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PREFACE

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The Late Cainozoic evolution of the river valleys of the Sudetes Mts has been discussed extensively since the early 20th century. Particular attention has been paid to the rivers flowing across the 100–500 m high scarp of the Sudetic Marginal Fault in the Middle Sudetes Mts: the Bystrzyca river (Berg, 1909), the Strzegomka, Nysa Szalona and Nysa Mala rivers (von zur Mühlen, 1928) and the Nysa Klodzka river (Zeuner, 1928; Berger, 1932; Behr & von zur Mühlen, 1933; Walczak, 1954). The rivers and scarps of the Western Sudetes were discussed in papers by Zeuner (1927), Berg (1929), Behr (1934), Genieser (1936) and Schwarzbach (1942). The last paper summarized the results of the early fluvial investigations and discussed them in terms of the glacial/interglacial stratigraphy and palaeogeography of the region. An especially important paper from that time was the doctoral dissertation by F. Zeuner: *Diluvialstratigraphie und Diluvialtektonik im Gebiet der Glatzer Neisse* (1928), in which he has introduced several problems still being discussed to-day. These are: 1) the relation of the river terraces to glacial deposits and the problem of the number of Scandinavian glaciations that entered the Sudetes; 2) the role of climate in terrace formation and the number of climatic oscillations during the Pleistocene; and 3) terrace deformation due to Pleistocene tectonic uplift of the mountain range. This paper anticipated his later works which were then incorporated in his highly influential books: *The Pleistocene Period* (1945, 1959) and *Dating the Past* (1946; 1958).

This volume has two goals; first, to re-visit the Zeuner's research area and to discuss recent advances in the Nysa Klodzka river valley (Krzyszkowski *et al.*, this volume), and subsequently to present studies of fluvial and glacial stratigraphy and Late Cainozoic palaeogeography throughout the Sudetes Mts. Almost a half of the volume is a result of a project: *Late Cainozoic development of the Sudetic Marginal Fault and neotectonic evolution of the adjacent sedimentary basins* (Krzyszkowski, 1994), which has been active since 1989 and has concentrated on river valleys in the middle sector of the Sudetic Marginal Fault zone (Fig. 1). Preliminary results have been published (Krzyszkowski, 1990, 1991; Pijet 1991; Krzyszkowski & Pijet, 1993a, 1993b; Krzyszkowski & Stachura, 1992, 1993a, 1993b; Krzyszkowski & Biernat, 1993; Stachura, 1993; Migoń, 1993; Krzyszkowski *et al.*, 1995; Krzyszkowski & Migoń, 1995), with the most recent regional syntheses by Krzyszkowski & Pijet (1993c) and Pijet & Krzyszkowski (1994) from the Sowie Mountain range, by Krzyszkowski & Ibek (1996) from the Dzierżoniów Basin, and by Krzyszkowski & Stachura (1998a, 1998b) from the Walbrzych Upland.

The papers included in this volume cover, besides the Nysa Klodzka river valley, the remaining part of the Sowie Mts range (Krzyszkowski & Olejnik, this volume), the Bystrzyca river valley (Krzyszkowski & Biernat, this volume) and the Walbrzych and Bolków Uplands (Krzyszkowski, this volume; Migoń *et al.*, this volume) (Fig. 1). Furthermore, this volume comprises papers that are the result of a geological mapping project of the Geological Survey in the Middle Sudetes and the Sudetic Foreland (Krzyszkowski, *et al.*, this volume; Przybylski, this volume; Przybylski, *et al.*, this volume) and in the Western Sudetes (Michniewicz, this volume). Two other papers present data from the upper course of the Nysa Klodzka river valley in the Sudetes interior (Kowalska & Sroka, this volume) and from the northern sector of the Sudetic Marginal Fault (Migoń & Łach, this volume). One paper discusses in more detail the youngest, late Weichselian to Holocene, fluvial episodes in the Sudetic Foreland (Alexandrowicz & Ciszek, this volume). This set of papers, including previously published works, is intended to represent a contemporary 'final result' of the research along the scarp of the Sudetic Marginal Fault, which appears 56 years after Schwarzbach (1942) and 30 years after the last regional syntheses (Jahn & Szczepankiewicz, 1967; Walczak, 1968, 1972).

From the three basic research problems introduced by Zeuner (1928), the possibility of the (neo)tectonic movements beyond the Alpine fold belt has been fully confirmed in the Sudetes Mts. Almost all the river valleys investigated so far show geomorphic and geological evidence for such movements, including spectacular, up to 25 m high fault scarps. The Early Pleistocene displacement has been estimated at about 60–100 m, in places probably even more, and the Middle and Late Pleistocene at a maximum 40–50 m. The age of the river terraces and their correlation with climatic events is, however, still ambiguous. The Zeuner's correlations (1928) seem to be to over ambitious. In fact, there has been no progress since fifties, as neither pollen nor palaeontological evidence has yet been found in the fluvial gravels, except the oldest (Pliocene) and the

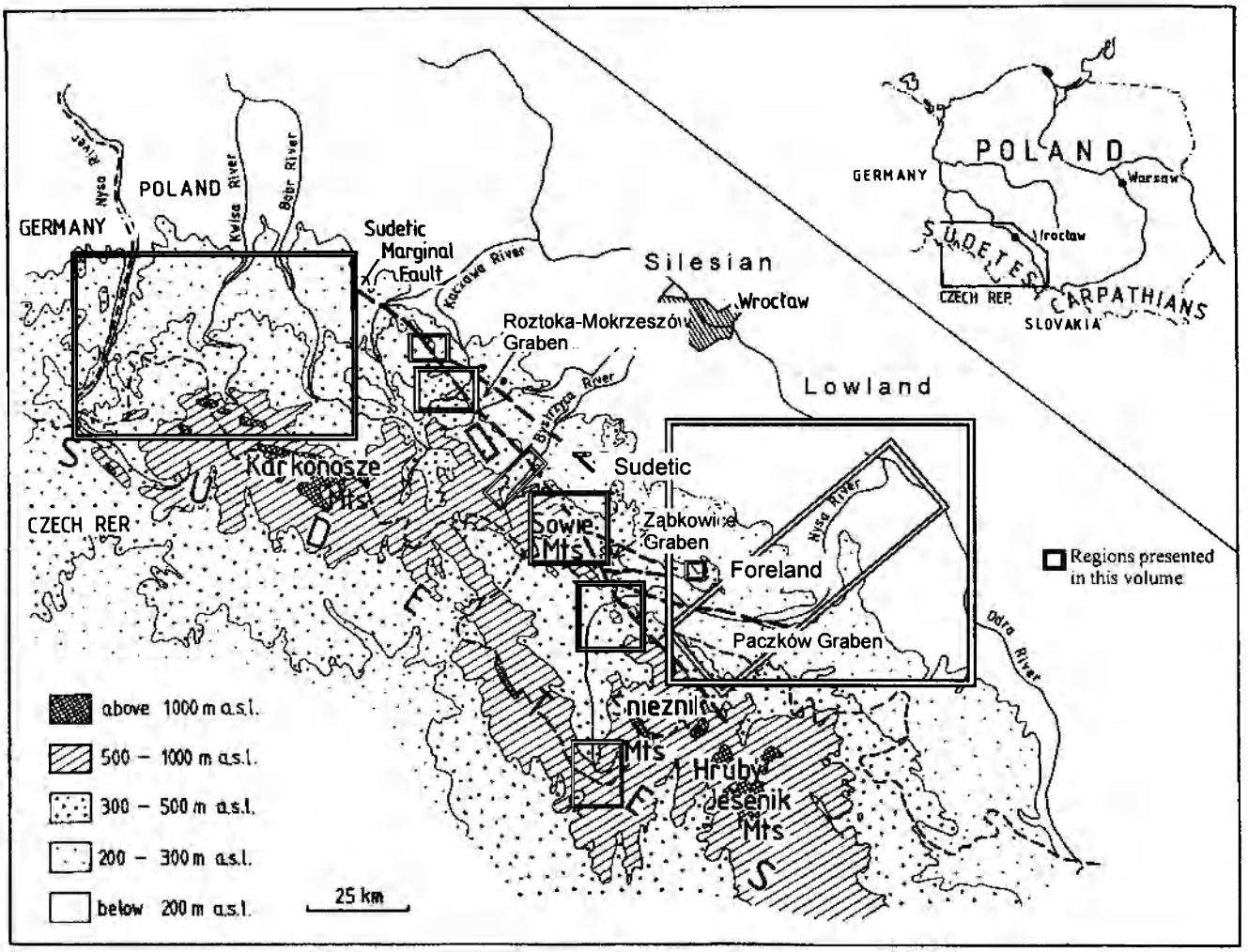

Fig. 1. Location of studied regions of the Sudetes Mts and the Sudetic Foreland which are presented in the current volume of *Geologia Sudetica*.

youngest (Holocene). Consequently, the chronostratigraphy of Middle and Late Pleistocene fluvial events is very fluid. Recent data suggest that two ice-sheets, the early Elsterian and the early Saalian, advanced into the interior of the southern part of the Middle Sudetes (Kłodzko Basin). In the northern part of the Middle Sudetes there is, however, evidence for only one advance, most probably the early Saalian (Krzyszkowski & Stachura, 1998a, 1998b; Krzyszkowski & Biernat, this volume). In contrast, Michniewicz (this volume) suggests only one advance in the Western Sudetes, but of early Elsterian age, similar to East Germany. Thus, either our stratigraphy is in error or the history of Scandinavian glaciation in the Sudetes Mountains is more complex than hitherto assumed. Further investigations are necessary. I hope that the papers of presented volume will initiate fruitful discussion and, as a result, new research projects.

It is my privilege to sincerely thank all the authors for their interest in writing for this volume, to the referees for their hard work, and to Professor Anthony Sutcliffe for his great enthusiasm in dealing with this volume. Much editorial work was carried out by A. Żelaźniewicz and B. Przybylski. The volume was partly financed by the Lower Silesia Branch of the Polish Geological Institute, with the great effort of its director, dr S. Cwojdziński.

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