Chapter 13
COTTBUS: Museum of Natural History and Environment in Cottbus

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Geological/palaeontological collecting has had tradition in Cottbus, at least since 1905, when the Association for Local History was established. Over the Second World War nothing of these older collections has survived—except for an attractive 2.14 m long skeleton of a fish saurian *Stenopterygius quadriscissus* from the Jurassic of Holzmaden.

When after the Second World War in 1946 a municipal museum was founded in the castle of Prince Pückler, it took until 1961, before a department of natural science was established, which was expanded by two geologists—the authors—in 1974. Since the Municipal Museum became a District Museum for the district of Cottbus, the new Department of Geology was then responsible for the entire district of Cottbus, which approximately corresponds to the landscape of Lower Lusatia (Niederlausitz), the center of which was the city of Cottbus, which at that time had up to 130,000 inhabitants.

After the political change of the year 1989 the independent Museum of Nature and the Environment was developed from the Department of Natural History in 1995, but the exhibition was closed in 2005, and collections and personnel were added to the Municipal Museum, which is caring only for the urban area. The staff was also reduced for financial reasons. The authors did not receive any successors after their retirement. Although the Cottbus Nature Museum was the only one in Brandenburg in which geological work was being carried out, neither the city nor the regional government had any interest in preserving the nature museum as an institution. In contrast to modern art, which is generously financially supported, the Brandenburg Minister of Science, Research and Culture considers a natural history museum in Cottbus to be superfluous in spite of intensive mining in the region. That is why today the Department of Natural History of the Municipal Museum has only one staff member for the biological and geological collections, which has only the task of supervising the collections (Striegler 2010).

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A geological collection was built up especially between 1974 and the political change in 1989/1990, which today comprises 60,000 objects, the biological collection has even 400,000 samples.

For the Department of Geology, the most important area for geological collecting was the entire Lower Lusatia in the south of the present state of Brandenburg. This area is predominantly lowland, which during the Pleistocene was characterized by several glacier advances of the inland ice with a striking end moraine, the Lusatian Dividing Hills (Lausitzer Grenzwall) from the Saalian II glacial. The glacial sediments are covering the Tertiary deposits in the north-east of the territory, paleozoic to pre-Cambrian rocks in the south-west of the Lusatian Main Fault (Lausitzer Hauptabbruch). The higher tertiary layers (mainly Middle and Upper Miocene) were accessible through up to 15 brown coal opencast mines. Thus the geological collection activities were aligned with tertiary and quaternary sediments (Fig. 13.1).

Three quarters of the geological collection of the museum are concerning fossils, half the fossil samples are from the Lower Lusatia. Most fossils of the Lower Lusatia were collected in three geological excavations of the museum: one in upper Miocene layers and two in Eemian interglacial lake basins.

Out of a leaf-bearing clay from Wischgrund near Lauchhammer (Tortonium), there are more than 11,000 clay plates in the museum, containing mainly leaves (Fig. 13.2) and conifer needles in 78 species of trees and shrubs, as well as coniferous cones, besides seeds and fruits of deciduous and coniferous plants and seeds of herbaceous plants (predominantly aquatic plants) in 33 species (Striegler 2017). These objects are the basis for the reconstruction of a landscape of the primeval Elbe river on an area of 1.5 hectare by means of recent related trees (Fig. 13.3) under the name "Niederlausitzer Tertiärwald" (Striegler and Striegler 2002).

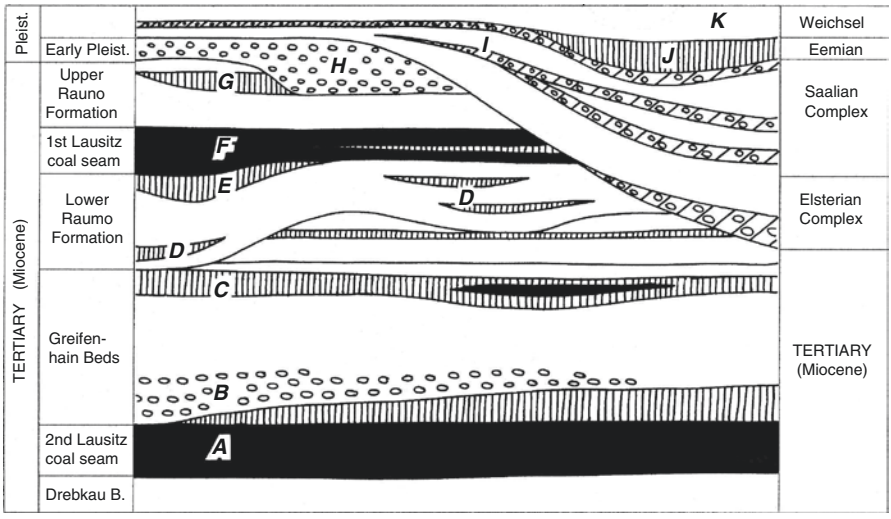

Fig. 13.1 Synopsis of fossil-bearing beds in the opencast mines of Lower Lusatia B—Seese gravel association, G—Leaf-bearing clay of Wischgrund

Fig. 13.2 Fossil leaf of *Liquidambar triloba* from the leaf-bearing clay of Wischgrund (Upper Miocene)

Fig. 13.3 Autumnal aspect of the *Taxodium* swamp in the Niederlausitzer Tertiärwald in Cottbus

The excavation Schönfeld on the edge of the opencast mine Seese-West has brought over 5000 finds out of the lake deposits of the Eemian warm period (Striegler and Striegler 1991, 1996). Most of these are karpological remains, but also leaves of trees, freshwater molluscs, bones of fishes, amphibians, reptiles, birds and mammals. A special feature is the detection of a population of pond turtle (*Emys orbicularis*) with more than 50 individuals (Fig. 13.4).

Also from lake deposits of the Eemian interglacial are about 4000 finds from the geological excavation located on the edge of the opencast mine Jänschwalde near Cottbus. This occurrence of interglacial sediments and fossils was already known by mammalian bones as early as 1892. The former investigator A. Nehring compared the foundations of the occurrence with the Cromer Forest Beds in England because of presence of *Brasenia* and the still unknown seeds of *Stratiotes aloides* (Fig. 13.5). However, further extensive studies have shown the Eemian age of the layers (Striegler et al. 2007, 2008). From this place comes an originally complete mammoth skeleton from the Early Weichsel, which is now located in the Natural History Museum Berlin.

The material of the three large excavations is mostly researched and published or is still to be edited. The two excavations Schönfeld and Klinge were an excursion destination for the International Quaternary Congress in Berlin 1995.

The largest exhibit is a 3.20 m thick giant tree trunk (*Sequoioxylon gypsaceum*, Fig. 13.6) with a weight of more than 22 tons from the first Lusatian coal seam in

Fig. 13.4 Carapace and plastron of the pond turtle (*Emys orbicularis*) from the Eemian of Schönfeld (shell length 153 mm)

Fig. 13.5 Fruits of *Stratiotes aloides* from the Eemian of Klinge

Fig. 13.6 Fossil mammoth tree trunks (diameter 3.20 m) from the 1.Lusatian coal seam (Middle Miocene)

the Klettwitz opencast mine. It has nearly 1100 annual rings. For almost 12 years it was standing in front of the Marstall of Branitz Castle and since 1994 has found a more suitable domicile in the Spreeauenpark on the edge of the Tertiary Forest. Among the most remarkable exhibits are several latex profiles, which are particularly interesting because they show the storage relationships of layers and thus directly reflect geological history.

Further fossil finds from the Lower Lusatia and the surrounding areas to document the geological development of the investigation area in our collection are:

- Holocene bone remains from the bottom of the Lake Schwielochsee (beaver, bear, pond turtle, etc.)
- Interglacial animal and plant remains from further Eem occurrences of the Lower Lusatia
- Some cold-time mammalian bones from layers of the Baruth glacial stream channel (mammoth, rhinoceros, horse, reindeer, red deer)
- Predominantly Ordovician, Silurian and Cretaceous fossils in boulders from the ground moraine of the Saalian glacial period
- Pebbles of Permian silicified wood from different fossil river sediments of the primeval Elbe
- Miocene plant finds from the second Lusatian brown coal seam, which is still mined today in four open-cast mines, as well as its covering sediments
- Fossils of the tertiary Seese gravel association (Fig. 13.7) originated in the Baltic area (silicified fossils mainly from Ordovician and Silurian, similar to the Pliocene of Sylt)

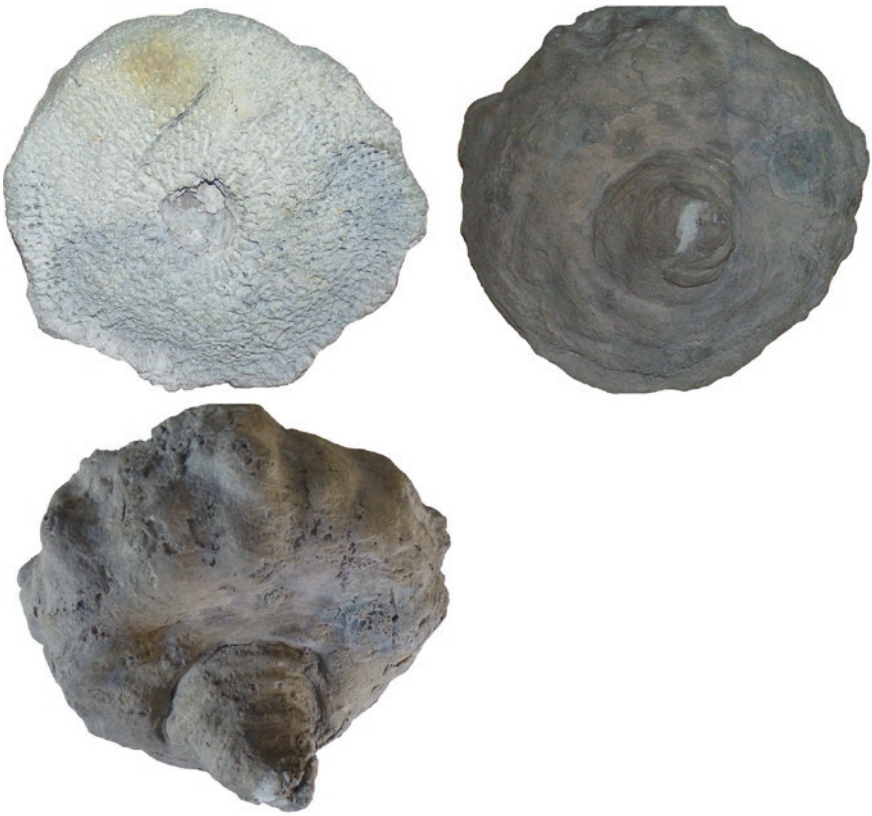

Fig. 13.7 Silicified sponge *Aulocopium* from the Seese gravel association

- Amber from the tertiary layers above the second Lusatian coal seam, partly with inclusions
- Oligocene plant remains from Seifhennersdorf/Upper Lusatia
- Oligocene seeds and fruits from Wiesa near Kamenz/Upper Lusatia
- Drill cores of pre-tertiary, tertiary and quaternary layers, partly with fossils (volume: approx. 650 specimens)
- Marine fossils from the Upper Cretaceous of the Elbtalzone near Dresden
- Marine fossils from the Muschelkalk of Rüdersdorf near Berlin
- Carboniferous plant remains from the Viséan of the synclinal zone Torgau—Doberlug
- Graptolites from the Silurian of the Eichberg near Weißig/Upper Lusatia
- Trilobites from the Lower Cambrian of Niederludwigsdorf near Görlitz/Upper Lusatia

In order to compare the tertiary development of the Lower Lusatia with other regions of Europe, the following collected complexes were acquired, partly by our own collection activities:

Molluscs

Pleistocene	North Italy: river Stirone
	USA: Florida
Pliocene	Czech Republic: Hodonín
	Bulgaria: Kavarna, Balčik
	North Italy: Salsomaggiore, Poggibonsi, Baldichieri, Orvieto
	Hungary: Tihany
	USA: Florida
Miocene	Niedersachsen: Groß Pampau
	Russia: Island Sachalin
Oligocene	Mecklenburg-Vorpommern: Malliß
	Hungary: Eger, Mariahalom
Eocene	Sachsen-Anhalt: Nachterstedt
	France: Paris Basin
	Hungary: Gant, Tatabanya
	Bulgaria: Beloslav

Other Groups of Animals

Miocene	Bavaria: Micromammals from Southern German caves
	Bavaria: Mammals from the Freshwater Molasse
Oligocene	Bavaria: Micromammals from Southern German caves
Middle Miocene to Middle Eocene	Inclusions in Dominican Amber
Lower Oligocene to Middle Eocene	Inclusions in Baltic Amber
Eocene	Hessen: Messel (Fig. 13.8)

Fig. 13.8 Skeleton of the running bird *Palaeotis* from the Eocene location Messel

Plants

Pliocene	North Italy: Meleto (leaves)
Miocene	Nordrhein-Westfalen: Opencast mine Hambach (Karpofossils)
	Czech Republic, North Bohemia: Bilina, Želenky (leaves)
Oligocene	Czech Republic, North Bohemia: Kundratice (leaves)
Eocene	Czech Republic, North Bohemia: Staré Sedlo (leaves)

In order to present the general development of organisms in exhibitions, the museum also acquired material from other areas:

- Marine fossils from the Maastrichtian (Cretaceous) of Rügen (Mecklenburg-Vorpommern)
- Fishes, insects and plant remains from Cretaceous of Santana Formation/Brazil (Fig. 13.9)
- Solnhofen limestone (Upper Jurassic of Bavaria)
- Shells of bivalves and ammonites from the Jurassic of Eisenach/Thuringia
- Plant fossils and molluscs from the Jurassic of Pecs (Mecsek Mountains/Hungary)
- Plant fossils from the Carboniferous/Permian of Thuringia
- Bundenbach Slates (Devonian of the Rhenish Slate Mountains)
- Ordovician and Middle Cambrian of the Barrandium (Czech Republic)

Fig. 13.9 Conifere branch of *Brachyphyllum* from the Santana Formation (Lower Cretaceous) of Brazil

Attractive single objects are the above mentioned fish saurian from Holzmaden as well as two *Mesosaurus* skeletons from the Permian of Brazil.

Last but not least, the Cottbus Museum preserves the memory of the Australian explorer Ludwig Leichhardt (1813 – about 1848), who was born in Brandenburg, attended the Gymnasium in Cottbus for 7 years, and was missing in 1848, as he tried to cross Australia from East to West. That is why the museum has endeavored to obtain finds from the outcrops which he had investigated on his journeys through S-England, France, Italy, Switzerland, and Australia, for example from the Permian of Newcastle, Australia.

Unfortunately, the Natural History Museum in Cottbus is currently not able to show its geological treasures to the public.

If you are looking for information about the petrographic and the mineralogical collections of the museum, please refer to the publication of Striegler 2010.

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