

# CALIFORNIA INSTITUTE OF TECHNOLOGY

## ANNUAL COMMENCEMENT

*June 11th, 1943 . . . 4:00 p. m.*



# PROGRAM

## PROCESSIONAL MARCH

Pomp and Circumstance - - - - - Elgar

## THE NATIONAL ANTHEM

THE CALIFORNIA INSTITUTE BAND

## INVOCATION AND CHAPLAIN'S ADDRESS

THE REVEREND THEODORE G. SOARES, PH.D., D.D.

## COMMENCEMENT ADDRESS

### SOCIAL SECURITY AND ITS LIMITING FACTORS

EDWIN FRANCIS GAY, PH.D., LL.D., LITT.D.

*Chairman of the Research Group of the Huntington Library and Associate in Economics at the California Institute of Technology*

## CONFERRING OF DEGREES

*Candidates presented by*

FREDERIC W. HINRICHHS, JR., A.M., *Dean of Upper Classmen*

W. R. SMYTHE, PH.D., *Chairman of the Committee on the Course in Science*

W. W. MICHAEL, B.S., *Chairman of the Committee on the Course in Engineering*

ROSCOE G. DICKINSON, PH.D., *Acting Dean of the Graduate School*

*Degrees conferred on behalf of the  
Trustees and Faculty by*

ROBERT ANDREWS MILLIKAN, PH.D., LL.D., Sc.D., *Chairman of the Executive Council*

## THE YEAR'S PROGRESS

DR. MILLIKAN

## BENEDICTION

# C A N D I D A T E S F O R D E G R E E S

## DOCTOR OF PHILOSOPHY

LEON BLITZER (Physics), B.S., University of Arizona, 1938; M.S., 1939.

ROBERT CLARENCE BRUMFIELD (Mechanical Engineering), B.S., California Institute, 1940; M.S., 1941.

JOHN ELDREDGE CUSHING, JR. (Biology), A.B., University of California, 1938.

CHARLES HERBERT ELLIS (Biology), B.A., Whittier College, 1934; M.S., 1937.

GEORGE THEODORE FELBECK (Chemistry), B.S., University of Illinois, 1919; M.S., 1921.

PAUL RAYMOND GORHAM (Biology), B.A., University of New Brunswick, 1938; M.S., University of Maine, 1940.

SIDNEY GOTTLIEB (Biology), B.S., University of Wisconsin, 1940.

ELDRED WILSON HOUGH (Physics), B.S., University of Illinois, 1939; M.S., California Institute, 1941.

WILLIAM HOVANITZ (Biology), B.S., University of California, 1938.

RICHARD HENRY JAHNS (Geology), B.S., California Institute, 1935; M.S., Northwestern University, 1937.

KLAUS MAMPEL (Biology), A.B., University of Southern California, 1939.

WILLIAM HAROLD MCNEELY (Chemistry), B.S., University of California, 1940.

JOHN WILLIAM OTVOS (Chemistry), B.S., Harvard College, 1939.

PAUL ROME SAUNDERS (Biology), B.S., University of California, 1939.

WALTER A. SCHROEDER (Chemistry), B.Sc., University of Nebraska, 1939; A.M., 1940.

RALPH GUN-HOY SIU (Biology), B.S., University of Hawaii, 1939; M.S., 1941.

CLAY TAYLOR SMITH (Geology), B.S., California Institute, 1938; M.S., 1940.

STANLEY COOPER SNOWDON (Physics), B.S., Massachusetts Institute of Technology, 1940.

STANLEY MORSE SWINGLE (Chemistry), B.S., Montana State College, 1939.

JACOB EARL THOMAS, JR. (Physics), A.B., Johns Hopkins University, 1939.

## DOCTOR OF PHILOSOPHY (IN ABSENTIA)

JOHN COOPER EVVARD (Physics), B.S., California Institute, 1939; M.S., 1940.

GERALD HARRISON (Mathematics), B.A., Arizona State College, 1937; M.A., 1938.

LEON KATZ (Physics), B.Sc., Queen's University, Ontario, 1934; M.Sc., 1938.

ROBERT VOSE LANGMUIR (Physics), A.B., Harvard College, 1935.

RICHARD NEWTON LEWIS (Chemistry), A.B., University of California, 1937.

LOUIS JOHN REGAN, JR. (Geology), B.S., California Institute, 1939; M.S., 1941.

CHARLES DANIEL WAGNER (Chemistry), A.B., Grinnell College, 1939.

## AERONAUTICAL ENGINEER

WALLACE DEAN HAYES, B.S., California Institute, 1941.

RICHARD MOORE HEAD, B.S., California Institute, 1942; M.S., 1942.

✓ EDWARD FREDERICK KELLEY, B.S., U.S. Naval Academy, 1926; M.S., California Institute, 1942.

GEORGE KEIRN ZEBB, B.S., California Institute, 1941; M.S., 1942.

✓\* RICHARD FRANCIS KANE, Lt. Comdr., U.S.N.; B.S., U.S. Naval Academy, 1934.

✓\* EDWIN SAMUEL LEE, JR., Lt. Comdr., U.S.N.; B.S., U.S. Naval Academy, 1934.

✓\* CEDRIC WARREN STIRLING, Lt. Comdr., U.S.N.; B.S., U.S. Naval Academy, 1934.

✓\* WILLIAM EDWARD SWEENEY, Lt. Comdr., U.S.N.; B.S., U.S. Naval Academy, 1934.

✓\* WILLARD MUIRHEAD HANGER, Lt. Comdr., U.S.N.; B.S., U.S. Naval Academy, 1936.

✓ EDGAR PARSONS BRIDGLAND, Flight Lt., R.C.A.F.; B.S., University of Toronto, 1940.

## CIVIL ENGINEER

EBENEZER VEY, B.S., California Institute, 1941; M.S., 1942.

## INDUSTRIAL DESIGNER

✓ DAVID FRANKLIN WELCH, A.B. in Engineering, Stanford University, 1941.

\*Also awarded the degree of Master of Science, by a special vote of the Faculty, in view of graduate work already completed at the U. S. Naval Academy in addition to graduate work at the California Institute.

## MASTER OF SCIENCE IN SCIENCE

### BIOLOGY

LLOYD WILLIAM MERRYFIELD, B.S., California Institute, 1942.

### CHEMISTRY

✓ RICHARD MILLINGTON LEMMON, B.S., Stanford University, 1941.

✓ ARTHUR BECK PARDEE, B.S., University of California, 1942.

✓ ERNEST LEONARD PATTERSON, B.A., Western State College of Colorado, 1941.

### GEOLOGICAL SCIENCES

✓ MUSTAFA SEYFETTIN AKMAN, B.S., Robert College, Istanbul, Turkey, 1939; M.S., California Institute, 1940.

✓ BENJAMIN ANGEL DALEON, B.S., University of Philippines, 1939.

✓ PETER DEHLINGER, B.S., University of Michigan, 1940.

✓ KAZIM ERGIN, B.S., Massachusetts Institute of Technology, 1942.

ROBERT GREENWOOD, B.S., California Institute, 1942.

✓ LLOYD CHARLES PRAY, B.A., Carleton College, 1941.

✓ GEORGE PATTERSON ZEBAL, A.B., Fresno State College, 1940.

### MATHEMATICS

CARL HERTZ SAVIT, B.S., California Institute, 1942.

### PHYSICS

RICHARD HAWLEY BISHOP, B.S., California Institute, 1939.

WILLIAM EDWARD DEEDS, A.B., Denison University, 1941.

JOHN ISE, JR., B.A., University of Kansas, 1940.

DAVID ARTHUR LIND, B.S., University of Washington, 1940.

CHESTER DAVID MILLS, JR., B.S., California Institute, 1942.

RALPH RONALD RAU, B.S., College of Puget Sound, 1941.

## MASTER OF SCIENCE IN ENGINEERING

### AERONAUTICS

JOSEPH VINCENT CHARYK, B.Sc., University of Alberta, 1942.

ROBERT JOHN CLARK, B.S., California Institute, 1942.

JOHN ARCHIBALD DRAKE, B.S., California Institute, 1942.

ALVIN RALPH EATON, JR., A.B., Oberlin College, 1941.

LEONARD BENJAMIN EDELMAN, B.S., Louisiana State University, 1942.

JOSEPH WALTER ELLIS, B.S., California Institute, 1943.

ERNEST ALBERT FEAZEL, B.S., Case School of Applied Science, 1938.

RICHARD MOORE HEAD, B.S., M.S., California Institute, 1942.

PHILIP ORD JOHNSON, B.S., California Institute, 1942.

JOSEPH KEVIN KEELAGHAN, B.S., University of London, 1939.

JOHN LAUFER, B.S., Louisiana State University, 1942.

BOYD THOMAS MARSHALL, B.S., California Institute, 1942.

LINCON ALLEN MARTIN, A.B., University of California, Berkeley, 1934.

JOHN W. MILES, B.S., California Institute, 1942.

RUSSELL F. RHYNE, B.S., California Institute, 1942.

CHARLES McCUTCHEON SEIBEL, B.S., California Institute, 1942.

ROBERT ROSS STALEY, B.S., California Institute, 1942.

JACK DOUGAL STEPHENSON, B.E., Louisiana State University, 1942.

JOSEPH STERNBERG, B.S., California Institute, 1942.

ERNESTO VICENTE, Ingeniero Civil, Universidad de Buenos Aires, 1937.

PAUL WINSTON WEBSTER, B.S., California Institute, 1942.

### CIVIL ENGINEERING

JOSEPH BERNARD FRANZINI, JR., B.S., California Institute, 1942.

GEORGE WILLIAM LIND, JR., B.S., California Institute, 1942.

### ELECTRICAL ENGINEERING

YUNG-CHIANG HWANG, B.S., University of Shanghai, 1940.

SHIH-SANG LING, B.CE, Hangchow Christian College, 1935.

JOHN W. MILES, B.S., California Institute, 1942.

LUIS HERNAN TEJADA-FLORES, B.S., California Institute, 1938.

### MECHANICAL ENGINEERING

JOHN H. CARR, B.S., California Institute, 1941.

WARREN VINCENT EATON, JR., B.S., University of Oklahoma, 1936.

ARTHUR JOHN RUDOLPH SCHNEIDER, B.S., California Institute, 1943.

ROLF HEINRICH SABERSKY, B.S., California Institute, 1942.

GEORGE PAUL SUTTON, B.S., California Institute, 1942.

### METEROLOGY

FRANK WILLIAM ERNST, A.B. in Education, St. Louis University, 1936.

## BACHELOR OF SCIENCE IN SCIENCE

KENNETH ELDRED ANSPACH

ROBERT FRANCIS BENTON

+AMASA STONE BISHOP  
HAROLD HERBERT BRADLEY,  
JR.

ANTHONY BRIGLIO, JR.

WARREN LINDSEY  
CHRISTIANSON

ROBERT ROSS DAVIS

CLYDE ANDREW DUBBS

STANLEY AUSTIN DUNN

ABRAHAM FIUL

EDGAR WILLIAM FLAVELL

\*†EDWARD PAUL FLEISCHER

ARTHUR HENRY GARDNER

\* HAROLD KARL GARNER  
HAROLD GRUEN

PAUL VERLE HARDIN

ROBERT RALPH JOHNS

\* DAVID JOSEPH KLEIN

GENE ROLFE LAFORGE

THOMAS SEYMOUR LEE

RICHARD EDWARD MARSH

\* DAVID MALCOLM MASON, JR.

ARTHUR ORLANDO McCOURBREY

CHARLES GILBERT McGEE

MELVIN L. MERRITT

\* SAMUEL POPE MORGAN, JR.

\* BENJAMIN NEVILL

DONALD HARRY POTTS

KENNETH LEE POWLESLAND

LEWIS WILLIAM RAMBO

REX VANCE RHOADES

ROBERT MITCHELL SHERWIN

JOHN RAYMOND SPENCER

SHELTON STEINLE

JACK DELL STONE

\* CHARLES P. STRICKLAND, JR.

\* PHILIP EDWIN WILCOX

## BACHELOR OF SCIENCE IN ENGINEERING

RALPH GORDON ALLRUD

\*†LEONARD STAMM ALPERT

DAVID RICE ARNOLD

EARLE RICHARDSON ATKINS, JR.

JOHN WILLIAM BACON, JR.

EDWARD RICHARD BAN

+ROBERT HORACE BASHOR

NICHOLAS ANTHONY BEGOVICH

MAURICE WEBSTER BECKSTEAD

ROBERT LAURENCE BENNETT

ROBERT MILTON BENSON

JOHN W. BEWLEY

JAMES ARTHUR BLAYNEY

GLENN RUSSELL BRACKEN

\*†ROBERT MELVIN BRAGG

\* EDWARD I. BROWN

GLENN HAROLD BROWN, JR.

WAYNE HAROLD BROWN

JOHN WILLIAM BUCHANAN

THEODORE DWIGHT BUETTELL

EARLE ROBERT BUNKER, JR.

CLAUDE LAVERNE CARTER

PATRICK STANLEY CHASE

MICHAEL H. DAZZEY

HAROLD STUART DEWDNEY

ALBERT TROMLY ELLIS

JOSEPH WALTER ELLIS

DAVID A. ELMER

OLEG CONSTANTINE ENIKEIEFF

+WILLIAM RODDEN FAIR

HOWARD NORMAN FARMER, JR.

ROBERT MILTON FRANCIS

JOHN MARTIN FRENCH

GEORGE COMFORT FREY

+ROBERT CARLSON FROST

HEWITT KNOX GRAHAM

JESS BLAINE GRANER

GEORGE DURWARD GRIFFITH

ALBERT OTTO GROTE

+ROBERT GORDON GUSTAVSON

+WILLIAM HERBERT HALPENNY

HOLLIS KERMIT HANCHETT

CARL DEXTER HAYMOND

WAYNE KASSELL HODDER

JAMES BYRN HULL

EDWIN GEORGE JOHNSON

KENNETH WOLCOTT JOHNSON

WENDELL LAWSON JONES

GEORGE ALDEN KENDALL

ROBERT LAFOLLETTE LARSON

HERBERT ARTHUR LASSEN

THEODORE GIBSON LAWRENCE

ROBERT PAUL LEVINE

HARRISON CHURCH LINGLE

EARL LEONE LONG

+EVERETT JESSE MACARTNEY

DOYLE FERRIS MATTSON

ROBERT FRANCIS McLEAN

RICHARD EDWIN MCWETHY

ORIN J. MEAD

HERMAN MILLER

ROBERT ARCHIBALD MOORE

\*†DEANE NORTHRUP MORRIS

LESTER N. NEUFELD

\* LAWRENCE RAYMOND PUGH

ANDREW SYDNEY QUAN

DOUGLAS CHAPPELL REID

\* AUDRE HAROLD RICHARDSON

ALEXANDER CHARLES RIDLAND

WILLIAM JULIUS RUSSELL, JR.

GEORGE MICHAEL SAFONOV

ROLAND STANLEY SAYE

\* RICHARD SCHAMBERG

ARTHUR JOHN RUDOLPH

SCHNEIDER

+DAVID EDWIN SHONERD

M. CURTIS SMITH

WILLIAM SNYDER

\* RICHARD ALVORD SUTTON

RAY ADAMS TEDRICK

FREDERICK HAWORTH TENNEY

OSCAR DAVID TERRELL

\* PAUL GEORGE THIENE, JR.

WILLIAM CHARLES THOMPSON,

Jr.

ERNEST WADE

ALLEN DEAN WEEKS

WAYNE SANBORN WHEELOCK

RALPH MILTON WILLITS

JAMES ARTHUR YOUNG, JR.

\*Graduated with honor in accordance with a vote of the Faculty.

+Awarded the Honor Key by the Associated Student Body for participation in student activities.