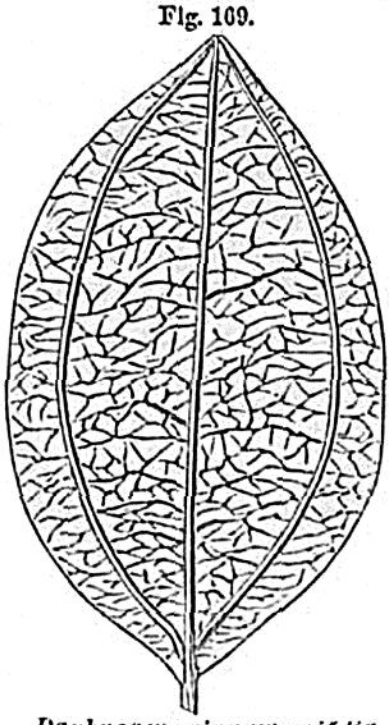
quadrupeds. Several mammalia, proper to the Upper Eocene series, are also said to be associated; but there being no good section at Eppelsheim, the true succession of the beds from which the bones were dug out cannot be seen, and we have yet to learn whether some remains of an older series may not have been confounded with those of a newer one.

Brown coal of Germany.—In a recent essay on the Brown Coal deposits of Germany, Baron Von Buch has expressed a decided opinion that they all belong to one epoch, being of subsequent date to the great nummulitic period, and older than the Pliocene formations. He has therefore called the whole Miocene. Unfortunately, these formations rarely contain any internal evidence of their age, except what may be derived from plants, constituting in every case but a fraction of an ancient Flora, and consisting of mere leaves, without flowers or fruits. It is often therefore impossible to form more than a conjecture as to the precise place in the chronological series which should be assigned to each layer of lignite or each leaf-bed. Nevertheless, enough is known to show that some of the Brown Coals found in isolated patches belong to the Upper Eocene, others to the Miocene, and some perhaps to the Pliocene eras. They seem to have been formed at a period when the European area had already a somewhat continental character, so that few contemporaneous marine or even fluvio marine beds were in progress there.

The brown coal of Brandenburg, on the borders of the Baltic, underlies the Hermsdorf tile-clay already spoken of, and therefore belongs to a period at least as old as the Upper Eocene. The brown coal of Radoboj, on the confines of Styria, is covered, says Von Buch, by beds containing the marine shells of the Vienna basin, which, as before remarked, are chiefly of the Falunian or Miocene type. This lignite, therefore, may be of Miocene or Upper Eocene date, a point to be determined by the botanical characters of the plants. In this, and most of the principal brown coal formations, several species of fan-palm or *Flabellaria* abound. This genus also appears in the Middle Eocene or Bembridge beds in the Isle of Wight, and in the gypseous series of Montmartre; but it is still more largely represented in the Upper Eocene series, accompanied by palms of the genus *Phœnicites*. Various cones, and the leaves and wood of coniferous trees, are also met with at Radoboj. Species also of *Comptonia* and *Myrica*, with various trees, such as the plane or *Platanus*, are recognized by their leaves, as also several of the Laurel tribe, especially one, called *Daphnogene cinnamomifolia* (fig. 169) by Unger, who, together

Fig. 169.



Daphnogene cinnamomifolia, Altsattel, in Bohemia.