

## Carboniferous Flora and Fauna

The museum contains fine collections of Carboniferous floras and faunas especially from the Coal Measures of the South Staffordshire Coalfield. Of particular importance is the material from the Coseley lagerstätte.

### Fossils from Coseley

The fossils found near Coseley in the West Midlands are preserved in fine grained, sideritic ironstone nodules of Upper Carboniferous, Westphalian B, age (approximately 300 million-year-old).

Ironstone nodules, which often formed around organic matter, were extracted from many mines and collieries in the Black Country as a source of iron for the local industries. Material from the mines consisting of the ironstone nodules, mudstone and coal was often brought to the surface and spread out in fields to dry out. Local women, known in the Black Country as 'pit bonk wenches', were paid to pick out the ironstone and any coal or other useful mineral material.

The museum has numerous examples of the fossiliferous nodules, many of which were collected in the 19th Century when numerous mines and collieries were working in the area. Sir Charles Holcroft who was a successful iron and coal master in the Black Country, amassed a particularly fine collection which came to the museum in 1917.

The exceptionally well-preserved fossils include a highly diverse range of plants, and a fauna that contains horseshoe crabs, insects, millipedes, arachnids, crustaceans and fish. The assemblage of fossils and associated rocks indicate that 310 million years ago the area was a deltaic environment containing various freshwater, brackish water and terrestrial habitats.



Fossil plants from Coseley

### Footprints from Alveley

In 1917, Dr Frank Raw of the Geology Department at the University of Birmingham, collected an important series of late Carboniferous fossil footprints (trace fossils) from near Alveley, in Shropshire. The footprints were found on the base of a red sandstone bed, from which Raw extracted over 200 individual slabs. These can be reassembled to produce the original very extensive trackways made by many different animals of various sizes, with many crossing one another and some with impressions of a tail. Some slabs have original rippled surfaces on which small arthropod tracks have also been preserved. No actual fossil remains of the animals that made the footprints are preserved, although Raw did collect some plant fossils from similar rocks in the Alveley area.



Millipede from Coseley



Footprints from Alveley

These trace fossils and the rocks in which they are found, provide a wealth of information about the environment and ecosystem 310 million years ago. The footprints, trackways, plant fossils and characteristics of the rocks indicate that 310 million years ago the area was a warm, river floodplain on which plants, particularly club-mosses (lycopsids) grew.

Pools or small lakes developed on the flood plain which were colonised by small arthropods, various sized amphibians and reptiles. There is evidence of both carnivorous and herbivorous animals co-existing within the environment. Further evidence of the palaeoclimate is provided by features preserved in the rocks such as, suncracks indicating periods of drying out of the lakes, and rain prints indicating periodic rainfall. To preserve the footprints and tracks, the original impressions made by the fauna were rapidly buried by the sand, which probably occurred during storm induced flooding.