

homologous forms, which are so like the living ones, that he supposes the one to have been derived genealogically from the others. He hesitates indeed as to the manner of the transformation, or the precise nature of the relationship, 'whether the changes were brought about by some influence exerted continually for ages, or whether at some given moment the old types were struck with a new image.'

Among the homologous plants alluded to are forty species, of which both the leaves and fruits are preserved, and thirty others, known at present by their leaves only. In the first list we find many American types, such as the tulip tree (*Liriodendron*), the deciduous cypress (*Taxodium*), the red maple, and others, together with Japanese forms, such as a cinnamon, which is very abundant. And what is worthy of notice, some of these fossils so closely allied to living plants occur not only in the Upper, but even some few of them as far back in time as the Lower Miocene formations of Switzerland and Germany, which are probably as distant from the Upper Miocene or Oeningen beds as are the latter from our own era.

Some of the fossil plants to which Professor Heer has given new names have been regarded as recent species by other eminent naturalists. Thus, one of the trees allied to the elm Unger had called *Planera Richardi*, a species which now flourishes in the Caucasus and Crete. Professor Heer had attempted to distinguish it from the living tree by the greater size of its fruit, but this character he confessed did not hold good, when he had an opportunity (1861) of comparing all the varieties of the living *Planera Richardi* which Dr. Hooker laid before him in the rich herbarium of Kew.

As to the 'homologous insects' of the Upper Miocene period in Switzerland, we find among them, mingled with genera now wholly foreign to Europe, some very fami-