Big Dams: The Confluence Of Engineering and Politics

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The history, engineering, design, and construction of the big multipurpose dams built west of the Mississippi during the Roosevelt era are described in rich detail in this comprehensive book by Donald Jackson, an associate professor of history at Lafayette College, and David Billington, Gordon Wu Professor of Engineering at Princeton and a National Academy of Engineering fellow. It is Jackson’s third book about dams in the United States.

A pioneering study of the nexus of technology, culture, and politics of that era, the book further provides a fascinating look at the interaction between the two principal agencies of the federal government—the Bureau of Reclamation and the Army Corps of Engineers—that were responsible for the design and construction of these massive public works. The roles of the key personalities—politicians, engineers, bureaucrats, and beneficiaries of these projects—are woven into the narrative in a way that will appeal to historians, engineers, and general readers alike.

The two authors have a wealth of experiences that makes them perfectly suited to write about this complex topic. Billington’s notable book The Tower and the Bridge introduces the concept of the “structural artist—the structural engineer whose work through its function and expression is aesthetically pleasing and meaningful enough to be viewed as a legitimate work of great art.” It clarifies the criteria for such distinction by citing notable examples such as the Eiffel Tower, the reinforced concrete bridges of Robert Maillart, the shell structures of Felix Candela and Pierre Nervi, and the skyscrapers of Fazlur Khan.

Jackson, much younger than Billington (and an engineer by training), also has devoted his career to the history of technology and industry, concentrating on the significant developments in that field in the American West. The senior author’s influence on Jackson is evident in the latter’s 1995 book Building the Ultimate Dam: John Eastwood and the Control of Water in the West, in which he views Eastwood as a structural artist, using the criteria posited by Billington but applied to dams.

Following a short introduction in which the authors provide their reasons for writing Big Dams as well as its subsequent structure and arrangement, a third of the book’s pages are devoted to a fairly exhaustive but concise study of the origins and development of the Bureau of Reclamation and the Army Corps of Engineers into their almost modern form.

Discussing not only the internal politics and the major personalities of these organizations, using a study of earlier dams as a framework, the authors explain the theory behind the engineering design of these dams. In a simple and elegant way (much like their previous explicationar science-based books), this one presents the mathematical principles of the two types of masonry/concrete dams—the gravity dam and the thin arch dam—“in terms used by the dam designers of the era.” Data gleaned from historical engineering records of several actual dams illustrates the development of two traditions in dam design that the authors identify as the Massive Tradition and the Structural Tradition, characterizing the gravity and thin-arch forms, respectively.

In the perennial engineers’ argument between solidity with its associated perception of safety and the innovative and structurally minimal—but proven safe mathematically—thin arch-form, perception usually wins. This was the case with the final design choice of these dams. Not until decades after the massive dams were built, such as the Grand Coulee Dam, did the latter form achieve its rightful place in the Glen Canyon Dam.

It is also fascinating to read about how, through a gradual melding of the separate objectives of flood control, navigation, irrigation, and power generation, determined individuals both in and out of these federal agencies succeeded in persuading the federal government to become involved in building power generation plants associated with...
some of these dams, thus accelerating the
development of the West and Northwest.

In separate chapters, the remainder of
the book describes the design, construction,
and history of the dams on the Colorado
and Columbia rivers; the earth dams on the
Missouri River; and two most significant
dams of that era in California’s Central Val-
ley Project. Filled with many technical
details, including the construction
sequences and procedures, these chapters
might appeal more to the engineering com-
community, although there is enough non-
technical material to appeal to the general reader
as well.

Located in remote regions often with a
harsh and unforgiving climate, these proj-
ects were gargantuan, and the logistics of
providing housing and support for the
builders were daunting. The authors
describe the heroic efforts of the dam
builders to overcome these obstacles—some
natural, others man-made—using a narra-
tive style that enables the reader to appreci-
ate fully the vast undertaking that each of
these projects represented. At the same
time, they skillfully depict the interplay and
maneuverings among each project’s sup-
porters and opponents—and President
Franklin Roosevelt’s extraordinary political
skills for keeping both sides happy while
achieving his objectives.

This book, with its successful combina-
tion of the engineering and political histo-
ries of the big dams, is both instructional
and a pleasure to read.

—Faruq M. A. Siddiqui,
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BOOKS, ETC

Robin (Smith) Chapman ’64, The Dreamer
Who Counted the Dead, WordTech Editions,
2007. In this collection of poems with titles
such as “The Goodyear Blimp Goes By,”
“Georgia O’Keeffe, Napping at Ninety-Six,”
and “Hiking Out of the Picture near Muir
Beach,” the political is intimately personal,
and family and national history converge in
startling ways.

Robin Chapman ’64 and Judith Strasser
(editors), 75 Poems on Retirement, University
of Iowa Press, 2007. This collection includes
poems by men and women between the ages
of 50 and 80 from around the world, shar-
ing their emotions and perspectives on a
season of life where time is plentiful, and
yet, limited.

Jessica Fisher ’98, Frail-Craft, Yale University
Press, 2007. This collection of poems won
the 2007 Yale Series of Younger Poets com-
petition. Former poet laureate and judge of
the competition Louise Glück writes in the
Foreword that Fisher’s poetry is “haunting,
elusive, luminous, its greatest mystery how
plain-spoken it is. Sensory impressions,
which usually serve as emblems of or con-
nections to emotion, seem suddenly in this
work a language of mind, their function nei-
ther metonymic nor dramatic.”

Richard Goodkin ’75 (editor), In Memory of
Elaine Marks: Life Writing, Writing Death, The
University of Wisconsin Press, 2007. This
moving and insightful celebration of the life of
Marks, a widely recognized authority on
French literature, feminist theory, and Jew-
ish studies, also offers a valuable contribu-
tion to multiple academic disciplines. In 11
essays, some of the intellectual domains

that were central to Mark’s work—pedagogy,
feminism, lesbianism, women’s auto/biogra-
phy, Jewish identity, community, memory,
mourning, isolation, and death—are
brought together.

David Jenemann ’93, Adorno in America,
University of Minnesota Press, 2007. In the
first in-depth account of 20th-century Ger-
man social philosopher Theodor Adorno’s
15-year exile in America, the author exam-
ines Adorno’s confrontation with the
expanding American “culture industry” and
casts new light on his writings about the
mass media. Jenemann reveals that, far from
being disconnected from America and dis-
dainful of its culture, Adorno was actively
engaged in American cultural and intellectu-
al life during his stay in the country.

Joan (Moffitt) Larkin ’60, My Body: New
and Selected Poems, Hanging Loose Press,
2007. This book by a two-time winner of the
Lambda Literary Award for poetry comprises

Sasha Issenberg ’02, The Sushi Economy:
Globalization and the Making of a Modern

Exploring the history and allure of sushi
from a global perspective, the author
offers an up-close look at the dish that is
now enjoyed by more than 30 million
Americans.

Scott Kugle ’91, Sufis and Saints’ Bodies: My-
sticism, Corporeality, and Sacred Power in Islam,
The University of North Carolina Press, 2007. In the first full
study of Islamic mysticism as it relates to
the human body, the author examines
Sufi conceptions of the body in religious
writings from the late 15th through the
19th centuries, thereby refuting the
assertion that Islam is abstract, ascetic,
and disengaged from the human body.