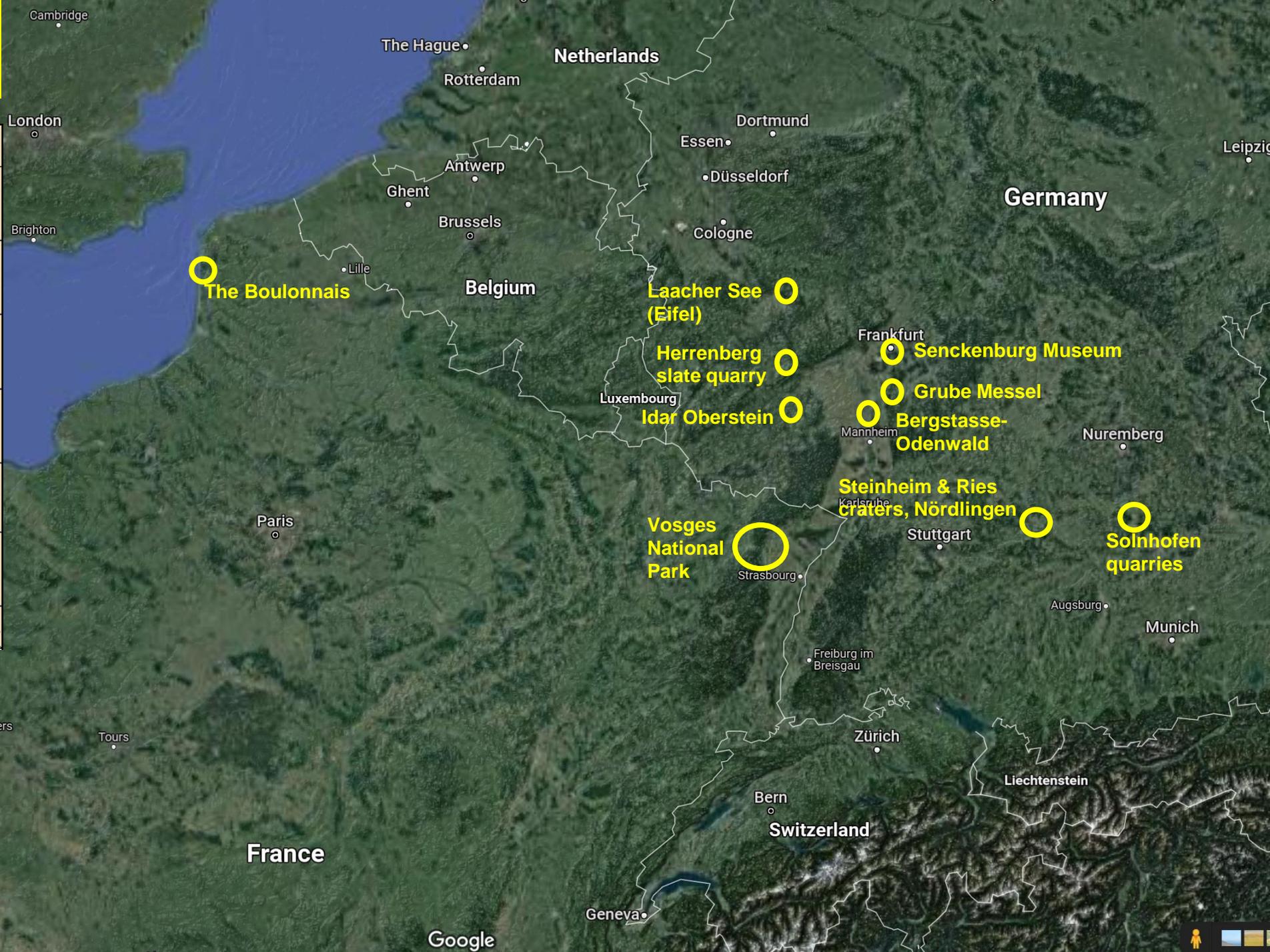


Harrow & Hillingdon Geological  
Society  
Overseas Field Trips

**RHINELAND**  
Summer 2016

# Field Trip Sites visited summer 2016



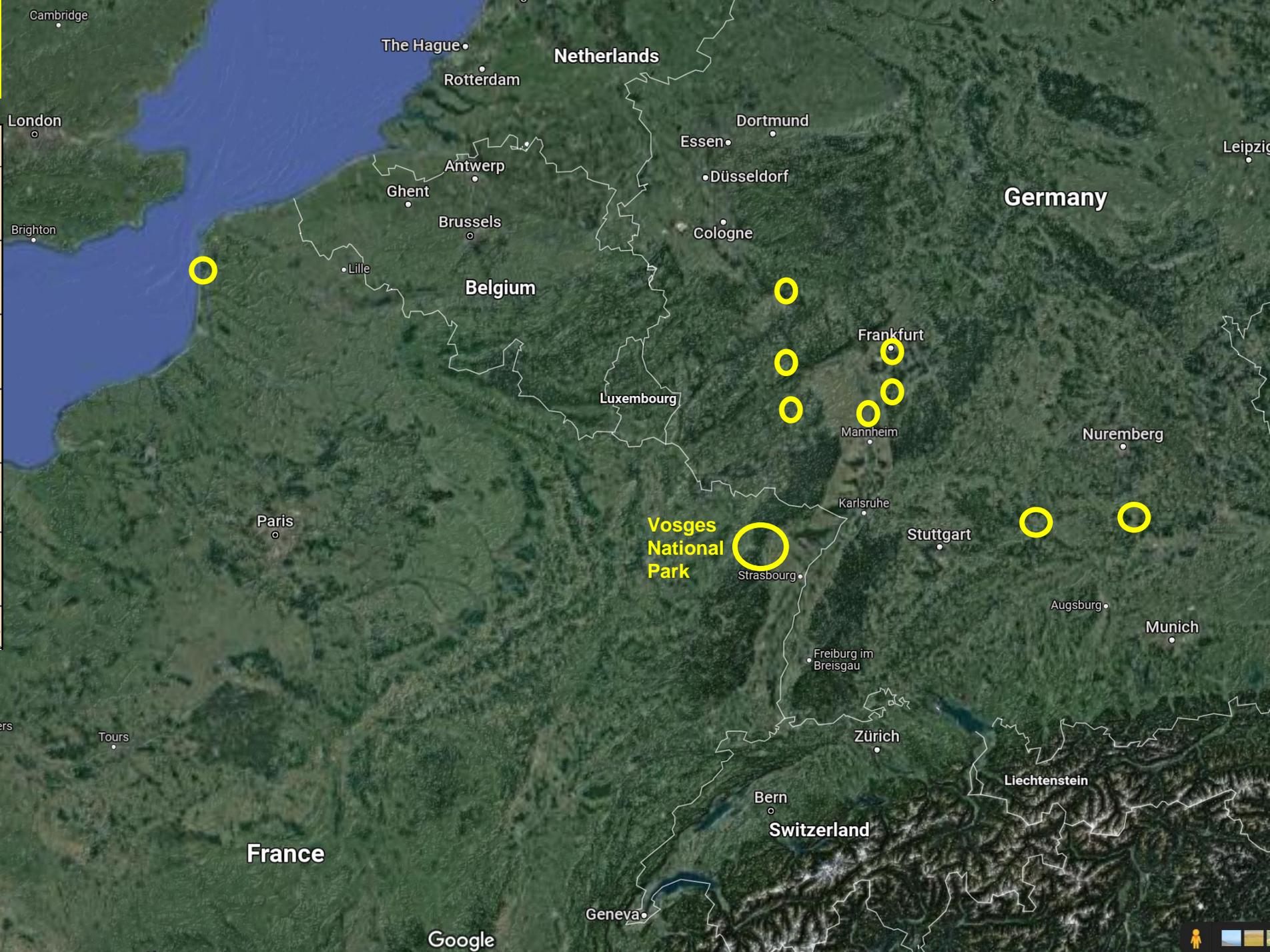
# The Boulonnais, Northern France

**Cap Gris Nez**, 'boules' or doggers in the Grès de la Crèche Sandstones, formed by groundwater cementation.



**Wimereux**, finding ammonite and bivalve fossils in the Argiles de Wimereux Croi Beds (Kimmeridgian-Tithonian), Upper Jurassic.

# Vosges National Park, France



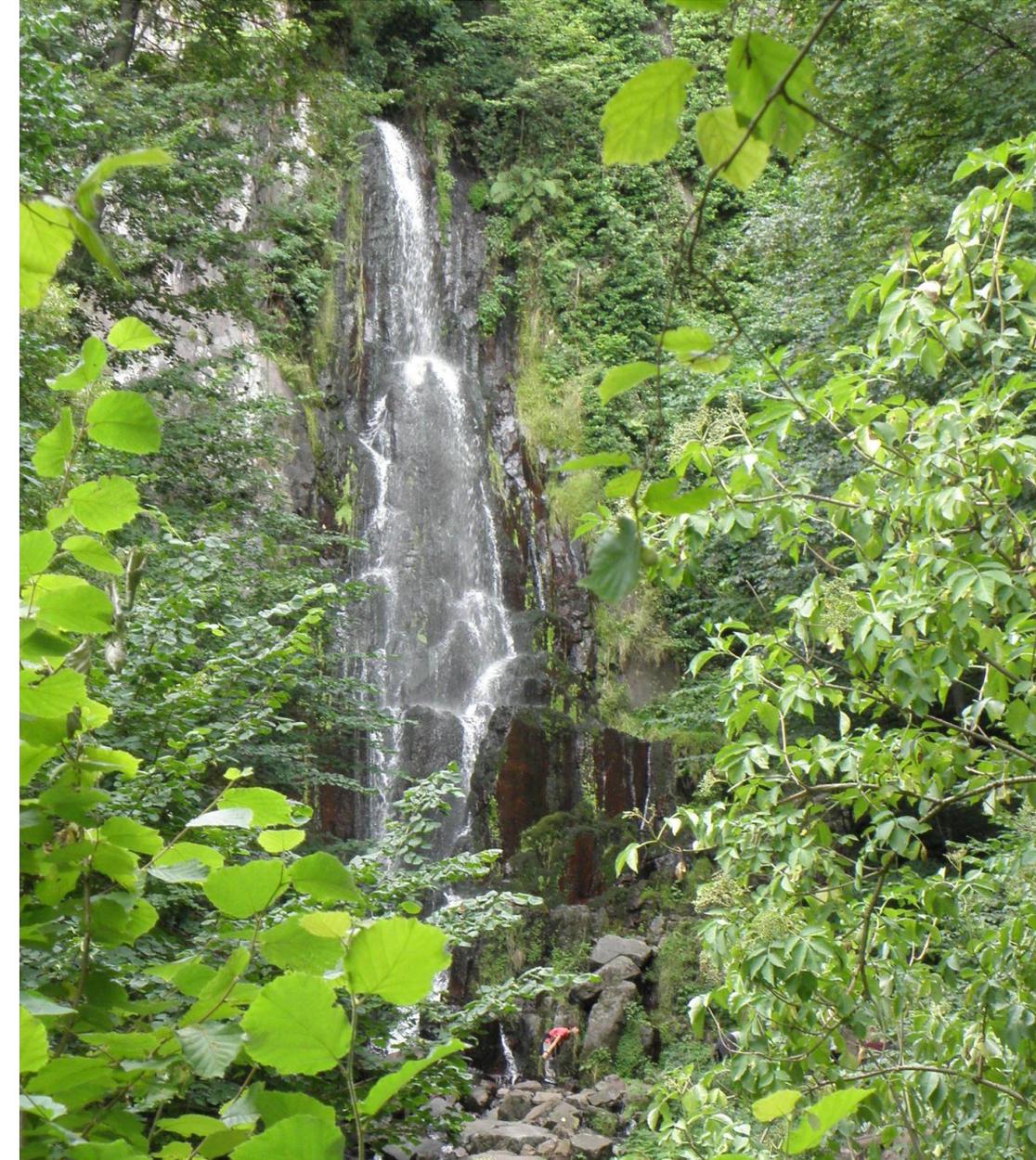
# The Vosges, Eastern France

**Rocher de Dabo.** St Leo Chapel was built in 1892 on the 30-metre high block of Triassic sandstone.



The **Dabo Rock** sandstone is fluvatile, current-bedded and quartz-pebble-rich.

# The Vosges, Eastern France



Underground tour of **Tellure 16<sup>th</sup> century Silver Mine**, Val d'Argent, Sainte-Marie-aux-Mines.

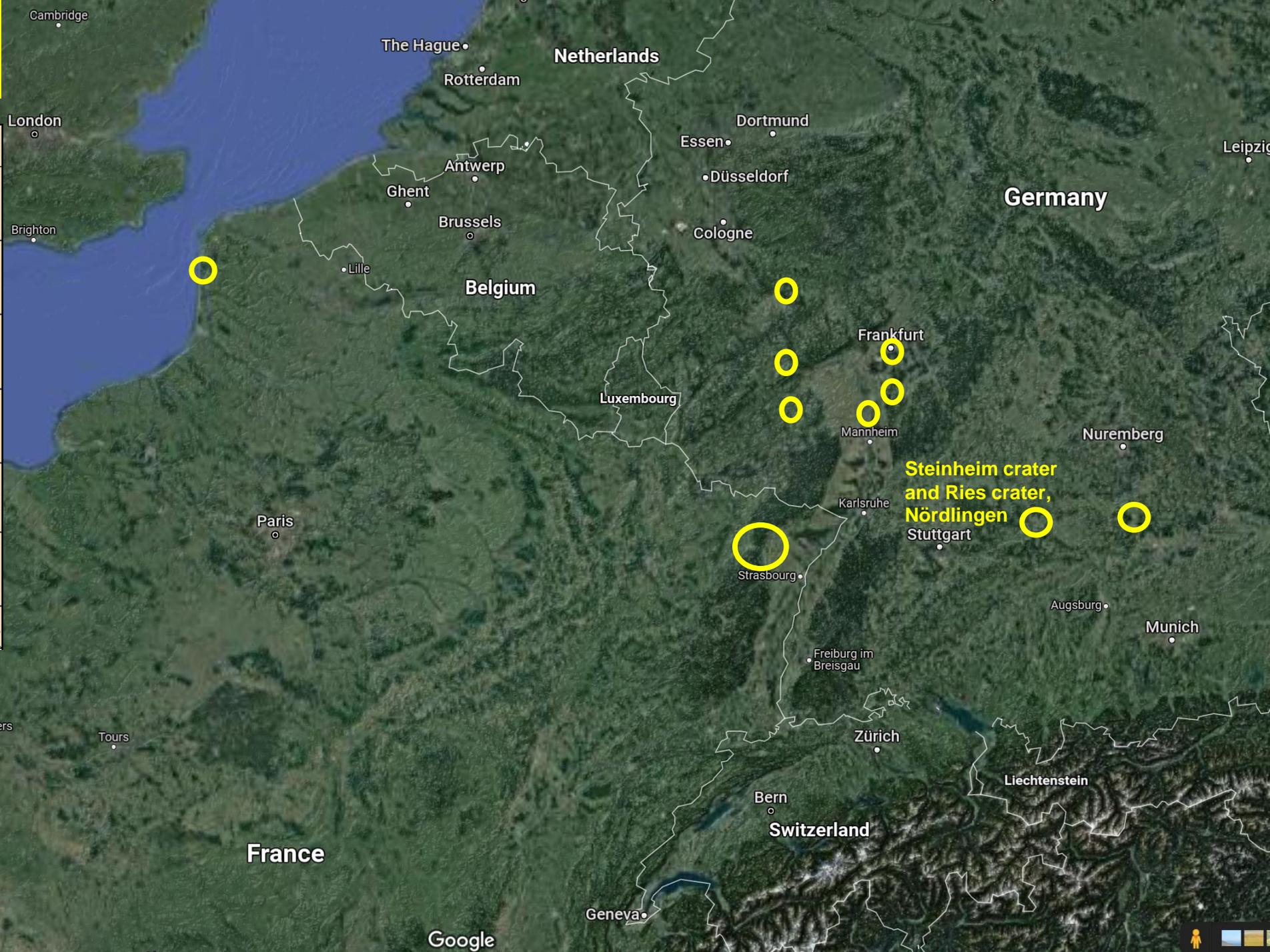
**Cascade du Nideck**, in the Bruche valley, tumbles 25m over the columnar-jointed red porphyry intrusion within the Permian sandstones.

# The Vosges, Eastern France

Wolf Cave, **Wolfloch geological trail**, Sentheim. The trail explores the step-faulted edge of the Rhine Graben. Within less than a square kilometre it is possible to observe strata from the Upper Palaeozoic, Mesozoic, Tertiary and Quarternary.



# Nördlingen Ries crater and Steinheim crater



# Nördlingen; Steinheim meteor impact crater



Cross-section cutting through rim of **Steinheim Crater**.

View across the **Steinheim Crater** from rim to rim, the far side being about 2.5km away. In the foreground is a wooded block of country rock which was moved by the shockwave. There is also a central uprising of local Quaternary and Tertiary sedimentary strata caused by the meteor impact.



# Nördlingen; Ries meteor impact crater



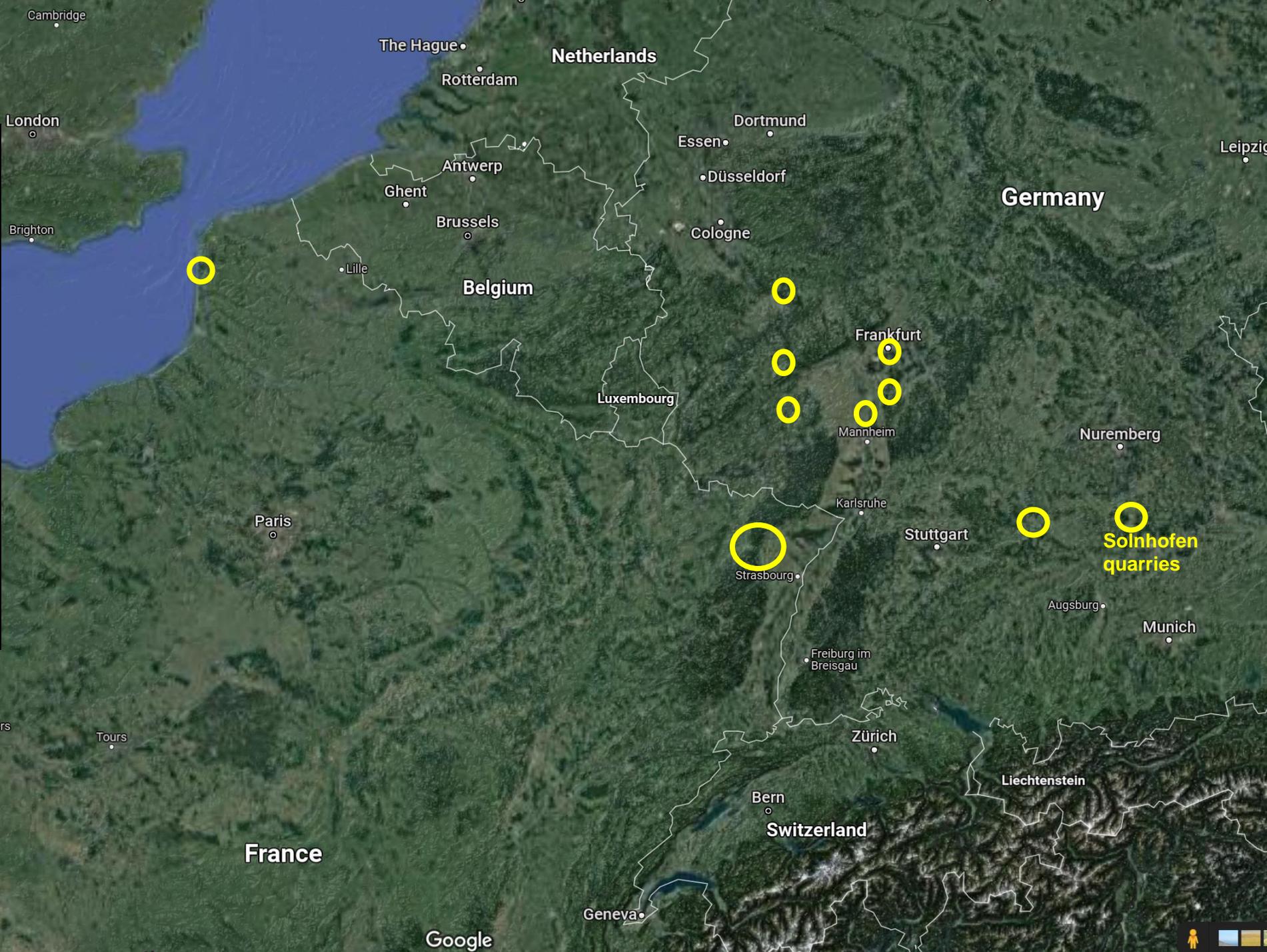
**Ries Crater ejected Suevite block, Altebürg Quarry.**  
Suevite is a polymict impact breccia containing glassy shards of basement rock, due to the depth of meteor impact.



**Ries Crater Quarry** in brecciated limestone, shattered by the impact .



# Solnhofen Quarries and Jura Museum, Eichstätt



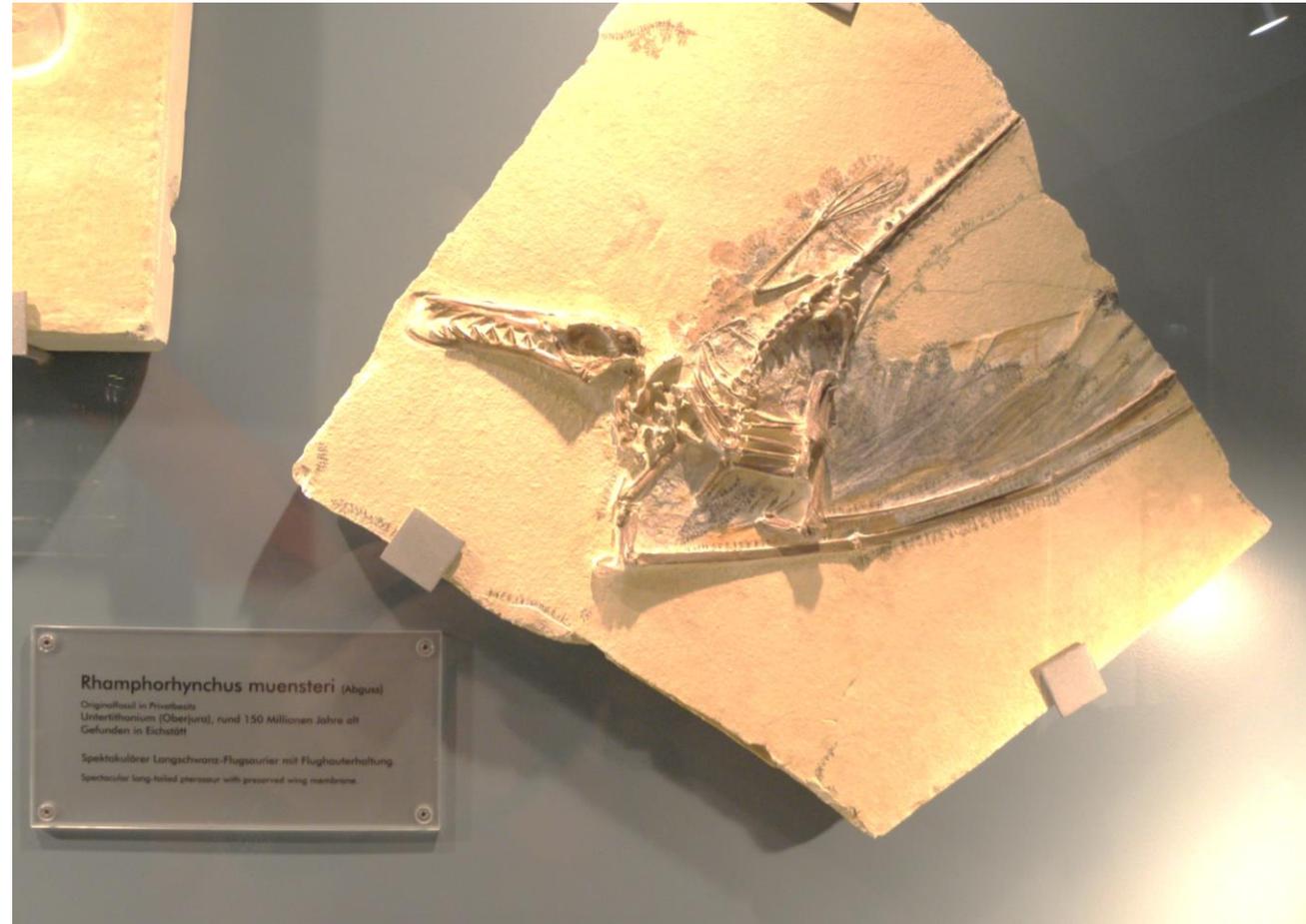
# Solnhofen Limestone; Feather Stars, Fish and Pteradactyl fossils



The **Jura Museum** in Eichstätt displays a wealth of different species preserved in fine detail within the Jurassic Solnhofen limestone, including some soft tissues such as skin, scales and feathers.



Feather star (floating crinoids) fossils at the **Plattenkalk** stone factory.



**Rhamphorhynchus muensteri** (Abguss)  
Originalfund in Privatbesitz  
Unterjura (Oberjura), rund 150 Millionen Jahre alt  
Gefunden in Eichstätt  
Spektakulärer Langschwanz-Flugsaurier mit Flughauterhaltung  
Spectacular long-tailed pterosaur with preserved wing membrane.

# Solnhofen fossil quarry and Plattenkalk factory

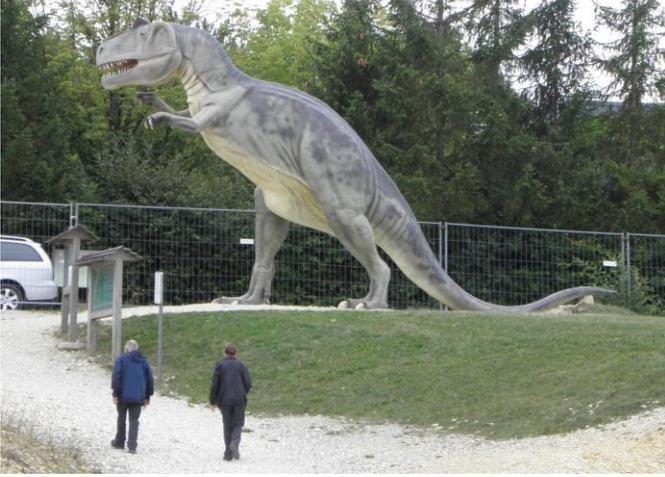


Artisans split and cut the Jurassic **Solnhofen limestone** to make tiles and ornaments within the fossil quarry.

Martina explains how the fine-grained **Plattenkalk** was used to make lithographic printing stone slabs. This continues on a small scale for artistic printing although in the past it was used for maps and fine art prints by artists including **Toulouse-Lautrec**.



# Solnhofen public quarry



At **Naturpark Quarry, Blumenberg**, the public are invited (for a small fee) to search for their own fossils. We brought home some excellent feather stars from here.

# Bergstasse-Odenwald Geopark

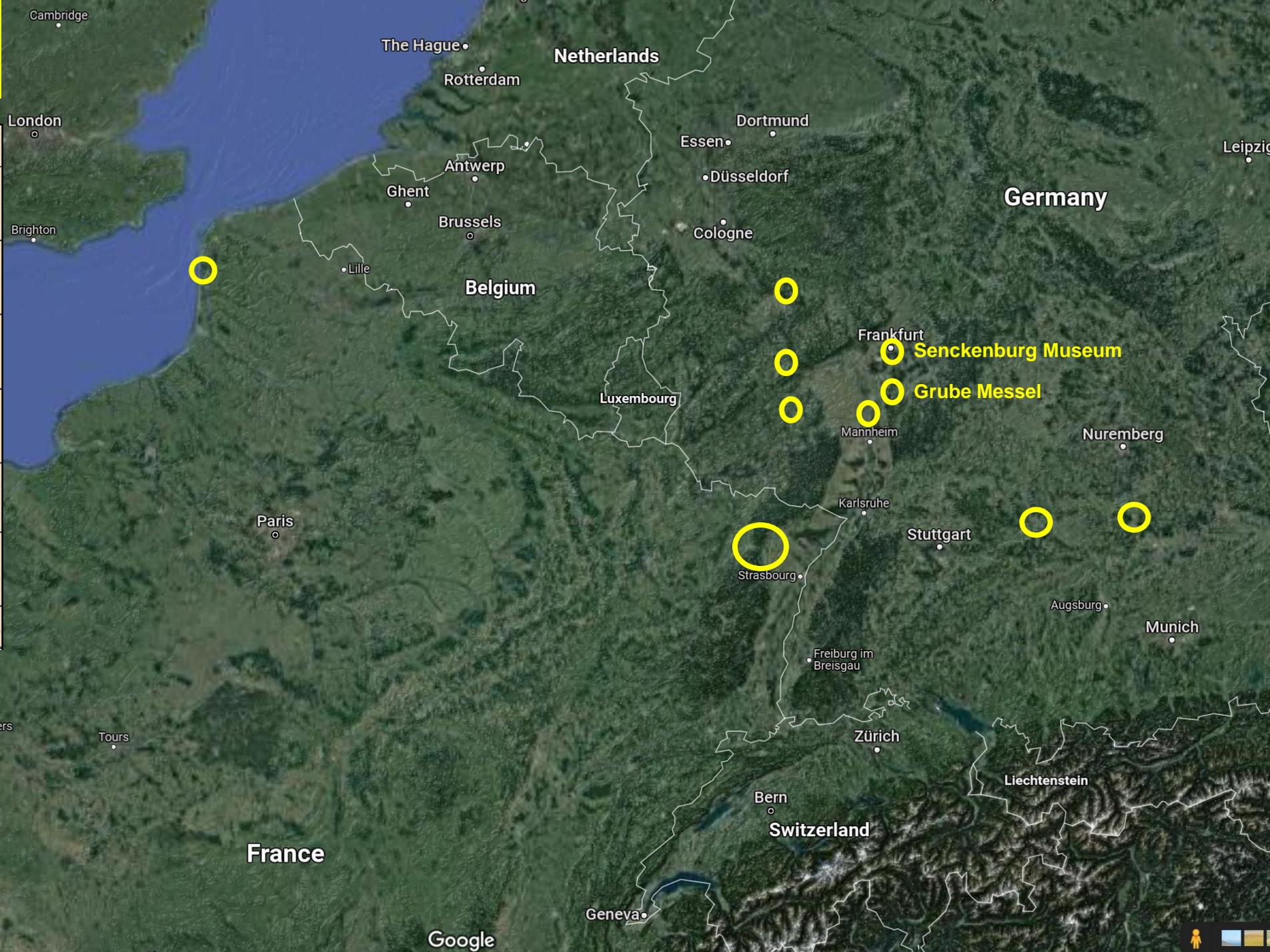


# Felsenmeer periglacial “sea of rocks”

Geopark of **Bergstasse-Odenwald**. Quartz diorite blocks weathered out from the Triassic limestone overburden and transported, periglacially to their present location.



# Grube Messel fossil site



# Grube Messel. Early Horse fossil



Former Oil Shale Mine, now UNESCO World Heritage Site. Middle Eocene lake bed sediments yielding fossils of mammals, birds, insects, fish and reptiles.



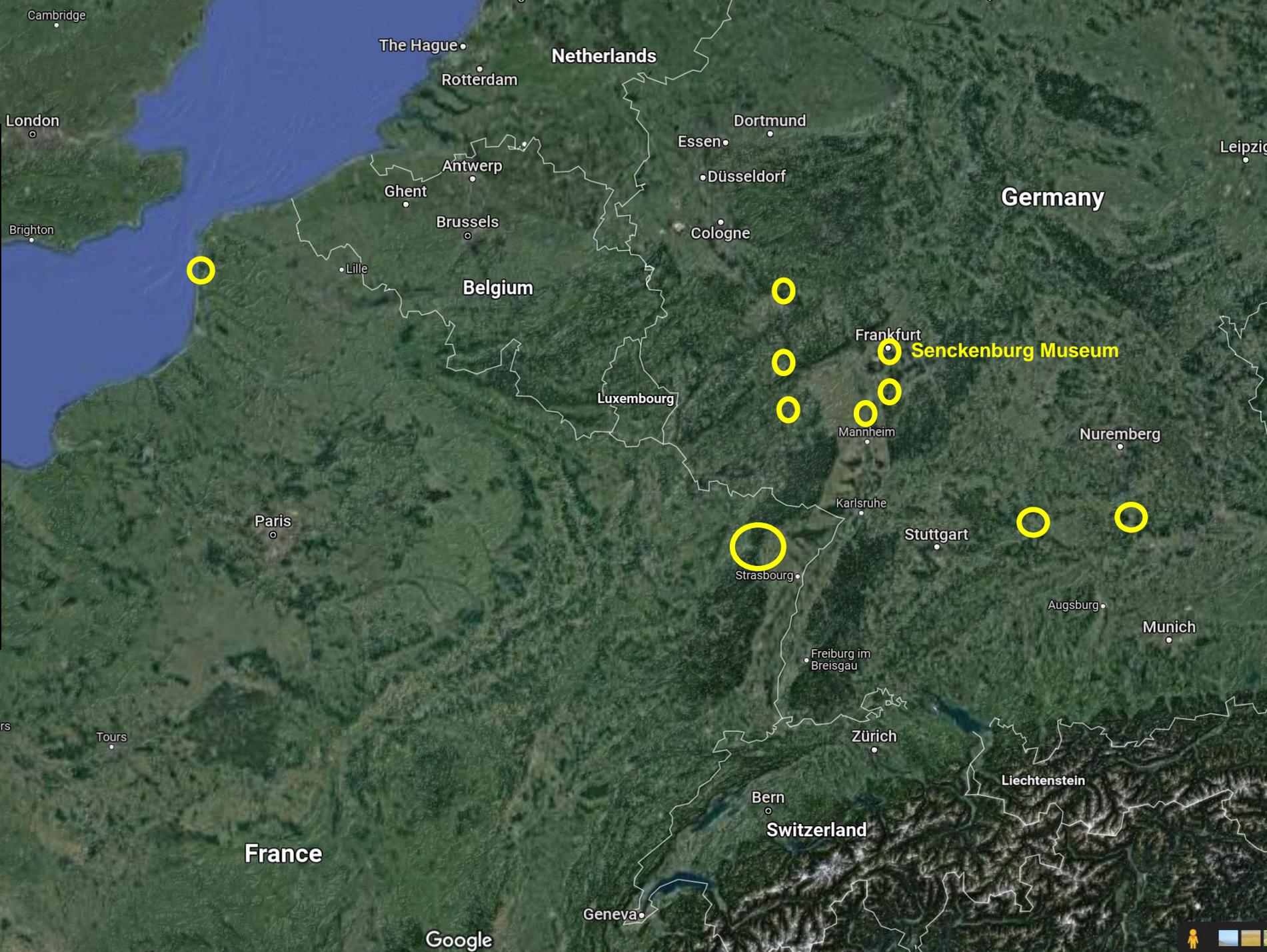
Resin model of the Messel horse (14" high at the shoulder).

# Grube Messel, Fossil Frogs and Insects



Grube Messel fossils on display in the **Senckenburg Museum, Frankfurt**

# Senckenberg Museum, Frankfurt



# Senckenberg Museum, Frankfurt. Fossil Dinosaur Limb and Elephant



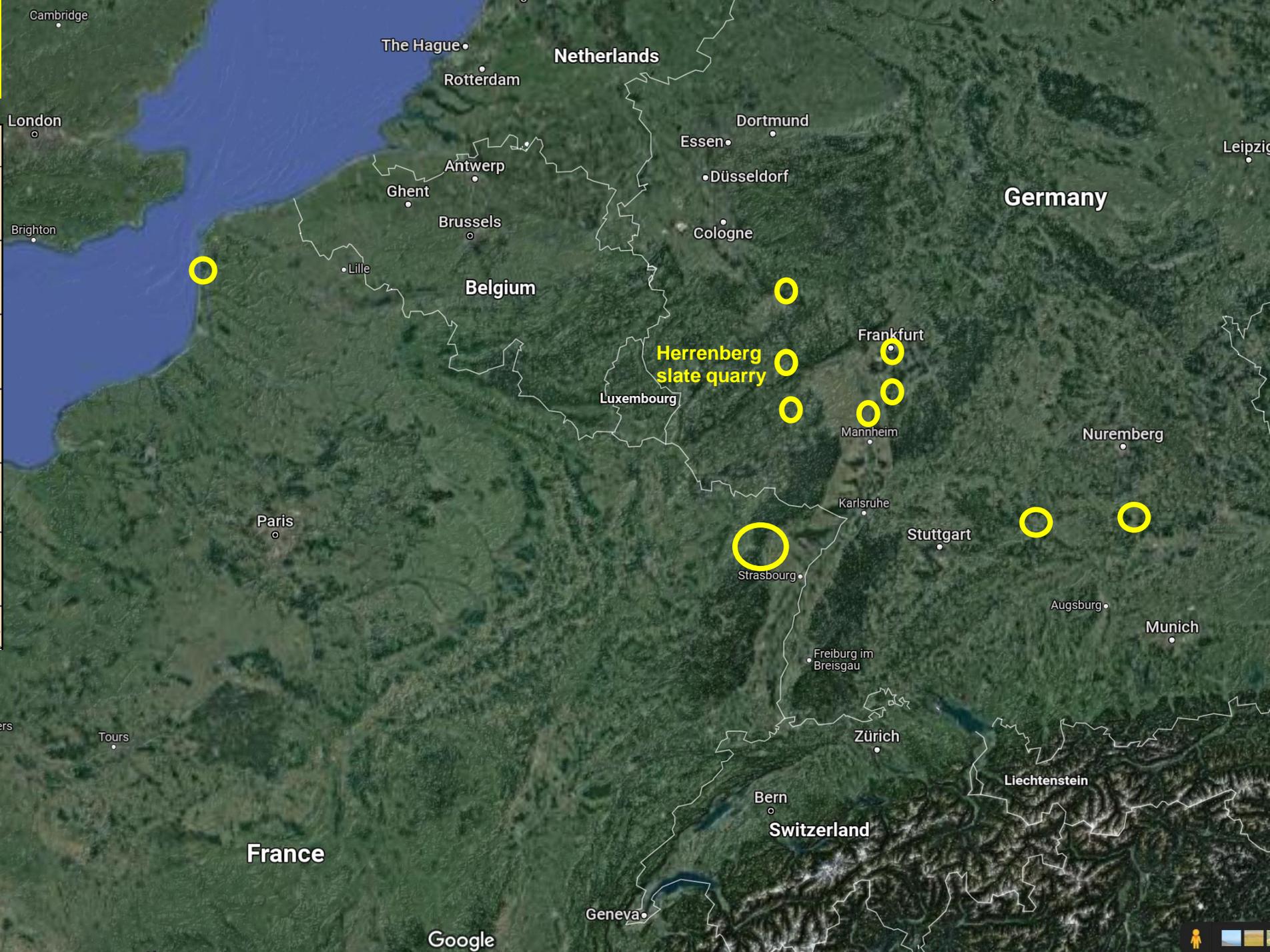
The **Senckenberg Museum** displays the most extensive exhibition of dinosaur fossils in Germany. It also houses an extensive collection of Elephant and Whale fossils, illustrating their evolution.

# Senckenburg Museum, Fossil Whale

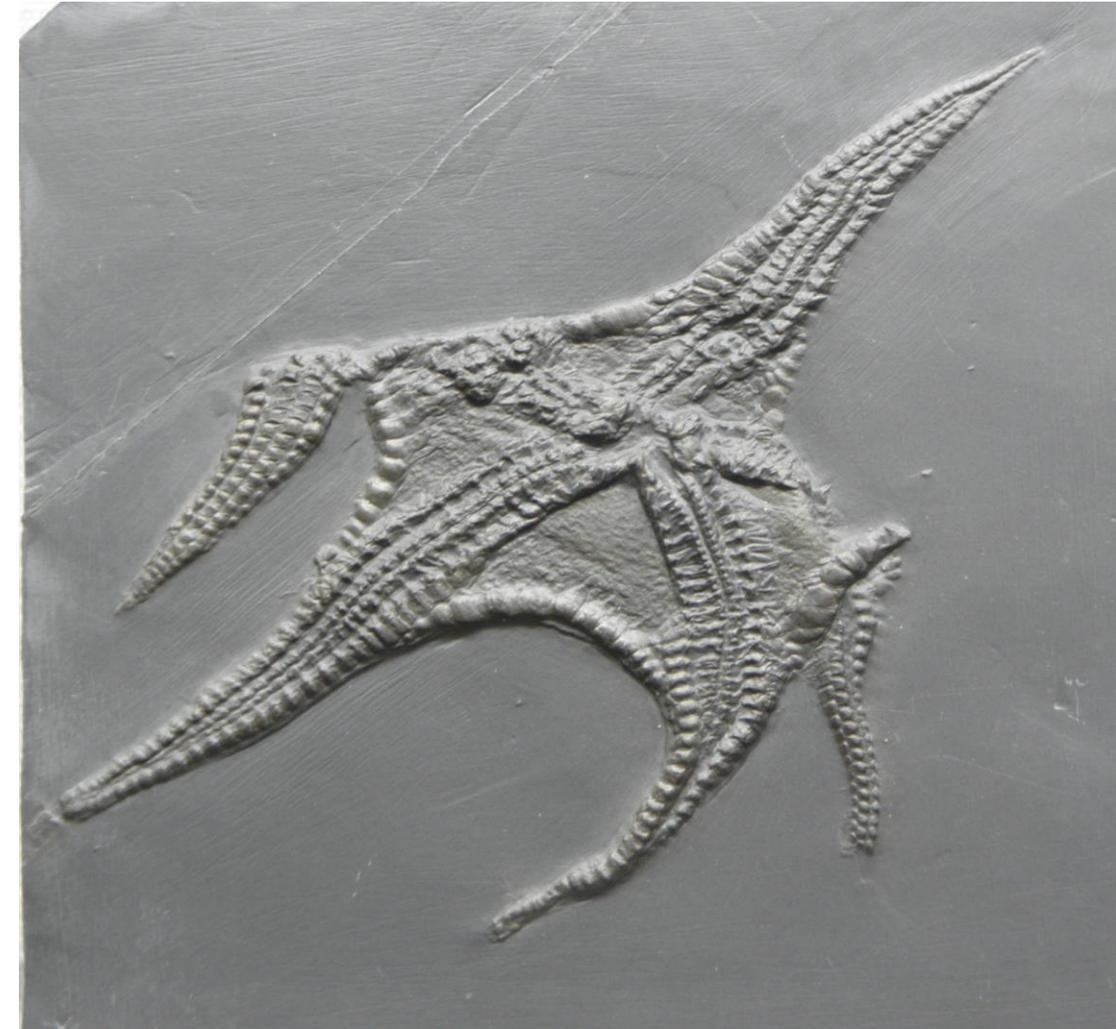


The ancestors of **Whales** were land dwelling mammals that colonized the oceans.

# Herrenberg Slate Quarry near Bundenbach



# Herrenberg slate quarry near Bundenbach

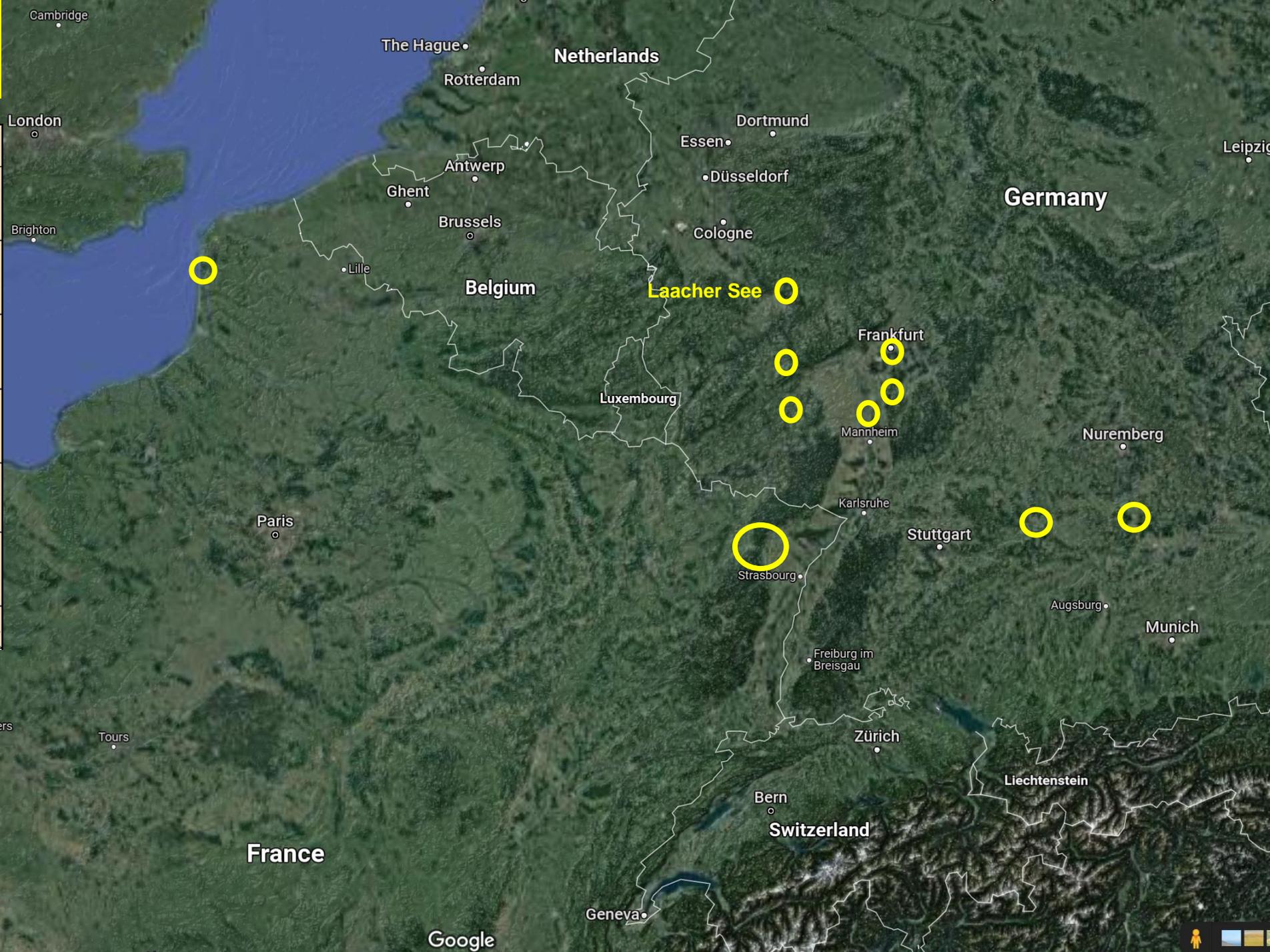


**Herrenberg slate quarry and museum,** exhibit exquisite fossils of soft bodied creatures like these Starfish, as well as historic mining artifacts.

The blue **Hunsruck slate** that these fossils are preserved in are around 350 million years old (Lower Devonian).



# East Eifel Volcanic Field Laacher See Crater Lake



# East Eifel Volcanic Field: The Laacher See Crater Lake



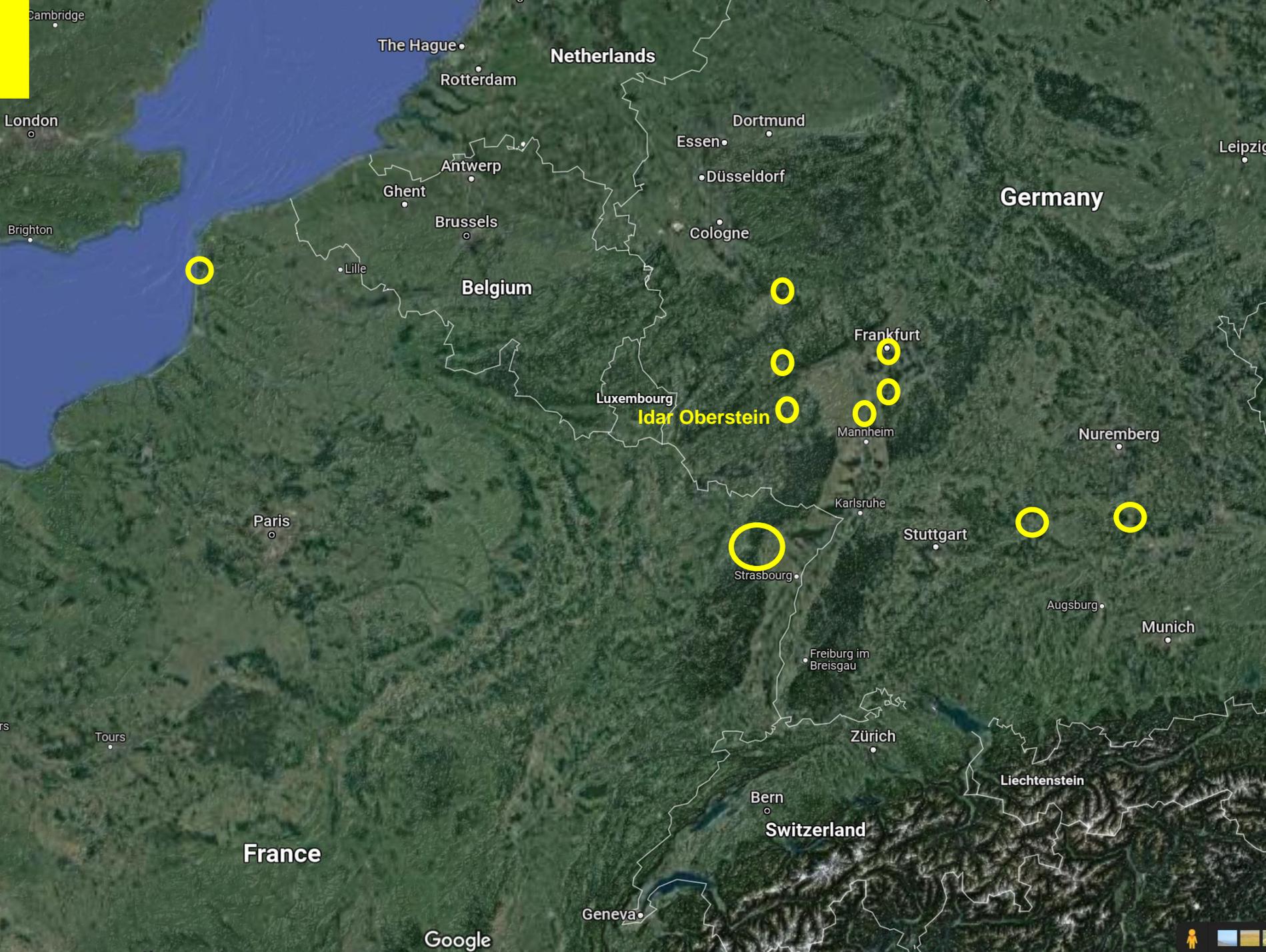
The **Laacher See** is the youngest volcano in Germany, it last erupted 11,000 years ago. In the **Crater Lake** carbon dioxide gas can be seen bubbling up from underground. Historically, unfortunate local monks lost their lives by sleeping in the hermitage nearby.

# Wingertsberg Mountain



This pyroclastic flow formation emanated from the **Laacher See** volcano. This formation is more than 10m thick and gives 'text book' examples of fallout and flow deposits.

# Idar Oberstein German Gemstone Museum



# Idar Oberstein. Agate carvings



At **Idar Oberstein** finds of the mineral 'Agate' date back to before 1605, where it was worked as a gemstone. By 1776 twelve people worked here, in 1845 some 40 workers are mentioned, after that date it declined, and by 1870 had ceased completely. The **German Gemstone Museum** now displays the whole diversity of gemstones and ornamental stones.

Here are just two agate carvings.