

# BY-LINES

ROBERT A. MILLIKAN



Dr. Millikan, Chairman of the Executive Council of the California Institute of Technology, and Director of the Norman Bridge Laboratory of Physics, has contributed extensively to advancements in the field of physics. He was awarded the Nobel

Prize in Physics of the Swedish Royal Academy of Science in 1923.

RUSSELL J. LOVE



Mr. Love received his B.S. degree in mechanical engineering from the California Institute of Technology in 1928. He served in the capacity of a research engineer with C. F. Braun and Company until 1932, and since that time he has been with the South-

west Welding and Manufacturing Company of Alhambra. Mr. Love has been chief engineer of that company since 1936.

ROBERT JANES



Mr. Janes was graduated from California Institute of Technology in 1936 with a B.S. degree in civil engineering, following which he studied for a year at the University of Minnesota. Before coming to the Institute as an instructor, Mr. Janes was with

the State of California Division of Highways, and was employed with that department during construction of the Santa Fe Dam.

ENGINEERING AND SCIENCE MONTHLY is published monthly on the 25th of each month by the Alumni Association, Inc., California Institute of Technology, 1201 East California Street, Pasadena, California. Annual subscription \$2.50; single copies 35 cents. Entered as second class matter at the Post Office at Pasadena, California, on September 6, 1939, under the Act of March 3, 1879. All Publishers' Rights Reserved. Reproduction of material contained herein forbidden without written authorization.

# ENGINEERING AND SCIENCE

Monthly



The Truth Shall Make You Free

## CONTENTS FOR DECEMBER, 1943

America's Debt to Greece . . . . .	2
The Month in Focus . . . . .	3
The Santa Fe Dam . . . . .	4
By Robert Janes	
Benjamin Franklin as a Scientist . . . . .	7
By Robert A. Millikan	
Recent Developments in Welded Refinery Equipment . . . . .	10
By Russell J. Love	
C. I. T. News . . . . .	19
Alumni News . . . . .	19

## ENGINEERING AND SCIENCE MONTHLY

Edited at California Institute of Technology

EDITORIAL ADVISORY BOARD: Hugh Colvin, '36, Chairman; Ernst Maag, '26; George Langsner, '31; William Huse, Editor, Institute Publications  
Editorial Consultant: George R. MacMinn, Associate Professor of English.

### EDITORIAL STAFF:

Editor-in-Chief—Donald S. Clark, '29  
Managing Editor—R. C. Colling  
Associate and News Editor—Charlotte Tompkins  
Assistant Editor—Alvina Koglin

### BUSINESS STAFF:

Business Management—  
The Colling Publishing Company  
124 West Fourth Street  
Los Angeles, California  
Circulation Manager—Leonard Ross, '27