuenca Vasco-Cantábrica, España. *Coloquios de Paleontología* 54: 83-114.

Barroso-Barcenilla F. 2006. — *Cefalópodos del Cenomaniense superior y del Turoniense inferior en el Surco Ibérico, España*. Unpublished PhD thesis, Universidad Complutense de Madrid, Madrid, 626 p.

Barroso-Barcenilla F. 2008. — Revisión de la terminología aplicada a los nautiloideos y ammonoideos postriásicos en español. *Boletín de la Real Sociedad Española de Historia Natural, Sección Geológica* 102: 121-145.

Barroso-Barcenilla F., Callapez P. M., Ferreira Soares A. & Segura M. 2011. — Cephalopod assemblages and depositional sequences from the upper Cenomanian and lower Turonian of the Iberian Peninsula (Spain and Portugal). *Journal of Iberian Geology* 37: 9-28. https://doi.org/10.5209/rev_JIGE.2011.v37.n1.1

Barroso-Barcenilla F., Brandão J. M., Callapez P. M. & Santos V. F. 2015. — Rediscovery of the holotypes of the Cenomanian (Upper Cretaceous) ammonites *Vascoceras gamai* Choffat, 1898, and *Vascoceras barcoicense* (Choffat, 1898). *Cretaceous Research* 56: 647-650. https://doi.org/10.1016/j.cretres.2015.06.017

Bather F. A. 1888. — Shell growth in Cephalopoda (Siphonopoda). *Annals and Magazine of Natural History (Series 6)* 1 (4): 298-310. https://doi.org/10.1080/00222938809460727

Bayle E. 1878. — Fossiles principaux des terrains, *in* Bayle E. & Zeiller R. (eds), *Explication de la Carte géologique de la France, 4 ; Atlas, 1*. Imprimerie nationale, Paris, 176 pls.

Benyoucef M., Meister C., Mebarki K., Läng É., Adaci M., Cavin L., Malti F. Z., Zaoui D., Cherif A. & Bensalah M. 2016. — Évolution lithostratigraphique, paléoenvironnementale et séquentielle du Cénomanien-Turonien inférieur dans la région du Guir (Ouest algérien). *Carnets de Géologie* 16: 271-295. https://doi.org/10.4267/2042/59926

Blainville H. M. D. de 1825. — Nautile, *in* Cuvier G. F. (ed.), *Dictionnaire des Sciences naturelles,* t. 34. Levrault, Strasbourg, Paris: 285-296. https://biodiversitylibrary.org/page/25303240

Blainville H. M. D. de 1827. — *Mémoire sur les Bélemnites, considérées zoologiquement et géologiquement*. Levrault, Strasbourg, Paris, 136 p. https://doi.org/10.5962/bhl.title.45666

Bosc L. A. G. 1801. — In: Roissy F de. (ed.), *Histoire Naturelle Générale et Particulière des Mollusques, 8*. Déterville, Paris, 448 p.

Brandão J. M. 2011. — Bacharel António Sousa Torres (1876-1958): Contributos de um "naturalista-geólogo" para a organização dos acervos geológicos das faculdades de ciências do Porto e Lisboa, *in* Fiolhais C., Simões C. & Martins D. (eds), *Congresso Luso-Brasileiro de História das Ciências, Livro de Actas*: 1136-1151.

Brongniart A. 1822. — Sur quelques terrains de Craie hors du Bassin de Paris, *in* Cuvier G. F. & Brongniart A. (eds), *Description géologique des environs de Paris*. Dufour G. & Ocagne E., Paris: 80-101. https://doi.org/10.5962/bhl.title.149831

Busnardo R., Charollais J., Weidmann M. & Clavel B. 2003. — Le Crétacé inférieur de la Veveyse de Châtel (Ultrahelvétique des Préalpes externes; canton de Fribourg, Suisse). *Revue de Paléobiologie* 22: 1-174.

Callapez P. M., Brandão J. M., Paredes R., Barroso-Barcenilla F., Santos V. F. & Segura M. 2015. — The Krantz collections of Palaeontology held at the University of Coimbra (Portugal): a century of teaching and museum activities. *Historical Biology* 27: 1113-1126. https://doi.org/10.1080/08912963.2014.939587

Choffat P. L. 1885. — *Section minéralogique de l'École Polytechnique de Lisbonne*. Annuaire géologique universel et Guide du Géologue, Paris: 343-344.

Choffat P. L. 1898. — *Recueil d'études paléontologiques sur la Faune crétacique du Portugal, 2 : Les Ammonées du Bellasien, des Couches à* Neolobites vibrayeanus*, du Turonien et du Sénonien*. Section des Travaux géologiques du Portugal, Lisbonne, 45 p.

Christensen W. K. 1995. — *Belemnitella* faunas from the Upper Campanian and Lower Maastrichtian Chalk of Norfolk, England. *Special Papers in Palaeontology* 51: 1-84.

Christensen W. K. 1997. — The Late Cretaceous belemnite family Belemnitellidae: Taxonomy and evolutionary history. *Bulletin of the Geological Society of Denmark* 44: 59-88.

Christensen W. K. 1998a. — *Belemnitella* from the lowermost Maastrichtian of Scania, southem Sweden. *Bulletin of the Geological Society of Denmark* 45: 11-21.

Christensen W. K. 1998b. — Upper Campanian and Lower Maastrichtian belemnites from the Mons Basin, Belgium. *Bulletin de l'Institut royal des Sciences naturelles de Belgique, Sciences de la Terre* 69: 97-131.

Christensen W. K., Ernst G., Schmid F., Schulz M. G. & Wood C. J. 1975. — *Belemnitella mucronata mucronata* (Schlotheim, 1813) from the Upper Campanian: neotype, biometry, comparison and biostratigraphy. *Geologisches Jahrbuch A* 28: 27-57.

Cobban W. A. & Hook S. C. 1980. — The Upper Cretaceous (Turonian) ammonite family Coilopoceratidae Hyatt in the Western Interior of the United States. *US Geological Survey Professional Paper* 119: 1-28. https://doi.org/10.3133/pp1192

Cobban W. A. & Kennedy W. J. 1994. — Cenomanian (Upper Cretaceous) nautiloids from New Mexico. *Bulletin of the US Geological Survey* 2073E: 1-3. https://doi.org/10.3133/b2073

Combémorel R. 1973. — Les Duvaliidae Pavlow (Belemnitida) du Crétacé Inférieur français. *Documents des Laboratoires de Géologie de la Faculté des Sciences de Lyon* 57: 131-185.

Combémorel R. & Gayte D. 1981. — *Vaunagites pistilliformis* (de Blainville) n. gen. et *V. nemausina* n. sp., deux bélemnites remarquables du Crétacé Inférieur du sud-est de la France. *Geobios* 14: 105-113. https://doi.org/10.1016/S0016-6995(81)80169-6

Combémorel R. & Howlett P. 1993. — Le genre *Hibolites*: *Hibolites* Mayer-Eymar, 1883, non *Hibolithes* Montfort, 1808, bélemnite du Jurassique. *Geobios* 26, Supplement 1: 67-72. https://doi.org/10.1016/S0016-6995(06)80362-1

Coquand H. 1862. — Géologie et paléontologie de la région sud de la Province de Constantine. *Mémoires de la Société d' Émulation de la Provence* 2: 1-341. https://gallica.bnf.fr/ark:/12148/bpt6k55312179/f5.item

Costa A. A. M. 1938. — O Museu Mineralógico e Geológico. *Revista da Faculdade de Ciências* 1: 121-175.

Cuvier G. F. 1797. — *Tableau élémentaire de l'Histoire naturelle des animaux*. Baudouin, Paris, 710 p. https://doi.org/10.5962/bhl.title.11203

Daget J. & Saldanha L. 1989. — Histoires naturelles franco-portugaises du XIX^{ème} siècle. *Publicações Avulsas do Instituto Nacional de Investigação das Pesca*s 15: 1-252.

Douvillé H. 1890. — Sur la classification des Cératites de la Craie. *Bulletin de la Société géologique de France, 3e série* 18: 275-292.
Duval-Jouve J. 1841. — *Bélemnites des terraines crétacés inférieurs des environs de Castellane (Basses-Alpes), considérées géologiquement et zoologiquement, avec la description de ces terrains*. Fortin, Masson et Cie, Paris, 80 p.
Ettachfini M. 2004. — Les ammonites néocomiennes dans l'Atlas Atlantique (Maroc). *Strata, Série 2, Mémoire* 43: 1-224.
Felismino D. 2014. — *Saberes, natureza e poder*. Museus da Universidade de Lisboa, Lisboa, 79 p.
Ferreira J. B. 1893. — O Museu Nacional de História Natural. *Revista de Educação e Ensino* 8: 301-306.
Fischer J. C. 2002. — La Paléontologie française d'Alcide d'Orbigny, *in* Taquet P. (ed.), *Alcide d'Orbigny : Du Nouveau Monde… au passé du Monde*. Muséum national d'Histoire naturelle, Paris: 101-105.
Fischer J. C. & Gauthier H. 2006. — *Révision critique de la Paléontologie française d'Alcide d'Orbigny, 4 : Céphalopodes Crétacés*. Backhuys Publishers, Leiden, 292 p.
Frank J., Wilmsen M. & Košťák M. 2013. — The endemic and morphologically remarkable nautilid genus *Deltocymatoceras* Kummel, 1956 from the Late Cretaceous of Central Europe. *Bulletin of Geosciences* 88: 793-812. https://doi.org/10.3140/bull.geosci.1402
Gill T. 1871. — Arrangement of the Families of Mollusks. *Smithsonian Miscellaneous Collections* 227: 1-49. https://doi.org/10.5962/bhl.title.1740
Grossouvre A. de 1894. — *Mémoires pour servir à l'explication de la carte géologique détaillée de la France, Recherches sur la craie supérieure, 2 : Paléontologie, Les ammonites de la craie supérieure*. Imprimerie nationale, Paris, 264 p.
Hyatt A. 1889. — Genesis of the Arietidae. *Smithsonian Contributions to Knowledge* 673: 1-238. https://doi.org/10.5962/bhl.title.65638
Hyatt A. 1903. — *Pseudoceratites* of the Cretaceous. *Monographs of the US Geological Survey* 44: 1-351. https://doi.org/10.3133/m44
Immel H. & Guoxiong H. 2002. — Cretaceous cephalopods of the Tethyan Himalaya of southern Tibet. *Zitteliana* 23: 79-105. https://biodiversitylibrary.org/page/28232497
Jagt J. W. M. 2012. — Belemnitellid coleoids (Mollusca, Cephalopoda) from the type Maastrichtian, the Netherlands and Belgium, *in* Jagt J. W. M., Donovan S. K. & Jagt-Yazykova E. A. (eds), Fossils of the type Maastrichtian (Part 1). *Scripta Geologica Special Issue* 8: 93-111. http://www.repository.naturalis.nl/record/428551
Janssen N. M. M. 1997. — Mediterranean Neocomian belemnites, part. 1: Río Argos sequence (province of Murcia, Spain): the Berriasian-Valanginian and the Hauterivian-Barremian boundaries. *Scripta Geologica* 114: 1-55. http://www.repository.naturalis.nl/record/317415
Janssen N. M. M. 2009. — Mediterranean Neocomian belemnites, 3: Valanginian-Hauterivian belemnites. *Carnets de Géologie* 2009: 1-44. https://doi.org/10.4267/2042/23732
Janssen N. M. M. & Főzy I. 2004. — Neocomian cephalopods from the Bersek Hill (Gerecse Mountains, Hungary), 1: Hauterivian-earliest Barremian. *Fragmenta Palaeontologica Hungarica* 22: 27-49.
Janssen N. M. M., Clément A. & Bont W. 2012. — Mediterranean Neocomian belemnites, 4: belemnites of the Barremian stratotype section. *Carnets de Géologie* 2012: 201-274. https://doi.org/10.4267/2042/48307
Jeletzky J. A. 1965. — Taxonomy and phylogeny of fossil Coleoidea (= Dibranchiata). *Geological Survey of Canada, Paper 65-2* 42: 72-76.
Joly B. 1993. — Les Phyllocerataceae malgaches au Crétacé (Phylloceratina, Ammonoidea). *Documents des Laboratoires de Géologie de Lyon* 127: 1-171
Joly B. 2000. — Les Juraphyllitidae, Phylloceratidae, Neophylloceratide (Phylloceratacеae, Phylloceratina, Ammonoidea) de France au Jurassique et au Crétacé. *Geobios* 33: 4-204. https://doi.org/10.1016/S0016-6995(00)80001-7
Joly B. & Mercier P. 2012. — Étude des faunes de Phylloceratoidea des marnes valanginiennes de Senez-Lioux (Alpes-de-Haute-Provence): Comparaison avec quelques localités de la Drôme et de l'Ardèche. *Carnets de Géologie* 2012: 137-172. https://doi.org/10.4267/2042/47505
Kaplan U., Kennedy W. J., Lehmann J. & Marcinowski R. 1998. — Stratigraphie und Ammonitenfaunen des westfälischen Cenoman. *Geologie und Paläontologie in Westfalen* 51: 1-236.
Kennedy W. J. & Juignet P. 1993. — A revision of the ammonite faunas of the Type Cenomanian, 4: Acanthoceratinae (*Acompsoceras*, *Acanthoceras*, *Protacanthoceras*, *Cunningtoniceras* and *Thomelites*). *Cretaceous Research* 14 (2): 145-190. https://doi.org/10.1006/cres.1993.1012
Kennedy W. J. & Latil J. L. 2007. — The Upper Albian ammonite succession in the Montlaux section, Hautes-Alpes, France. *Acta Geologica Polonica* 57 (4): 453-478.
Kennedy W. J. & Wright C. W. 1984. — The Cretaceous ammonite *Ammonites requienianus* d'Orbigny, 1841. *Palaeontology* 27 (2): 281-293. http://go.palass.org/496
Kennedy W. J., Amédro F., Robaszynski F. & Jagt J. W. M. 2011. — Ammonite faunas from condensed Cenomanian-Turonian sections ('Tourtias') in southern Belgium and northern France. Netherlands *Journal of Geosciences – Geologie en Mijnbouw* 90: 209-238. https://doi.org/10.1017/S0016774600001128
Kummel B. 1956. — Post-Triassic nautiloid genera. *Bulletin of the Museum of Comparative Zoology at Harvard College* 114 (7): 324-494. https://biodiversitylibrary.org/page/4777846
Lamarck J. P. B. A. de 1801. — *Systême des animaux sans vertèbres*. Déterville, Paris, 432 p. https://doi.org/10.5962/bhl.title.14255
Latil J. L. 1995. — The Dispar zone in south-east France and comments about the biozonation of Albian in the Tethyan realm: biostratigraphy and palaeontology (ammonites). *Géologie alpine,* Mémoire 20: 67-111.
Lauriat-Rage A. 2002. — La collection et la salle d'Orbigny, *in* Taquet P. (ed.), *Alcide d'Orbigny : Du Nouveau Monde… au passé du Monde*. Muséum national d'Histoire naturelle, Paris: 106-112.
Lukeneder A. 2004. — Late Valanginian ammonoids: Mediterranean and Boreal elements: Implications on sea-level controlled migration (Ebenforst Syncline, Northern Calcareous Alps, Upper Austria). *Austrian Journal of Earth Sciences* 95/96: 46-59.
Matsumoto T. & Takahashi T. 2001. — Further notes on the turrilitid ammonites from Hokkaido, 2 (Studies of the Cretaceous ammonites from Hokkaido, 90). *Palaeontological Research* 5: 163-176.
Mayer-Eymar K. 1883. — Die Grundzüge der Classification der Belemniten. *Zeitschrift der Deutschen Geologischen Gesellschaft* 35: 640-643. https://biodiversitylibrary.org/page/43673559
Meister C. & Piuz A. 2015. — Cretaceous ammonites from the Sultanate of Oman (Adam Foothills). *GeoArabia* 20: 17-74.
Meister C. & Rhalmi M. 2002. — Quelques ammonites du Cénomanien-Turonien de la région d'Errachidia-Boudnid-Erfoud (Partie méridionale du Haut Atlas Central, Maroc). *Revue de Paléobiologie* 21: 759-779.
Montfort D. de 1808. — *Conchyliologie systématique, et classification méthodique des coquilles, t. 1 : Coquilles univalves cloisonnées*. F. Schoell, Paris, 409 p. https://biodiversitylibrary.org/page/50549837
Nagm E. & Wilmsen M. 2012. — Late Cenomanian-Turonian (Cretaceous) ammonites from Wadi Qena, central Eastern Desert, Egypt: Taxonomy, biostratigraphy and palaeobiogeographic implications. *Acta Geologica Polonica* 62: 63-89. https://doi.org/10.2478/v10263-012-0003-1
Nagm E., Wilmsen M., Aly M. F. & Hewaidy A. G. 2010. — Upper Cenomanian-Turonian (Upper Cretaceous) ammonoids from the western Wadi Araba, Eastern Desert, Egypt. *Cretaceous Research* 31: 473-499. https://doi.org/10.1016/j.cretres.2010.05.008
Nerodenko V. M. 1983. — Lower Cretaceous belemnites of the

southern USSR [in Russian], *in* STAROBOGATOV Y. I. & NESIS K. N. (eds), Systematics and ecology of cephalopod molluscs. *Academy of Sciences of the Zoological Institute* 1983: 42-43.
NEUMAYR M. 1875. — Die Ammoniten der Kreide und die Systematik der Ammonitiden. *Zeitschrift der Deutschen Geologischen Gesellschaft* 25: 854-942.
OPPEL A. 1865. — Die Tithonische Etage. *Zeitschrift der Deutschen Geologischen Gesellschaft* 17: 535-558.
ORBIGNY A. D' 1840-1842. — *Paléontologie française, Terrains crétacés, 1 : Céphalopodes*. Masson, Paris, 662 p. + 148 pls.
ORBIGNY A. D' 1847. — *Paléontologie française, Terrains crétacés : Supplément*. Bertrand, Paris, 28 p. + 9 pls. https://biodiversitylibrary.org/page/34283260
ORBIGNY A. D' 1850. — *Prodrome de Paléontologie stratigraphique universelle, 2 : Terrains jurassiques, crétacés et tertiaires*. Masson, Paris, 427 p. https://biodiversitylibrary.org/page/41091877
PASSY A. 1832. — *Description géologique du département de la Seine-inférieure*. Nicétas Periaux, Rouen, 371 p.
PAVLOW A. P. 1914. — Jurassic and early Cretaceous cephalopods from northern Siberia (in Russian). *Memoirs of the Imperial Academy of Sciences, Series 8* 21: 1-68.
QUENSTEDT F. A. 1845-1849. — *Petrefactenkunde Deutschlands, 1: Cephalopoden*. L.F. Fues, Tübingen: 1-104 [1845]; 105-184 [1846]; 185-264 [1847]; 265-742 [1848]; 473-580 [1849]. https://doi.org/10.5962/bhl.title.85310
RASPAIL F. V. 1829. — Histoire naturelle des bélemnites, accompagnée de la description et de la classification des espèces que M. Émeric, de Castellane, a recueillies dans les Basses-Alpes de Provence. *Annales des Sciences d'Observation* 1: 271-331. https://gallica.bnf.fr/ark:/12148/bpt6k5784374g/f302.item
REBOULET S. 1996. — L'évolution des ammonites du Valanginien-Hauterivien inférieur du basin Vocontien et de la plate-forme provençale (Sud-Est de la France) : Relations avec la stratigraphie séquentielle et implications biostratigraphiques. *Documents des Laboratoires de Géologie de Lyon* 137: 1-371.
RIEGRAF W. 2000. — The belemnites described by Baron Ernst Friedrich von Schlotheim (1764-1832). *Paläontologische Zeitschrift* 74: 281-303. https://doi.org/10.1007/BF02988102
RIEGRAF W., JANSSEN N. M. M. & SCHMITT-RIEGRAF C. W. 1998. — Cephalopoda Dibranchiata fossils (Coleoidea), 2, *in* WESTPHAL F. (ed.), *Fossilium Catalogus, 1: Animalia, 135*. Backhuys Publishers, Leiden, 512 p.
ROBASZYNSKI F., AMÉDRO F., DEVALQUE C. & MATRION B. 2014. — Le Turonien des massifs d'Uchaux et de la Cèze (SE France): Migration globale d'ammonites et conséquences sur la zonation internationale, rudistes et corrélations entre les massifs. *Mémoires de la Classe des Sciences, Série 4,* 2: 1-280.
SALFELD H. J. C. A. 1924. — *Die Bedeutung der Konservativstämme für die Stammesentwicklung der Ammonoideen*. M. Weg, Leipzig: 1-16.
SCHLOTHEIM B. F. VON. 1813. — Beiträge zur Naturgeschichte der Versteinerungen in geognostischer Hinsicht. *Leonhard's Taschenbuch für die gesummte Mineralogie mit Hinsieht auf die neuesten Entdeckungen* 7: 1-134.
SEGURA M., BARROSO-BARCENILLA F., CALLAPEZ P. M., GARCÍA-HIDALGO J. F. & GIL J. 2014. — Depositional Sequences and Cephalopod Assemblages in the upper Cenomanian-lower Santonian of the Iberian Peninsula (Spain and Portugal). *Geologica Acta* 12: 19-27.
SEQUEIRA G. M. 1949. — Uma instituição de cultura atravez de quatro séculos. *Arquivos da Faculdade de Ciências* 3: 1-20.
SPATH L. F. 1921. — On Cretaceous Cephalopoda from Zululand. *Annals of the South African Museum* 12: 217-321. https://biodiversitylibrary.org/page/1517806
SPATH L. F. 1923. — A monograph of the Ammonoidea of the Gault, 1. *Monograph of the Palaeontographical Society* 75: 1-72.
SPATH L. F. 1926. — On new ammonites from the English Chalk. *Geological Magazine* 63: 77-83. https://doi.org/10.1017/S0016756800083710
SPATH L. F. 1927. — Revision of the Jurassic Cephalopod Fauna of Kach (Cutch), 1. *Palaeontologica Indica, New Series 9, Memoir* 2: 1-71.
SPATH L. F. 1928. — A monograph of the Ammonoidea of the Gault, 6. *Monograph of the Palaeontographical Society London* 80: 207-266.
STOYANOVA-VERGILOVA M. 1965. — Représentants de la sous-famille Duvaliinae Pavlow (Belemnitida) du Crétacé Inférieur en Bulgarie. *Travaux sur la Géologie de Bulgarie, Série Paléontologie* 7: 179-223.
STOYANOVA-VERGILOVA M. 1970. — Les fossiles de Bulgarie, 4: Crétacé Inférieur, Belemnitida. *Académie bulgare des Sciences* 1970: 1-72.
SUESS E. 1865. — Über Ammoniten. *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Klasse* 52: 71-89. https://biodiversitylibrary.org/page/6447212
VASICEK Z. 2002. — Lower Cretaceous Ammonoidea in the Podbranč Quarry (Pieniny Klippen Belt, Slovakia). *Bulletin of the Czech Geological Survey* 77: 187-200.
WIEDMANN J. 1960. — Zur Systematik jungmesozoischer Nautiliden. *Palaeontographica, Abteilung A* 115: 144-206.
WIEDMANN J. 1966. — Stammesgeschichte und System der posttriadrischen Ammonoideen. Ein Ueberblick. *Neues Jahrbuch für Geologie und Paläontologie Abhandlungen* 125: 49-79, 127: 13-81.
WIESE F. & SCHULZE F. 2005. — The upper Cenomanian (Cretaceous) ammonite *Neolobites vibrayeanus* (d'Orbigny, 1841) in the Middle East: Taxonomic and palaeoecologic remarks. *Cretaceous Research* 26: 930-946. https://doi.org/10.1016/j.cretres.2005.06.005
WILMSEN M. 2000. — Late Cretaceous nautilids from northern Cantabria, Spain. *Acta Geologica Polonica* 50: 29-43.
WILMSEN M. & NAGM E. 2014. — Ammoniten in "Kreide-Fossilien in Sachsen". *Geologica Saxonica* 60: 201-241.
WIPPICH M. G. E. 2003. — Valanginian (Early Cretaceous) ammonite faunas from the western High Atlas, Morocco, and the recognition of western Mediterranean "standard" zones. *Cretaceous Research* 24: 257-374. https://doi.org/10.1016/S0195-6671(03)00049-1
WRIGHT C. W. 1996. — Cretaceous Ammonoidea, *in* KAESLER R. L. (ed.), *Treatise on Invertebrate Paleontology, Mollusca L (4)*. Geological Society of America & University of Kansas Press, Lawrence, 362 p.
WRIGHT C. W. & KENNEDY W. J. 1987. — The Ammonoidea of the Lower Chalk, 2. *The Palaeontographical Society, Monograph* 139: 127-218.
WRIGHT C. W. & KENNEDY W. J. 1996. — The Ammonoidea of the Lower Chalk, 5. *The Palaeontographical Society, Monograph* 150: 320-403.
ZITTEL K. A. VON. 1884. — Cephalopoda, *in* ZITTEL K. A. VON (ed.), *Handbuch der Paläontologie, 1; Abteilung, 2; Lieferung, 3*. R. Oldenbourg, München, Leipzig, 893 p. https://doi.org/10.5962/bhl.title.34265
ZITTEL K. A. VON. 1895. — *Grundzüge der Paläontologie (Paläzoologie)*. R. Oldenbourg, München, Leipzig, 971 p. https://doi.org/10.5962/bhl.title.50145

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