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# INTRODUCTORY REMARKS

This volume produced on the occasion of XII INQUA Congress in Ottawa, Canada, in 1987, presents the second series of papers dealing with the palaeoecological investigations carried out in Poland within the framework of IGCP Project No 158 B: Palaeohydrological changes in the temperate zone during the last 15000 years — lake and mire environments. The first such volume was issued in 1982, on the occasion of XI INQUA Congress in Moscow (Acta Palaeobotanica 22/1). It contained mostly the preliminary results of research, carried out at 8 reference sites, located mainly in the central part of N Poland (6 sites) and also in SE Poland (2 sites).

The IGCP — 158 Project started officially in 1977, and comes to its end in 1987, but we are still far from completing the aims traced out by the project leader Prof. B. E. Berglund (1979, 1986), i.e. achieving the coverage of all type regions, by a network of well investigated primary and secondary reference sites and building up a synthesis of results.

However, we have done a lot of work and made a good progress in both extending the network of investigated sites, and improving and enlarging the range of research methods applied (e.g. numerical methods, stable isotope analysis).

The papers presented in this volume though produced at this late stage of project development are of different extent again. About the half of them are more or less complete palaeoecological studies, some others are complementary to the data published in Acta Palaeobotanica 22/1 in 1982, and the rest contain only preliminary or partial results of research at a reference site/area. Yet they bring altogether a considerable load of new information.

The papers from the Low Beskid and Jasło—Sanok Depression (K. Szczepanek, A. Wójcik, K. Harmata, S. Alexandrowicz) extend our knowledge about the significance of the middle-Carpathian lowering for the plant migrations after the last glaciation, and add a new set of data to the arising problem of water level oscillations during the climatic optimum recorded in South Polish and Czechish mires (see Rybnickova and Rybnicek 1982).

The Wolbrom site (M. Latałowa, D. Nalepka, J. Pawłowski) reveals the first from the South Polish Uplands full Late Glacial sequence of vegetational development, which has been carefully investigated and accurately radiocarbon dated.

Z. Balwierz and S. Żurek present the preliminary pollenanalytical data covering the Late Glacial and Holocene from the Podlasie Lowland, the area where no detailed modern studies on the vegetational history have been made up till now.

The series of papers on Lake Strażym, southern-central Lake Districts (W. Niewiarowski, K. Lankauf, K. Różański, B. Noryśkiewicz, U. Boińska, L. Błędzki) is an example of a complex palaeoecological study following the recommendations for a primary reference site sensu Berglund (1986), and gives important information on the lake level changes. The contribution by K. Różański demonstrates the first in Poland, $\delta^{18}O$ curve — the indicator of relative temperature changes — since the Late Glacial till the late Sub-Atlantic, correlated in detail with the pollen diagram coming from the same sediment core.

I. Okuniewska's record of Holocene vegetational succession in the Greater Poland National Park is focused especially on the human impact on vegetation, and is supported with the good series of radiocarbon dates and a solid archaeological background. It gives also a valuable contribution to the Holocene history of hornbeam in Poland.

B. Marciniakowa demonstrates the development of diatom assemblages in the calcareous sediments of Lake Steklin since the Boreal till Sub-Atlantic chronozone, complementing the pollenanalytic and macrofossil data published by Noryśkiewicz in 1982.

The Holocene papers from the Baltic coastal zone (K. Tobolski, J. Zachowicz and U. Kępińska) discuss the relationships between the transgressions of Baltic sea and the water level changes in the isolated basins (a lake — a mire) of the coastal area.

A special value of K. Tobolski's study on the regional and local history of vegetation in the Gardno-Łeba Plain consists in the rich macrofossil material, which, combined with the series of 20 radiocarbon dates and pollen analytical profile, allows a precise reconstruction of successional changes in terms of plant communities.

J. Zachowicz and U. Kępińska's paper is a study of lacustrine ecosystems temporarily influenced by the inflow of sea-water, based on a variety of palaeoecological analyses with the emphasis laid on the chemical analysis of sediments.

The pollenanalytical and macrofossil investigations at Niechorze, in the western part of Baltic coast (M. Ralska-Jasiewiczowa and A. Rzętkowska) contribute to the discussion on the stratigraphy of the Late Glacial and on the time of woodland expansion after the retreat of the last ice-sheet in the south peri-Baltic area.

The studies on particular reference sites/areas published up till now, including papers contained in this volume, and two papers — from the W Carpathians and central Poland (regions P-a and P-n) — that will be delivered to print separately still in this year, make up together 23 reference sites/areas investigated within the framework of IGCP-158 B project. As in some cases there

are 2 or 3 sites located in one region, a part of regions remains still without any reference site, either a person responsible for assuming the studies. The shortage of specialists is the limiting factor here. In such a situation, to get for the final report as good coverage as possible, it has been decided to use for the empty regions the complementary sites investigated rather recently beyond the IGCP-project, if existing and meeting more or less the IGCP-158 demands.

In this way 35 sites have been listed in the IGCP-158 Catalogue (Ralska-Jasiewiczowa 1986), as usable for the project purposes, including 23 IGCP-sites mentioned above.

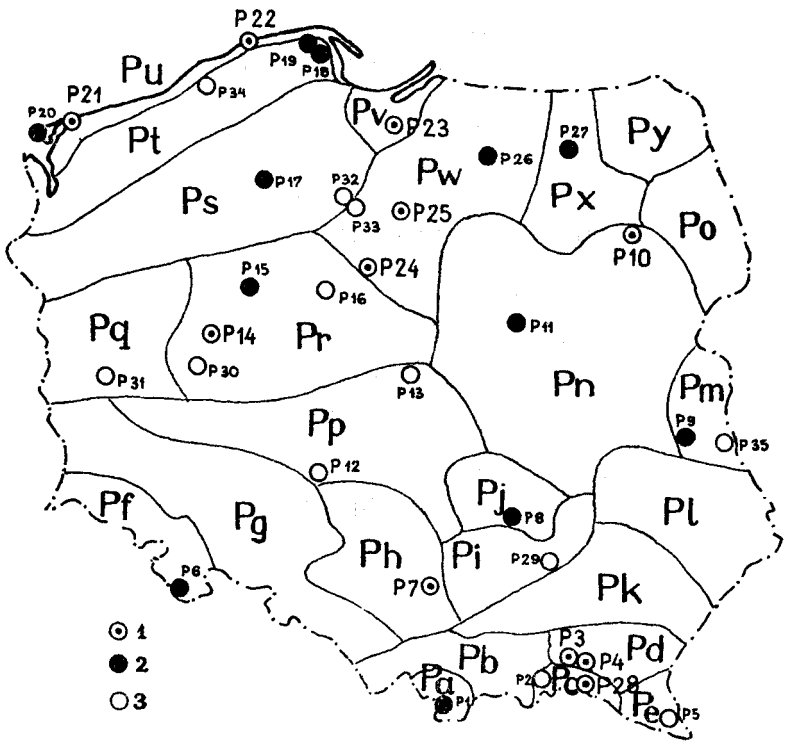


Fig. 1. Map showing the subdivision of Poland into the palaeoecological regions (new version according to the Project Cataloque for Europe (ed. Ralska-Jasiewiczowa 1986), and the location of reference sites. 1 — sites presented in this volume: P-28 Jasiel, P-3 Tarnowiec, P-4 Roztoki, P-7 Wolbrom, P-10 Wizna, P-14 Lake Skrzynka, P-21 Niechorze, P-22 Kluki, P-23 Lake Druzno, P-24 Lake Steklin, P-25 Lake Strażym, 2 — other IGCP-158 B sites, 3 — complementary sites

The map in Fig. 1 shows the subdivision of Poland into the type regions corrected according to the uniform system (no subregions!) and described by the uniform symbols accepted for the whole program (Ralska-Jasiewiczowa 1986). All the IGCP and complementary reference sites are indicated on the map. In the new system the type regions are as follows:

P-a Inner W Carpathians (P-1)

P-b W Beskidy Mts. and forelands

P-c Low Beskidy Mts. (P-2, P-28)
P-d Jasło—Sanok Depression and E forelands (P-3, P-4)
P-e Bieszczady Mts. (P-5)
P-f Sudety Mts. (P-6)
P-g Silesia Lowland
P-h Silesia-Cracow Upland (P-7)
P-i Miechów Upland and Nida Basin (P-29)
P-j Holy Cross Mts. (P-8)
P-k Sandomierz Basin
P-l Lublin Upland and Roztocze
P-m Lublin Polesie (P-9, P-35)
P-n Masovia and Podlasie Lowlands (P-10, P-11)
P-o Białystok Upland and Biebrza Basin
P-p N Marginal Uplands (P-12, P-13)
P-q Lubuskie Lake District (P-31)
P-r Poznań—Gniezno—Kujawy Lake Districts (P-14, P-15, P-16, P-30)
P-s W Pomeranian Lake Districts (P-17, P-32)
P-t Baltic coastal zone (P-18, P-19, P-34)
P-u Baltic shore (P-20, P-21, P-22)
P-v Vistula deltaic area (P-23)
P-w Dobrzyń—Olsztyn Lake Districts (P-24, P-25, P-26, P-33)
P-x Masurian Great Lakes District (P-27)
P-y Suwałki—Augustów Lake District

With all the newest results and all the usable data from outside the IGCP-158 B project included, we are still left with West Beskidy Mts. (P-b), Silesia Lowland (P-g), Sandomierz Basin (P-k), Lublin Upland and Roztocze Mts. (P-l), Białystok Upland (P-o) and Suwałki—Augustów Lake District (P-y) type regions being white spots, besides some serious deficiencies in the central and NW regions of Poland.

To characterize the qualities of sites in more detail I'll use some numbers: out of 35 sites — 25 are well radiocarbon dated, 8 sites have less than 5 dates, and 2 are not dated at all. 21 sites have pollen concentration and some also pollen influx diagrams. Plant macrofossils were examined in 26 sites, more or less detailed chemical investigations of different sorts were made in 20 sites, including in some cases stable isotopes ($^{18}O$, $^{13}C$, 3 sites) and sedimentary plant pigments (4 sites). Diatoms were examined in 9 sites, rhizopods in 3 sites, cladocera in 4 sites, molluscs in 6 sites and insects in 4 sites. 11 sites have no lacustrine sediments.

The given numbers give the general recognition of the data Polish IGCP-158 B team has at its disposal. The obtained materials complemented with other data available encouraged attempts of more general approach to certain problems. Such was the basis of papers on the tree migrations after the last glaciation, presented in form of isopollen maps (Ralska-Jasiewiczowa 1983), or on the water-level changes in lake, mires and rivers based on the stratigraphical records

(Ralska-Jasiewiczowa & Starkel in print). At the closing of the Project in 1987 — the final report recapitulating the achieved results will be prepared, is spite of the existing shortages, as the Polish contribution to the future general synthesis.

However we remember we did not complete the task. We expect to find the way to continue and develop this type of integrated studies, the more so that still new, interesting sites are being found. The most promising one, discovered recently in central Poland is Lake Gościąż near Włocławek, a lake with annually laminated sediments covering a full sequence since the Alleröd till the late historical time (Ralska-Jasiewiczowa et al., in print). We have a real hope to get still fuller and more precise reconstruction of hydrological, ecological and climatic events in Poland over the past 15000 years.

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