AICHE JOURNAL MAY, 1969 • VOL. 15, NO. 3

The AIChE Journal, an official publication of the American Institute of Chemical Engineers, is devoted in the main to theoretical developments and research in chemical engineering and allied branches of engineering and science.

PUBLISHER

F. J. Van Antwerpen

EDITOR

Harding Bliss

MANAGING EDITOR

Sylvia Fourdrinier

MANUSCRIPT EDITOR

Barbara Ricciotti

ADVISORY BOARD

C. M. Cooper
O. E. Dwyer
W. C. Edmister
E. R. Gilliland
J. M. Smith

A. N. Hixson Theodore Vermeulen

W. R. Marshall, Jr. R. R. White

Publication Office, 215 Canal Street, Manchester, New Hampshire. Published in January, March, May, July, September, and November by the American Institute of Chemical Engineers, 345 East 47 Street, New York, New York, 10017. All manuscripts should be submitted only to the New York Office. Correspondence with the editor may be addressed to him at Yale University, 225 Prospect Street, New Haven, Connecticut 06520. Statements and opinions in the AIChE Journal are those of the contributors, and the American Institute of Chemical Engineers assumes no responsibility for them. Subscription: one year, member \$8.00; non-member \$35.00; additional yearly postage, Canada \$1.00, Pan American Union \$1.50, other foreign \$2.00 (foreign subscriptions payable in advance). Single copies: \$10.00. Second-class mail. Postage paid at Manchester, New Hampshire. Copyright 1969 by the American Institute of Chemical Engineers. National headquarters of AIChE is concerned about nondelivery of copies of the AIChE Journal and urgently requests subscribers to give prompt notification of any change of address. Sixty days must be allowed for changes to be made in the records.

Postmaster: Please send form 3579 to AICHE Journal, 345 East 47 Street, New York, N. Y. 10017.

Books	322
Laminar Velocity Profiles in Developing Flows Using a Laser Doppler Technique Neil S. Berman and Valerio A. Santos	323
The Laminar Boundary Layer on a Moving Continuous Flat Sheet Immersed in a Non-Newtonian Fluid V. G. Fox, L. E. Erickson, and L. T. Fan	327
Stable Explicit Difference Approximations to Parabolic Partial Differential Equations	334
The Change in Pore Size Distribution from Surface Reaction in Porous Media R. S. Schechter and J. L. Gidley	339
Mathematical Analysis of Bubble Dissolution J. L. Duda and J. S. Vrentas	351
Heat Transfer from a Cylinder in an Air-Water Spray Flow Stream R. Lawrence Mednick and C. Phillip Colver	357
A Thermodynamic Equation Relating Equilibrium Vapor-Liquid Compositions and Enthalpy Differences in Isobaric Multicomponent Systems Luh C. Tao	362
A Simple Solution for Boundary Layer Flow of Power Law Fluids Past a Semi- Infinite Flate Plate	367
The Experimental Determination of the Volumetric Properties and Virial Coefficients of the Methane-Ethane System H. G. McMath, Jr. and W. C. Edmister	370
Newtonian Jet Stability: The Role of Air Resistance Robert W. Fenn, III and Stanley Middleman	379
Viscoelastic Jet Stability F. William Kroesser and Stanley Middleman	383
The Aqueous Phase Oxidation of Cyclohexane using Gamma-Radiation Ronald C. Ashline and Robert Von Berg	387
Optimization of Complex Chemical Plants by a Gradient Technique E. Stanley Lee	393
The Effects of Internal Mass Transfer on the Hydrogenation of Benzene Over Nickel-Alumina Catalyst Frantisek Jiracek, Josef Horak, and Josef Pasek	400
Internal Flow Mechanism in Filter Cakes Mompei Shirato, Masao Sambuichi, Kato Hiroo, and Tsutomu Aragaki	405

(Continued on page 322)