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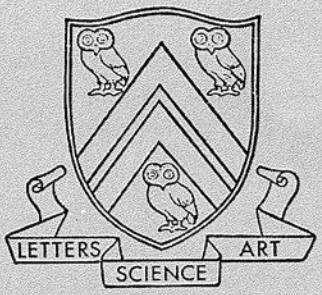

WATER TECHNOLOGY

A Multidisciplinary Perspective

A. W. BUSCH, Editor

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J. D. HELLUMS
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Proceedings of the Sixth Industrial Water & Waste Conference
of The Texas Water Pollution Control Association

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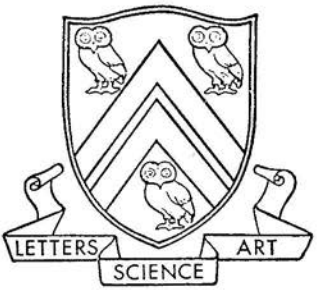

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Foreword

Water technology problems imply to many, perhaps most, persons the single question of quantity, i. e., having "enough" water. Quantity is often implied to be a static problem, solved by large reservoirs with capabilities in billions of gallons. In fact, of course, water demand is a dynamic problem because time is involved. The units of water demand are volume per unit time, not just volume. The importance of considering water problems as dynamic problems, as rate problems, cannot be overstated.

Acceptance of the rate concept means that the entire spectrum of water technology problems can be approached as rate processes. This approach in turn requires more detailed knowledge of system characteristics and basic parameters for effective process and/or system design.

In the analysis of water technology as rate problems the knowledge and capability extant in a variety of disciplines can and must be drawn upon. This conference represents an effort to begin development of the multidisciplinary perspective felt vital to effective solution of problems in water technology.

Quite obviously a single two-day meeting cannot encompass all aspects of water problems. This program was set to introduce some elements of biochemistry, biology, mathematics, and engineering of basic significance. In preparing manuscripts for the conference the authors have necessarily begun their presentations at a level which may seem trivial to some in the audience. Possibly the final development of some concepts will not be compatible with the background of some conference participants. This range of response is both inevitable and necessary because of the diversity of backgrounds of water personnel. An attempt has been made to minimize the extremes of the response and in the attempt analytical rigor has suffered in some respects.

If a slogan for the conference was set, a likely phrase would be "a little knowledge can be dangerous." The authors have set out to define limitations as well as capabilities of their techniques and concepts. The pitfalls of inductive logic based on limited knowledge are repeatedly stressed by the authors.

This volume represents a collection of individual papers by experienced specialists. The intent is to have a common core of emphasis through the papers with repetition where this contributes but to avoid redundancy. No effort has been made to reduce the manuscripts to a common style because the essence of each author's contribution would be diluted. Because these papers were prepared as lectures for the conference they particularly reflect the author's personality and are felt to enhance communication of the concepts presented.

The writer is indebted to the authors for undertaking the difficult assignment of preparing papers of an introductory nature without undue sacrifice of academic rigor. Indeed, if we have succeeded in meeting the objectives of the conference it is because the authors are research-oriented educators uniquely able to use their perch high in the ivory tower for perspective rather than introspective analysis.

Hopefully, this conference and this volume will provide a stimulus for multidisciplinary participation in defining questions, providing analytical methodology, and establishing rigorous design criteria for problems in water technology.

The papers in this volume are arranged in the order of their presentation at the conference. Acknowledgment is gratefully accorded Miss M. B. Appleton for manuscript typing and exemplary secretarial services and Mr. Robert Simon for preparation of the illustration drawings.

A. W. BUSCH, *Editor*
Professor of Environmental Engineering
RICE UNIVERSITY

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WATER TECHNOLOGY

A Multidisciplinary Perspective

BIOCHEMISTRY AND WASTE TREATMENT
by E. D. Schroeder 1

PLANT PROCESSES AND APPLICATIONS
by C. H. Ward 13

TRANSPORT PHENOMENA
by J. D. Hellums 31

KINETICS ON THE MICROBIAL SCALE
by H. A. Deans 43

MATHEMATICAL MODELS OF PHYSICAL SYSTEMS
by Kenneth J. Cox 53

USE OF COMPUTERS TO SOLVE MODEL EQUATIONS
by S. H. Davis, Jr. 59

OPTIMIZATION
by F. Horn 69

MODELS OF BIOLOGICAL REACTORS
by J. D. Norman 85

MATHEMATICS OF STREAM AND ESTUARY PROBLEMS
by J. V. Leeds, Jr. 93

SUMMARY AND CLOSURE
by A. W. Busch 109