

- Middle.** { Stettin (Magdeburg) sand and Septaria-clay (Septarienthon), with an abundant marine fauna (Foraminifera, *Pecten permistus*, *Leda deshayesiana*, *Nucula Chasteli*, *Pleurotoma scabra*, *Axinus obtusus*, *Fusus Koninckii*, *F. multisulcatus*, etc.). These beds are widely distributed in north Germany, and are usually the only representatives there of the Middle Oligocene deposits. In some places, however, a local brown-coal group occurs (*Alnus Kefersteini*, *Cinnamomum polymorphum*, *Populus Zad-dachi*, *Taxodium dubium*).
- Lower.** { Egelu marine beds (*Ostrea ventilabrum*, *Pecten bellicosatus*, *Leda perovallis*, *Arca appendiculata*, *Cardita Dunkeri*, *Cardium Hausmanni*, *Cytherea Solandri*, *Cerithium lavum*, *Pleurotoma Beyrichi*, *P. subconoidea*, *Voluta decora*, *Buccinum bullatum*, etc., and corals of the genera *Turbinolia*, *Balanophyllia*, *Caryophyllia*, *Cyathina*).⁷⁴
- Amber beds of Königsberg, consisting of lignitiferous sands resting on marine glauconitic sands, near the base of which lies a band containing abundant pieces of amber. The latter, derived from several species of conifers, especially *Pinus succinifera*, have yielded a plentiful series, estimated at about 2000 species, of insects, arachnids and myriapods, together with the fruits, flowers, seeds, and leaves of a large number of conifers (*Pinites*, *Pinus*, *Abies*, *Sequoia Langsdorffii*, *Widdringtonites*, *Libocedrus*, *Thuja*, *Capressus*, *Taxodium*) and dicotyledons (*Quercus*, *Castanea*, *Fagus*, *Myrica*, *Polygonum*, *Cinnamomum*, *Geranium*, *Linum*, *Acer*, *Ilex*, *Rhamnus*, *Deutzia*, *Proteaceæ*, several genera, *Andromeda*, etc.)⁷⁵ The sands contain Lower Oligocene marine mollusca, sea-urchins, etc.
- Lower Brown-coal series—sands, sandstones, conglomerates and clays with interstratified varieties of brown-coal (pitch-coal, earthy lignite, paper-coal, wax-coal, etc.), a single mass of which sometimes attains a thickness of 100 feet or more. These strata may be traced intermittently over a wide area of northern Germany. The flora of the brown-coal is largely composed of conifers (*Taxites*, *Taxoxylon*, *Cupressinoxylon*, *Sequoia*, etc.), but also with *Quercus*, *Laurus*, *Cinnamomum*, *Magnolia*, *Dryandroides*, *Ficus*, *Sassafras*, *Alnus*, *Acer*, *Juglans*, *Betula* and palms (*Sabal*, *Flabellaria*). The general aspect of this flora most resembles that of the southern states of North America, but with relations to earlier tropical floras having Indian and Australian affinities.

In the Mainz basin some marine sands, clays, and marls in the lower part of its Tertiary deposits are referred to the Oligocene series, and are arranged as follows:

Cerithium Beds.—Sandy and calcareous strata with brackish-water and land-shells (*Cerithium plicatum*, *Mytilus Faujasi*, *Helix*, etc.).

Cyrena marl and sand (*Cyrena semistriata*, *Cerithium plicatum*, *C. margaritaceum*, *Perna Sandbergeri*, etc.).

Braunkohlenbergbau," Halle, 1889, the "Festschrift" of the fourth Deutsche Bergmannstage in 1889.

⁷⁴ For detailed descriptions of the Lower Oligocene molluscan fauna of north Germany see Prof. A. von Koenen's elaborate monograph, *Abhand. Geol. Spezialkart. Preuss. x.* 1889-92.

⁷⁵ "Flora des Bernsteins," vol. i. on the coniferæ, H. R. Goeppert, 1883, vol. ii. on the dicotyledons, Goeppert, A. Menge and H. Conwentz, 1886.