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Preface and acknowledgements

'Oh there are strange rivers
Rivers that we cannot see...'

John Stewart

The interest in the subject of this thesis dates back to the mid-seventies of the last century when, as an undergraduate, I had to write a paper on the Pliocene and Pleistocene vegetation development in the Netherlands. The results left me with three main impressions: the huge pile of literature that had to be read, the impressive thick and outstanding recently published paper by Burchardt Menke (a perfect opportunity to practise my reading in German), and the understanding that the Plio-Pleistocene vegetation record was compiled by gathering bits and pieces from sites all over the country.

After graduating I first surveyed the mud of the Holocene coastal plain, and so for some years the subject faded into the background. Subsequently I became a field geologist in the southern part of the Netherlands a post that provided me easy access to the well-known Pliocene and Early Pleistocene type sites. New boreholes for groundwater exploration in the Roer Valley Graben (RVG), carried out in the late 1980s, marked a major turning point in my interest in the Plio-Pleistocene stratigraphy. Through interpreting the deposits of this period I became aware of the many pitfalls and uncertainties that arise from a comprehensive explanation of the preserved Pliocene to Pleistocene sedimentary sequences in the RVG and their rather straightforward correlation to the type-sites on the Peel Block. Since then, I gradually started to collect relevant information with the idea that I would at some point publish a paper on Pliocene and Early Pleistocene stratigraphy and sediments. Finally, after several more years it has resulted in the booklet presented here.

Although it was not initially my intention, several people had mentioned already that this subject was suitable as a PhD topic. However, because of the hectic times of multiple changes at the *Geological Survey of The Netherlands* and children that had to be raised, it took some time before I accepted the challenge. With respect to this, I owe sincere thanks to Mart van Bracht, who was at that time the head of the Geo-Mapping department and is now director of TNO *Geological Survey of the Netherlands*. Based on his own experiences in producing a similar booklet, Mart encouraged me to do the same and finally he persuaded me to take the final steps. Subsequently, it was self-evident that prof.dr. J. Vandenberghe should be the supervisor because he and his collaborators have a long and outstanding experience on Early-Pleistocene matters. Jef, I very much appreciate the way you fulfilled this task: being open-minded to controversial ideas, critical in reviewing texts, and always encouraging to go on. The patience and confidence of both Jef and Mart in my ability to achieve a good result have been seriously tested during the final stages of the project. Their continuing support I greatly acknowledge.

During the progress of the work many people contributed at all levels by giving me support, providing data or analyses, or taking part in vivid and stimulating discussions. The latter often took place during one of the many excursions I guided to the pits in the area near Tegelen.

First of all I am very much indebted to the team of co-promotors. Prof.dr. Phil Gibbard (University of Cambridge) has followed this research for nearly 20 years and that has left many memorable moments, especially those during good weather in the beloved pits of the Dutch-German border area. Pictures from 1992 already prove his dedication during sampling at the Maalbeek pit. Phil, your support was invaluable and how can I ever thank you for all the corrections made to the final manuscripts? With dr. Kees Kasse I share a common interest in the Lower Pleistocene stuff of the Netherlands. Kees, your critical attitude on some of my thoughts is greatly appreciated. Your awareness that academics should publish more of their underlying data will undoubtedly lead to continuing work on the subject. I look forward to that! By the way, your talent for the correction of reference lists is outstanding. Dr. Henk Weerts, must be thanked for many things. We became friends during the revision of the lithostratigraphy of the Netherlands, a remarkable period for both of us. Henk, your knowledge of fluvial sedimentology was of enormous help and it must be said that you were the first to recognise the intercalated sand body in the flood-basin clay at Hoher Stall as the remnant of a former crevasse-splay. I am indebted for the late-night phone calls during which we discussed a variety of scientific and life-related matters. However, your preference for chain-saw music I will never understand!

Prof.dr. Wolfgang Boenigk (Universität Köln) is very much acknowledged for showing me the problems of the Oebel Beds and his willingness to carry out heavy-mineral analyses. His outstanding work on the Lower Rhine area is of great significance for unravelling the stratigraphy and fluvial history. I thank prof.dr. Thijs van Kolfschoten for his long-lasting enthusiastic support. Thijs, your idea to organise the SEQS meeting *The Dawn of the Quaternary* in the Netherlands formed a marker point in my research history. It brought me into the world of Quaternary stratigraphy and familiarised me with numerous researchers throughout Europe. One of them is prof.dr. Mauro Coltorti (University of Sienna) who loves to discuss alternative interpretations. Dr. Ronald van Balen was always interested because of the tectonics in the main study area. I thank dr. Kim Cohen for his invaluable discussions on the fluvial history and the ease with which he proposed critical issues and alternative ideas. Both these readers are thanked for their comments on the manuscript.

Contents

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Furthermore, I must thank my former colleague Piet Cleveringa who introduced me to the pollen-based Pleistocene stratigraphy and taught me to question all existing solutions. Colleagues of the former Palaeobotanical Department of the *Geological Survey of the Netherlands*, nowadays the Geobiology group, are thanked for their help in sampling and analysing numerous pollen data. With respect to this, I owe special thanks to Jan Willem Weegink for providing repeatedly asked alterations to the pollen diagrams.

Hans Axel Kemna, who undertook his PhD on the German part of the Lower Rhine Embayment, is acknowledged for discussions, field visits and the fact that he showed me that epidote should be printed in green on the heavy-mineral diagrams.

I am very much indebted to Joep Peijnenburg and Ing. Else Dijkstra of the Heijmans Group and their colleagues for kindly giving me permission to work in the Maalbeek, Bovenste Molen and Laumans pits. It was always great fun to be there and your alertness to special features during excavation has given us many things to think about.

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The Final drawing and designing of this volume was undertaken by Lydia Bennekers, she really provided the finishing touches.

During the work our children Siewert, Kerstin, Istar and Jalmar developed their own course in life but their interest and support in what I have achieved during all those hours upstairs make me grateful. Writing a thesis is a long and lonely process, but Laurieke, my wife, was always there offering her support, patience, love, and good food to give me enough strength to go on. Laurieke, I will thank you for ever and ever (cf. Händel, 1741).

Wim Westerhoff

5 December 2008

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