Centriceae diatoms and, a few years later, by rising content of organic matter and iron in sediments. The progress of agriculture seems also connected with the maximum content of phosphorus in the sediment in 1925 (Łącka et al., Chapter 8.2), though the highest crops are suggested by the maximum frequencies of *Secale* pollen between 1934 - 1941 only. The expansion of nitrophilous weeds (Chenopodiaceae, *Urtica, Artemisia*) visible from ca. 1939, may be connected with the war events afflicting the local population.

Phase of restoration of natural environment (after AD 1944)

The beginning of phase is coincident with the abandonment of Dąb Borowy settlement by the end of Second World War. From this time on, the area was subject to gradual reforestation, completed until the middle of sixties, the lake shore itself being afforested by the middle of fifties (1954–1956). During this time, however, the open land of abandoned farms was still used by inhabitants of neighbouring villages, growing there cereals and vegetables. Now, the whole area is forested, and no agricultural activity proceeds in the close lake vicinity.

This history is clearly reflected in pollen data, showing first signs of farm degradation from ca. 1944, and significant decrease in frequencies of all cultivated plants and accompanying weeds from 1953, this process progressing till recent time. The drop of *Secale* pollen curve between 1957–1959 documents probably the stoppage of farming activities on close-by fields. This drop coincides with the fall of *Juniperus* and rise of *Betula* and *Alnus* pollen values indicating the spontaneous development of pioneer woods on grounds unused since late fourties, their progress documented till now. Interestingly, the present frequency of *Secale* in the Lake Gościąż sediments is nearly the same as before the settlement of the lake shore (Dąb Borowy village) in 19th century.

Expansion of tree and shrub vegetation was probably responsible for the increase of calcium and strontium content in sediments, clearly synchronous with the rise of *Betula* curve, the effect being reverse to that observed after 1770. The gradual extinction of farming activity near Lake Gościąż concides with surprisingly abrupt changes in lake ecosystem. The earliest symptoms of change appeared in 1938 (decrease of sedimentation rate, decrease of Cyanobacteria and Chlorophyceae) and 1939 (restored blooms of Chrysophyceae). Abrupt extinction of vivianite from sediment in 1946 marks lowering of lake trophy. Further lowering of trophy is documented by rapid decline of phosphorus content in sediments after 1950, decline of Araphidinae diatoms after 1960 and expansion of planktonic Cladocera. As documented by the drop of Cu/Zn ratio, lake hypolimnion has been weakly oxidized since 1949. The replacement of Fe-Mn rich hypolimnetic water by the Fe-Mn-poor masses from lake surface, stimulating diffusion of both dissolved elements from sediment, was responsible for the abrupt drop of iron and manganese content in sediments above AD 1950. For iron, the abrupt drop was followed by gradual decline through ca. 15 years, reflecting probably weakening of sulphur release from the sediments after lowering of lake trophy, the scenario being similar to that observed after 1885.

Increasing strength of spring and autumn overturns affected preservation of laminae in sediments, which became less distinct after ca. 1945 and almost completely disappeared after 1966. Lack of lamination in the modern sediments is a serious obstacle in monitoring the mechanisms of laminae formation in present time. It seems to be the “bad joke of nature” that the return to more natural conditions in the Lake Gościąż area disabled direct study of the most unique feature of the lake sediments, what occurred after almost 13 thousand years of continuous varve formation.

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