

Books — by, about, or of interest to Caltech people

MACROECONOMICS AND MICROPOLITICS:
The Electoral Effects of Economic
Issues

by *D. Roderick Kiewiet*

The University of Chicago Press \$15.00

Focusing primarily on the issues of inflation and unemployment, Rod Kiewiet, associate professor of political science at Caltech, investigates in this book whether voters are influenced more by direct personal experience with economic problems or by economic problems they perceive to be troublesome to the nation as a whole. He tests four hypotheses designed to answer this question and establishes that national problems, rather than those personally experienced, are the predominant influence on voters' decisions. Personal economic hardships affect voting only among a small minority (the very recently unemployed). Objective economic circumstances, he concludes, combine in complex but regular ways with perceptions of government responsibility and party competence and differences to determine who will win or lose at the polls.

GUGGENHEIM AERONAUTICAL
LABORATORY AT THE CALIFORNIA
INSTITUTE OF TECHNOLOGY — THE FIRST
FIFTY YEARS

edited by *F. E. C. Culick*

San Francisco Press, Inc., Box 6800,
San Francisco, California 94101-6800

Cloth \$12.50
Paper \$ 7.50

On December 15, 1978, more than 400 alumni and friends of GALCIT (now called the Graduate Aeronautical Laboratories at the California Institute of Technology) gathered at Caltech to celebrate the 75th anniversary of the Wright brothers' first powered flights and the 50th anniversary of GALCIT. A

symposium was held during the day, followed by a banquet in the evening. This book contains the 12 talks given on that occasion.

Each of the speakers whose remarks are reproduced in this book had had some relation to GALCIT and/or to aeronautics more broadly, and the articles are full of affection for those two institutions. They are also full of information about the history of flight — from the Wright brothers at Kitty Hawk through early rocketry and supersonics to the Gossamer Condor. The book is illustrated with a series of historical photographs. The editor, Fred Culick, is professor of applied physics and jet propulsion at Caltech.

THINKING ABOUT NATIONAL SECURITY
Defense and Foreign Policy in a
Dangerous World

by *Harold Brown*

Westview Press \$17.95

Harold Brown, Secretary of Defense during the Carter administration, outlines here the agenda of national security issues from the vantage point of one who has had firsthand experience with these complex problems. Now distinguished visiting professor at the Johns Hopkins University School of Advanced International Studies, Brown discusses his views more broadly and candidly than he could while in office. As a framework for thinking about defense in the 1980s, he places the issues in historical perspective, ties together the political, economic, and military aspects of national security, and suggests some rational and practical approaches to forming U.S. policies. He discusses specifically U.S. interests and alliances in various regions of the world and confronts "the stark facts of the nuclear age."

Brown has also served as Secretary of the Air Force and member of the U.S.

SALT delegation — as well as being president of Caltech from 1969 to 1977.

THE ROMANTIC IDEOLOGY
A CRITICAL INVESTIGATION

by *Jerome J. McGann*

The University of Chicago Press . . . \$15.00

Claiming that the scholarship and criticism of Romanticism and its works have for too long been dominated by a Romantic ideology, Jerome McGann presents a new view of the subject in this book. He analyzes both the predominant theories of Romanticism (those of Coleridge, Hegel, and Heine) and the products of its major English practitioners — Wordsworth, Coleridge, Shelley, and Byron. He argues that poetry is produced and reproduced within concrete historical contexts and that criticism must take these contexts into account, and he shows how the ideologies embodied in Romantic poetry have shaped and distorted contemporary critical activities.

McGann is the Doris and Henry Dreyfuss Professor of Humanities at Caltech.

A CRITIQUE OF MODERN TEXTUAL
CRITICISM

by *Jerome J. McGann*

The University of Chicago Press . . . \$12.50

In this volume, McGann undertakes a critical examination of the central questions of modern editorial theory and textual criticism. He first traces how attempts to reconstruct lost texts evolved into a search for "most authoritative" editions and finally into a theory of the author's "final" intentions. He then argues that current methods of studying and interpreting texts are inappropriate to what he calls "modern national scriptures" and pleads for a more flexible theory that will accommodate the realities of the writing, editing, and publishing of modern literature.

THE SCIENCE OF MUSICAL SOUND

by John Pierce

Scientific American Library

The Science of Musical Sound is a guided tour of scientific research into music, from the classic investigations of Pythagoras to the current fieldwork and experiments by acousticians, psychologists, and composers. But, says John Pierce, professor of engineering emeritus at Caltech, "in the field of sound and music, complicated equipment and ingenious experiments are not ends in themselves. They are the means by which we can evaluate the acuity, the discrimination, the powers and limitations of hearing, a sense that we use continually, a sense through which the whole of music came into being." He is confident that rational enquiry into this intensely subjective aesthetic experience will open up new realms for enjoyment of that experience.

Pierce is particularly well qualified to discuss contemporary electronic and computer-generated music, because he was a principal member of the team at Bell Laboratories that, more than 20 years ago, invented the basic techniques

by which computers generate the musical sounds now so familiar from the sound tracks of *Star Wars* and other movies. Pierce looks on electronically produced sounds not as a part of electronics but "as a part of the evolution of musical sound, from drum, lyre, and Stradivarius to some of today's entirely new sounds."

The book is profusely illustrated and also has two 33-rpm records that demonstrate something of what the psychology of acoustics has learned about the perception, the illusion, and the effect of sound. Currently, the book is available only to members of the Scientific American Library. Those who wish to enroll should write to Scientific American Library, P.O. Box 646, Holmes, PA 19043.

VLSI: SILICON COMPILATION AND THE ART OF AUTOMATIC MICROCHIP DESIGN

by Ronald F. Ayres

Prentice-Hall, Inc. \$39.95

One of the most serious problems of the ongoing microelectronic revolution is that of the increasing complexity of the design process for integrated circuits and

the resulting bottleneck in actual fabrication of the chips. Conventional chip design can, for example, take a year and cost several million dollars. The fabrication of the then somewhat out-of-date result can take less than a month and cost well under \$10,000. This book by Ronald Ayres, lecturer in computer science, discusses Caltech's pioneering research in silicon compilation as a technique for automatic microchip design for VLSI (very large scale integration) and suggests that its time- and money-saving possibilities may offer a substantial solution to the hardware crisis.

There are two focal points of concern in a silicon compiler, says Ayres — the *target language* (the capabilities of silicon) and the *source language* (the language in which the user specifies the function to be performed by the new chip). The first part of this three-part book deals with the target language — the integrated circuits themselves; the second, with the source language — the integrated circuit behavior. The final part of the book — silicon compilation — presents a variety of translations from the source behavior to the target layout.

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