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Importance of Palynology for Stratigraphy and Development of the Neogene Flora in the Region of the West Carpathians

In the introduction of the lecture a short historical survey was presented from the beginning of the palynological method to its full application for biostratigraphical purposes. Next a general description of the arrangement and structure of pollen grain was mentioned and possible errors and inaccuracies following from application of the palynological method were indicated. On the other hand the possibilities of application of this method in paleoecology, mainly paleoclimatology and stratigraphy, were pointed out. As main contribution for biostratigraphy by aid of the palynological method evaluation of so called standard diagram and pollen grains is being considered. These are treated by evaluation of an amount of sediments of equal age, and serve then as basis for stratigraphy and correlation.

In the next part of the lecture a survey of the results of palynological investigation in Slovakia from the Egerian to the Plio — Pleistocene was presented. Every stage of the Neogene was characterized by the flora with its development of paleoecological conditions in the Neogene of Slovakia.

The development of the climate in the Neogene was not advancing rectilinearly from tropical — subtropical climate towards cooling off. Certain periods of cooling of the climate were alternating with warmer climatic periods. The climate was relatively cooler in the Egerian and Lower Eggenburgian than in the Ottnangian and Carpathian. In the Badenian the climate was subtropical with alternating humidity of the climate. A change in the climate took place in the Lower Sarmatian, when the tropical climate completely retreated and Arctic — Tertiary types of the flora became predominating. In the Pliocene gradual cooling of the climate set in, also reflected in composition of the pollen picture. Wood species became gradually more and more rare and in the uppermost Pliocene herbs of varied associations are most important in the pollen picture.

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Solution of sedimentological and stratigraphic problems with the use of diatom analysis

(Abstract)

In the past, diatoms were generally recognized as valuable devices for microbiostratigraphic correlation of sediments. Their importance for

age determination and detailed stratigraphic division of sedimentary formations was mostly underrated. However, the possibility of applying the diatom analysis in stratigraphy on a broader scale has recently been proved. The study of stratotypal floras and extensive comparative studies conducted in various countries of Europe, Asia and America, furnished positive results in this respect.

The author has studied qualitative changes of fresh-water diatom associations in various Tertiary and Quaternary sediments on the territory of Czechoslovakia. On the basis of these investigations she defined diatom associations characteristic of individual stratigraphic units and established the complexes of index species.

Every major time interval is distinguished by the evolution of a specific type of diatom flora. The younger the flora is, the smaller is the percentage of extinct species and the closer is its relationship to the recent diatom associations. The diatom associations of the Miocene are very monotonous, comprising few genera and species; the *Melosira* populations predominate greatly over pennate diatoms, which are quantitatively insignificant. In the Pliocene sediments the diatom associations are more varied; the epiphytic and benthic forms of the order *Pennales*, which are characteristic of the Pliocene, increased substantially in number. Compared with the Miocene, the number of extinct species dropped down to the minimum. Quaternary species of diatoms show close relations to the recent ones; the qualitative changes in their associations are more influenced by the climatic fluctuations and the ecological diversity of the habitat than by the age of sediments deposited during this short time interval.

The results have been checked against the published data on the occurrence of fossil diatoms in the continental deposits of Europe; it has been found that they essentially agree.

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