

CRITERIA FOR THE DIFFERENTIATION OF LATE QUATERNARY RIVER TERRACES

WOLFGANG SCHIRMER

Department of Geology, University of Düsseldorf,
Federal Republic of Germany

ABSTRACT. In this paper the Holocene stratigraphy of the river Main (Bavaria) — one of the most detailed stratigraphies of the river Holocene — is worked up into a catalogue of criteria which offers characteristics suitable for the stratigraphic subdivision of Holocene river sediments in other valleys. As the best abstract for this criteria catalogue may serve Fig. 1 which combines the bulk of criteria in drawing and words. The evaluation of the criteria catalogue yields three essential breaks within the river development since the Würmian maximum: The first during the younger Würm Glacial after the Würmian maximum, the second and weaker one at the Würm/Holocene boundary — two climatic breaks — and the third one in the late Roman Period strongly influenced by man's clearance activity.

*Introduction

Investigating the Würmian and Holocene river terraces of the valley ground the usual problem is: there are some exposures, some morphological or pedological facts. But for a complete construction of the valley ground they give only details and a small section out of the whole stratigraphical range of the valley fill. Therefore, identification criteria of a detailed subdivided key area would be helpful.

For the Central European Mittelgebirgs region at least such a key area has been

elaborated in the upper course of the river Main in Franconia (Schirmer 1980a, 1981a).

In the following lines a catalogue of such criteria is drawn up which enabled to identify and to separate the different terraces and fluvial sediments of the Main terrace sequence. For investigations in some river valleys of the Mittelgebirge a survey of those criteria proved to be very helpful.

Up to now this sequence consists of nine river terraces. Three of them belong to the Würmian Period and six to the Holocene Period (Fig. 1). All nine members are well-defined by their morphology, pedology, their interior structure with sedimentological and by their stratigraphical position. Up to now nowhere else a valley is known with such a complete and well-defined sequence of terraces. On the other hand, equivalents of some of these terraces can be found in other valleys (Becker & Schirmer 1977). It has been proved that they fit well into the terrace system of the river Main.

1. Morphological criteria

The terrace sequence of the river Main shows 4 terrace steps (Fig. 1): Low Terrace, Higher Floodplain Terrace, Middle Floodplain Ter-

Features