Preface

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Bioenergy obtained an enormous publicity during the past years. It was assumed as a real alternative to the replacement of fossil and nuclear energies. The initial enthusiasm was followed by a certain disillusionment, as besides the lack of economical technologies the feasibility of many well-meant propositions decreased drastically, due to the poor access to the annually synthesized 10^{11} t of biomass. The publication of volume 20 of our series coincides with a stage of development which shows, besides the setbacks, some realistic possibilities for the production of bioenergy from biomass.

This Jubilee Edition shall therefore be dedicated to this topic. A part of the largest integrated research program of the non-medical biology research area is placed into the foreground, e.g. the US program "Fuels from Biomass" with an annually granted sum of currently 100 million dollars.

The most prominent subject of these impressive R + D programs in many countries is the ethanol "gasohol" from sugar and high polymer carbohydrates (starch, cellulose) as well as methane from agricultural waste and sewage sludge. The wide scope of all the investigations is remarkable. This impression becomes evident when studying the reports from different countries also from outside the USA which are included in this selection of the American program. Many other countries which are not listed here have also started programs for gaining bioenergy. A complete list can hardly be made because of the dramatic development of the subject taking place very rapidly. The active scientists from the countries not quoted may forgive the editor for the lack of completeness due to the reasons mentioned. It is impressing that today the R + D for the development of biotechnical methods is highly promoted in all continents. In many cases, the final shape of the process design and the economy are not yet in sight and further efforts of biologists and engineers are required. It can be foreseen with certainty that today's work will result in an enormous support of biotechnology which will lead to significant reactions on biology and economy.

Despite the incompleteness of the selection of topics presented in this volume, it is hoped that the reader may obtain some characteristics of the present-time developments.

Each article has been prepared only recently. No reviewing has been done on them in order to preserve the new and original character of the writing and to allow the inclusion of the most recent results.

Undoubtedly, the reader will esteem the advantages of originality and topicality and overlook the disadvantages of incompleteness and minor insufficiencies in the finish of the writing.