PREFACE

The development of ecostratigraphy and its ever-growing popularity are characteristic of the stratigraphy of the past decade. We entirely accept B. Sokolov's standpoint who believes that the success of ecostratigraphy is due to "an effort of the present-day geologists and palaeontologists to understand the life in geological past not only as the history of a separate phylum or a set of "guide fossil associations", characteristic of different levels of stratigraphical scale, but as a system of mutual links between evolving communities and changing environmental conditions" (Соколов, 1980). System approach, search for general patterns governing both biotic and abiotic life elements and their application to biochron correlation at the ecosystem level seem to be the most characteristic features of ecostratigraphy. True enough, the content and methods of ecostratigraphy have been a subject of discussions. However, diversity of opinions is rather advantage than disadvantage of ecostratigraphy, since it is just the discussion that has often accompanied and stimulated the development of a branch of science.

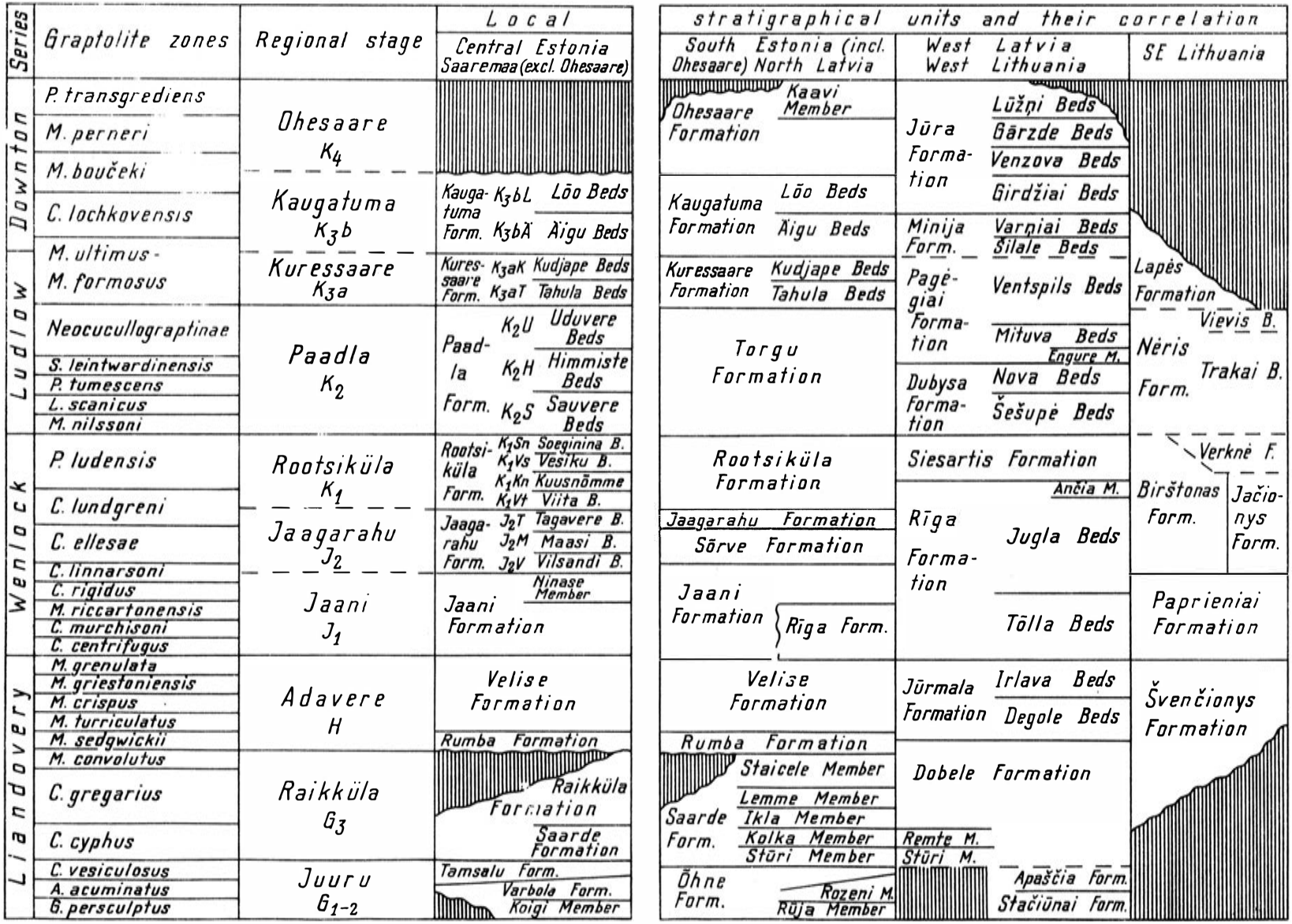
A part of the material published here was reported in brief at the Project Ecostratigraphy Meeting on Gotland, August, 1981. The papers present the results obtained at the first stage of the ecostratigraphical research in the East Baltic area giving much attention to the study of the relations between the distribution of organisms and facies. The main approaches used were as follows:

1) subdivision of sections into litho- and cyclostratigraphical units (formations, members, cyclothems);
2) environmental interpretation of rocks on the basis of the facies-sedimentary model of the Baltic Silurian Basin;
3) compilation of lithofacies maps to show distribution of facies in the basin;
4) biozonation to generalize vertical distribution of fossil organisms;
5) establishing of communities to show geographical distribution of fossil organisms, their relations with environment, and to understand the nature of the boundaries of stratigraphical units.

By these means we have obtained rather good knowledge of the distribution of stromatoporoids, tabulate corals, brachiopods, trilobites, ostracodes, conodonts, chitinozoans, graptolites and vertebrates. It contributes to better understanding of causal and historical background of the changes in the paleobasin. As to stratigraphical correlations the following should be mentioned: if the boundaries of different biozones are coinciding and also with those of lithostratigraphical units, it refers to the facies nature of such boundaries. As a rule, they are diachronous and only to a smaller extent synchronous (the boundaries of cyclothems).

The Baltic pericontinental Silurian basin which embraces besides the East Baltic area also Gotland and a part of Poland may serve as a test basin for ecostratigraphical investigations. This is justified by a wide set of different facies enabling to study deposits from primary dolomites of tidal flat up to mudstones and shales rich

The stratigraphical scheme of the East Baltic - Silurian



in organic matter of the central depression of the basin. The small number of longer hiatuses, rich and well preserved fauna, numerous outcrops and borings create favourable conditions for the elaboration of many problems of ecostratigraphy, especially correlation of the different facies. We think the latter is one of the main tasks of ecostratigraphy. It is also favoured by a long-term stratigraphical study of the area. The current stratigraphical scheme of the East Baltic Silurian is presented here in order to facilitate the orientation of a reader in the names of units, their hierarchy and correlation (Table). Its left side shows the relations between the basic stratigraphical units of the East Baltic Silurian Basin - regional stages - and Silurian standard units, whereas the right side presents the correlation of local stratigraphical units. A regional stage is treated as a chronostratigraphical unit more or less within the limits of which lithostratigraphical or local units, such as formations, members, beds are distinguished in different parts of the basin. In essence the given scheme repeats the unified stratigraphical scheme for the East Baltic (see Решения...., 1978), although the recent studies claim to the introduction of some corrections. Since, for the tasks of the present book the majority of these corrections is not of essential importance, we have introduced only one adjustment: Ventspils Beds (Ludlow) in the area of West-Latvia - West Lithuania are raised from the level of the Paadla Regional Stage to that of the Kuressaare Regional Stage. This correction is proved by a complex of palaeontological evidence obtained through the study of vertebrates, conodonts, chitinozoans and trilobites. In the area of carbonate (shelly) facies the correlation of many East Baltic regional stages with the graptolite standard of the British Isles is only approximate. For this reason the boundaries which are poorly motivated due to the lack of more precise data are given in a broken line. The reader will find in the left side of the scheme the indexes of all stratigraphical units (regional stages and their subdivisions) used in the present book. In the text they will not be dealt with any more. With respect to terminology we beg the reader to consider that frequently occurring term "regional stage" (in Estonian "lade", in Russian "горизонт") is shortened to "stage" for the sake of briefness.

And, at last, we hope that the scheme presented will contribute to correct spelling of names of stratigraphical units of the Silurian of Estonia, Latvia and Lithuania in languages which use the Latin alphabet.

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