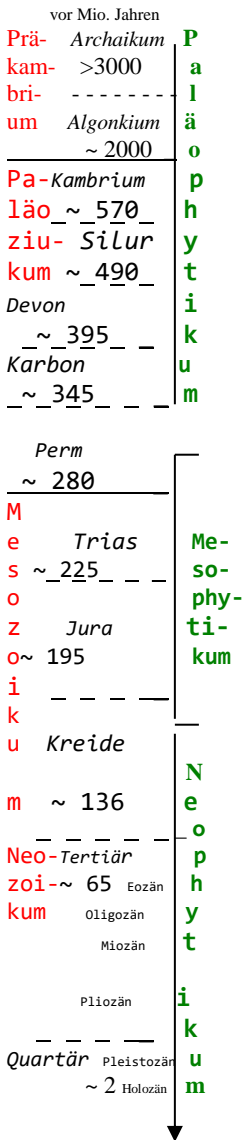


On the history of flowers

nach: E. Strasburger u.v.a. „Lehrbuch der Botanik“, VEB Gustav Fischer Verlag Jena, 32. Aufl. 1983



Paläophytikum: The oldest known traces of life forms come from the Proterozóitikum. (Archäikum; about 4 to 1 billion years ago); the organisms were initially microscopic bacteria- and blue-green algae-like prokaryotes, later evolved filamentous multicellular representatives and unicellular eukaryotic algae, aquatic fungi and protozoa..

It occurred worldwide at the turn of the upper Silúr to the lower Devón (about 400-370 million years ago). on the emergence and development of land plants; the O₂ content of the atmosphere was only about 2% and the seas were still very low in salt. The early terrestrial floras were very similar around the world. in the Karbón (about 345-280 million years ago) formed in the northern hemisphere - in a uniformly moist warm climate – the first extensive forests, consisting on wet to moderately moist peat soils of horsetail, clubmoss and tree ferns and in the southern hemisphere – with a cool and temperate climate Climate – the different so called. Gondwana flora with pteridosperms, pteridophytes and conifers; the O₂ content of the lower atmosphere had reached about the present value (20.95%).

Mesophytikum: From the Upper Trias through the Jurassic to the Lower Cretaceous (about 200-100 million years ago) the plant kingdom was quite uniform as a result of the spatially still close continents and was Ferns, horsetails and, above all, various groups of gymnosperms (Ginkgo family, conifers tree ferns, etc.). With the spread of dry habitats, differentiation took off and with it the species richness of the plants, but also the inclusion of various terrestrial animal groups increased (flower pollination, spread of fleshy seeds, etc.). From the lower to the upper chalk, (about 125-100 million years ago) the angiosperms, which were initially very subordinate, took over the supremacy according to today's knowledge of the then tropical area and the edge areas of the middle Atlantic outgoing. Some of the continental blocks drifted further apart (about 90 million years ago Africa– South America), some connections lasted a long time (Eurasia-North America), some there were strong ones Shifts (India and Australia northbound).

Neophytikum: At the beginning of the Tertiary (about 65 million years ago) there was already a large variety of forms vascular plants; in particular the angiosperms had become dominant with simultaneous differentiation and ecological integration with the explosively developing animal world (especially insects, birds mammals). In the early Tertiary (Palaeocene, Eocene and Oligocene; up to about 25 million years ago) prevailed an above-average warm and balanced climate on earth up to the arctic areas (Ø-annual temperature in Central Europe approx. 22°C). Since the northern continents at that time even more closely approximated were, there was a lively exchange of flora in the circumpolar area from the early to late Tertiary; were, there was a lively exchange of flora in the circumpolar area from the early to late Tertiary; the arctotertiary flora formed as the basis of today's flora kingdom "Holárktis" (relics of this Tertiary flora are e.g. the genera Ramónida and Habérlea). In the Late Tertiary (Miocene to Pliocene, ca 25-2 million years ago), a progressive global cooling occurred, which later reached its peak in the Quar- tary ice ages. tary reached its climax. There was a large-scale continentalization of climatic conditions: the flora and vegetation zones shifted to the south, almost all tropical, but also heat-meli- arctotertic clans became extinct, and extensive distribution gaps of many holo- Arctic deciduous forest clans in the continental areas of central Asia and western North America. America; in Europe, the arctotertic clans came to predominance. From the middle Tertiary to the Pleistocene, mountain elevations began to increase in Europe; the transverse, repeatedly glaciated high mountains, the mountains, the Mediterranean Sea and the desert areas in the south formed the basis for the Tertiary and Quaternary flora migrations.and Quaternary flora migrations, so that today's Europe is much poorer in arctotertic species. species than the climatically comparable areas of East Asia and eastern North America. America. The -annual temperature in Central Europe decreased from about 16°C to 8-9°C from the Miocene to the present. Examples for the stages on the way of this progressive areal shrinkage of arctotertic ver- groups are the cases of relict demism in southern North America (e.g., Taxódium) or in East-Asia (e.g. Ginkgo, Metasequóia) and especially the emerged characteristic disjunctions (separations), especially the disjunction Europe - East Asia - eastern North America (e.g. Fágus, Cárpinus, Hepática. ¹⁾

Latest Neophytic (Quaternary, from about 2 million years B.C.): The already in the Pliocene begun climate fluctuations took on extreme proportions: cold and warm periods alternated worldwide and rapidly. These fluctuations had a lasting effect on the plant cover of the earth; there were several drastic shifts of the areas and vegetation zones, numerous tertiary species became extinct extinct and new ones emerged through hybridization and polyploidy 2). This glacial or ice age period (Plei- stocene/early diluvian, from about 2-1 million years ago) transitioned into the post-glacial period (Holocene/early Allúvian, from about 8250 B.C.E.); with this, a noticeable climate improvement set in, which reached its optimum in the Mid- The climate reached its optimum in the Middle Warm Period (around 5000-3000 B.C.; on average somewhat warmer than today)

1) In the case of the last three genera mentioned, the floral-historical connection with the other parts of the Holarctic deciduous forest belt is well recognizable by the fact that species similar or closely related to the European species also occur in the in the Sino-Japonic or also in the Atlantic-North American floral region.

2) háploíd = Term for the state of the cell nucleus, in which the chromosomes are present in only one set; diploíd = designation for the state of the cell nucleus in which two sets of chromosomes are present (usually one from each of the two parents), homologous pairs are present (designation also applied to an organism, a clan or a generation). parents), homologous pairs are present (term also applied to an organism, a clan, or a generation); Polyploidie = organism or cell with a multiplication of the normal set of chromosomes (more than 2) - according to the number of haploiden sets with the chromosome number n, one distinguishes the degree of polyploidie: 3n = triploíd, 4n = tetraploíd, 5n = pentaploíd, 6n = hexaploíd, 8n = oktoploíd.