

FOREIGN FOSSILS COLLECTION

INFORMATION SHEET 1 (CASES 213-223; 246-257)

The Foreign Fossils Collection consists of some 6000 specimens, of which almost 900 are on display. The collection was created between the mid 19th and early 20th centuries, and is of great historical interest since most of the specimens come from famous or vanished sites. The collection is displayed in chronological order starting from the earliest period, the Cambrian (about 542 million years ago), until reaching the Quaternary, the most recent period.



CASE 214 PALAEOZOIC-ORDOVICIAN

The fossil remains of extinct organisms have been found from throughout the Palaeozoic Era, which spans the Cambrian (542 million years ago) to the Permian (250 million years ago). Some of the taxonomic phyla and classes exhibited here still have extant representatives, but others do not. Such is the case of the trilobites. These formed the most highly diversified and geographically dispersed group of arthropods during the Palaeozoic. This specimen is notable for its large size. Giant trilobites from Arouca can measure up to 70 cm in length, although in general they are rarely more than 10 cm long.

Ogyginus? fortleyi.
Ordovician (470 million years ago).
Arouca (Portugal).
Maximum dimension: 40 cm.

This fossil reveals aspects of trilobite behaviour, with several individuals of the same species appearing in a line, one behind another. This gregarious behaviour might be associated with moulting or breeding periods, or with eating habits or way of life.

Ampyx cf. priscus.
Ordovician (485 million years ago).
Akka (Morocco).
Maximum dimension: 15 cm.

Like all other arthropods, the trilobites had an exoskeleton. In order to grow, they were obliged to shed this external carapace to allow a larger one to develop. These discarded exoskeletons are called exuviae. Trilobites moulted several times during their lifetime, and thus exuviae are relatively common in the fossil record.

Isotelus maximus.
Late Ordovician (445 million years ago).
Ohio (United States of America).
Maximum dimension: 14 cm.

Although the morphology of this specimen resembles that of a trilobite, it is in fact a different arthropod. The taxonomic affinity of this organism has been debated ever since it was discovered, and it was originally interpreted as a polyplacophoran mollusc (chitons). The main difference between the trilobites and *Duslia* is the latter's absence of the posterior part of the exoskeleton, called the pygidium.

Duslia insignis.
Late Ordovician (445 million years ago).
Morocco.
Maximum dimension: 7.5 cm.

CASE 218 PALAEOZOIC-DEVONIAN

This specimen is notable among the representatives of the kingdom Plantae because it belongs to one of the oldest genera of plants in existence. Vascular plants first appeared, diversified and spread in the Devonian, and subsequently predominated among the land plants.

Relimia hostimense.
Middle Devonian (380 million years ago).
Prague (Czech Republic).
Maximum dimension: 9 cm.

CASE 221 PALAEOZOIC-CARBONIFEROUS

Notable among the material from the Carboniferous and Permian (cases 221, 222 and 223) are these specimens from localities in the German regions of Westphalia and Thuringia that have been used to define the systems or stages known as the Westphalian (Late Carboniferous) and Thuringian (Middle Permian). Consequently, these specimens provide reference material for study because they come from what are known as type localities.

Pecopteris sp.
Late Carboniferous (325 million years ago).
Westphalia (German).
Maximum dimension: 7 cm.



**WALL DISPLAY
TRIASSIC**

Displayed on the wall is an extraordinary example of a crinoid. Also known as “sea lilies”, crinoids are the earliest known echinoderms and still have living representatives today. This specimen is from the German Triassic and is in an exceptional state of preservation, conserving the entire stem, which bears the crown at one end and attaches the organism to the seabed at the other. It is composed of numerous ossicles or platelets that are stacked one on top of another and often fall apart when the animal dies, so its preservation is very rare.

Encrinurus lilliformis.
Middle Triassic (245 million years ago).
Alverdissen (Germany).
Maximum dimension: 90 cm.



**CASE 246
MESOZOIC-TRIASSIC**

Several lineages of aquatic reptiles existed during the Mesozoic, but the vast majority of them disappeared at the end of the Cretaceous. *Keichousaurus hui* was a small marine reptile (15-30 cm in length) that lived during the Triassic (250-205 million years ago). It belongs to the same group as the plesiosaurs, large marine reptiles that lived during the Mesozoic. Some specimens of this species have been found with embryos inside, which suggests that they were viviparous, as were other extinct marine reptiles such as the ichthyosaurs and mosasaurs.

Keichousaurus hui.
Middle Triassic (245 million years ago).
Guizhou (China).
Maximum dimension: 22 cm.



**WALL DISPLAY
JURASSIC**

Replica of an ichthyosaur specimen (marine reptile). This locality has also yielded other marine reptiles such as plesiosaurs, as well as very common invertebrates in Jurassic seas, such as ammonites or complete crinoid colonies. Due both to its physical characteristics and habits, *Stenopterygius* resembles present day dolphins. It inhabited the open seas and is known to have fed on fish and cephalopods because the stomach contents have been preserved in some fossils. Thanks to the discovery of the fossil of a female ichthyosaur giving birth, we also know that they were viviparous and delivered their offspring tail rather than head first, as do present day cetaceans.

Stenopterygius quadriscissus.
Early Jurassic (187 million years ago).
Holzmaden (Germany).
Maximum dimension: 180cm.



**CASE 248
MESOZOIC-JURASSIC**

One of the groups of marine organisms that existed during the Mesozoic has left abundant fossil remains. This was the Ammonoidea, a group of cephalopod molluscs similar to present day squid and cuttlefish. This ammonite is in an excellent state of preservation, still conserving the nacre on its outer shell. It is thought that the ammonoids had very thin, organic shells, and thus they are rarely preserved.

Perisphinctes sp.
Late Jurassic (154 million years ago).
Tuléar (Madagascar).
Maximum dimension: 16 cm.



**CASE 254
CENOZOIC-EOCENE**

This case contains several fossils from Antarctica, and more specifically from Seymour Island, located on the northern tip of Graham Land, in the western Antarctic Peninsula. The first fossils were discovered there in 1882. Since then, numerous palaeontological surveys have been conducted on the island, and these have contributed to our understanding of global cooling during the Eocene, a process that culminated with the onset of Antarctic glaciation. Most of the specimens displayed here are marine bivalve molluscs, but there is also a gastropod and a trace fossil of bioturbation, all in a perfect state of preservation.

Cucullaea sp.
Eocene (46 million years ago).
Antarctic.
Maximum dimension: 9 cm.



**CASE 255
CENOZOIC-EOCENE**

The Eocene deposits in the Paris Basin (France) are among the most important Cenozoic deposits worldwide, due to the abundance and excellent state of preservation of the specimens. The Foreign Fossils Collection includes nearly 1,000 specimens from localities within this unique area, such as Grignon, Fontainebleau and Cuise. This case contains numerous fossils found at these sites, primarily bivalve molluscs and gastropods.

Clavilithes parisiensis.
Eocene (46 million years ago).
Cuise (France).
Maximum dimension: 7 cm.