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John Fitchen, *Building Construction Before Mechanization*. Cambridge, Mass., MIT Press, 1986, 326 pp., illus., $25.00 (cloth)

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See table of contents

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cussion are not merely idiosyncratic, but rather outcomes of an essential divergence between the geohistorical conditions in which they were produced. McGregor convincingly argues that the confrontation between civilization and wilderness during the frontier settlement of the two countries has produced two different imaginations. For Canadian artists there is "habitual negativity toward their environment" and "recoiling from it"; in fact, "once recognized, the characteristic Canadian response seems omnipresent in all aspects of Canadian cultural history." The rest of the book is a discussion of these omnipresent elements, primarily in terms of Canadian literary history. This reviewer is not familiar enough with the literature to comment on the sensitivity and nuances of the literary sources to which McGregor refers. However, her research, discussion, and re-evaluation of Canadian painting, especially of the prairies, provides a viable theoretical framework for students of painting interested in speaking of the medium not in formalist terms but in relation to specific social contexts and periods.

Facing the Canadian prairie, with its harsh climate, limitless space, and unending horizon, must have been even more devastating than confronting the "northern frontier." The paintings of the first artists who painted and drew the West (travellers or settlers) were representational, using the imported conventions of the English landscape school of painting. Upon closer scrutiny, their identifying aspects were their short focus and their avoidance of the truly picturesque and sublime tendencies prevalent in the conventional British landscape genre; the painters, like the characters of *Wacousta*, were determined to paint the view from the "fort" only.

The specific aspects of the Canadian paintings of the period, according to McGregor, are the following:

1. There is a preponderance of transportation modes in the subject matter, implying preoccupation with escape.
2. There is a compositional breakdown between the foreground and background, indicating a denial of meaningful relation between man and nature in the broader sense.
3. The background is left relatively indistinct, suggesting an attempt to limit the unmanageable distance visually.
4. The horizon is raised or hidden by compositional preoccupations in the fore- to middle-ground.
5. The sense of depth is delimited, exacerbating the claustrophobic effect of the shortened focus.
6. The general atmosphere is ominous and inimical to the viewer.

McGregor further argues that Canadian artists' response to the landscape has not become more familiar and positive, but rather the contrary. This rather peculiar statement contradicts the author's basic theoretical premise: that our notions of nature are socially constructed. To be socially constructed does not imply being static, and assuming that the sociohistorical context of Canada has changed sufficiently during the last century or so to allow notions of nature to change, then one might expect the imaginative treatment of nature to change as well.

This stimulating and comprehensive book takes up most of the relevant issues that have occupied the discussions of cultural scientists and art historians and critics for many years, but McGregor's boldness and imagination of treatment make it a must for all those who talk or care about what it is to be Canadian. The book could benefit from an index to aid the novice in grasping its sometimes complex and very comprehensive context; to its credit, the book has full notes and references and an excellent catalogue of primary sources.

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JOHN FITCHEN *Building Construction Before Mechanization*. Cambridge, Mass., MIT Press, 1986, 326 pp., illus., $25.00 (cloth).

Years ago, when I was an undergraduate, because I realized I had very little interest in how a building was put together, I decided that it was perhaps wiser for me to take up the serious study of art history than to become an architect. More recently, as an art historian teaching architectural history to fledgling architects, my earlier self-recognized deficiency has been joined by additional feelings of guilt at still being more drawn to matters of style than of structure and construction; this has resulted in the occasional resolution to rectify the situation—to some degree at least. After reading John Fitchen's *Building Construction Before Mechanization*, I find that (a) I know more than I realized and (b) the book has not really informed me about those factors of which I felt I should have some greater grasp in order to reduce my guilt and provide me with a modicum of self-confidence when trying to answer "How did they . . . ?" In fact, I feel not greatly the wiser, although I have acquired several tidbits of a "useful" nature.

The scope of Fitchen's work is world wide, extending from "Architectural Year One" (p. xii) to the advent of mechanization, at some date in the nineteenth or twentieth century. The organization of the material is, contrary to one's expectations, neither chronological nor cultural (historical periods). Neither are the 14 chapters focused on the major building materials—mudbrick/brick, wood, stone—or minor ones, such as wattle and daub or thatch, nor on the major aspects: foundations, floors, walls, roofs, vaults. The material within each chapter is also non-chronological in its structure. As a result, the substance of the book seems to deal solely with building construction, rather than construction methods and procedures.

The work's organization is best described as topical and rather ahistorical. This can be seen by citing some of the chapter headings: "The Role of the Builder"; "The Nature of Building Construction and Sources of Information about Its Former Practices"; "Physical and Cultural Forces Affecting Building Construction"; "Jerry-Building and the Unending Quest for Standards of Safety"; "The Problem of Ventilation." Even within this scheme, I find the logic of the chapters' sequence difficult to understand. Chapters 1-3 clearly form a general introduction; chapter 4, however, seems as if it should be at the end of the study. More problematic is the core of the book, chapters 5 to 11. A sequence that seems to

suggest itself naturally as a parallel to the construction process would be: "Prior Planning and the Order and Sequence of Building Operations" (Fitchen's chapter 5); "Transportation in Building Construction" (11); "Rope and Ladders: The Builder's Habitual Implements" (8); "The Role of Wood in Building Construction" (9); "Oversized Blocks and Projecting Stones as Aids in Masonry Construction" (10); "Falsework and Lifting Devices" (7); "Stresses in Buildings and the Problems They Raise" (6). The two final chapters are of a completely different character. Chapter 13, "Native House Building," is a very brief summary of an enormously broad category involving many different types, with which chapter 12, "The Problem of Ventilation," could well have been combined. Both these chapters were previously published, chapter 12 as "The Problem of Ventilation Through the Ages," *Technology and Culture*, XXII (July 1981), 485-511, and chapter 13 as "Building Cheops' Pyramid," which appeared in the *Journal of the Society of Architectural Historians* (XXXVII [March 1978], 3-12) "in a slightly different form." As an extended discussion of a specific problem, the final chapter seems out of place in this book, yet it comes closest to being what I had expected the entire book to be.

Despite the book's world-wide scope, evidenced by numerous references to "primitive" cultures (information that seems at times more anthropological in nature than strictly about construction, as in the case of African natives who move an entire roof [roof = house; pp. 51, 53, 172]), the periods or cultures from which illustrations are chosen are relatively few. The "Western" periods included are Egyptian, Greek, Roman, and, not unexpectedly from the author of *The Construction of Gothic Cathedrals* (Oxford, 1961), medieval architecture. References to medieval architecture, however, deal almost exclusively with French buildings of the Early and High Gothic styles. Moreover, the references to these cultures and periods are scattered throughout the book. For example, Egyptian construction practices are mentioned in 22 different places, yet there is no index heading for "Egypt." Even within the chosen boundaries, there are unexpected gaps. There is no discussion of Greek or Roman woodwork, as in roof systems, for instance; Roman concrete is described only in its brick-faced type (pp. 82, 102, 106), and unlike other authorities I have read, Fitchen does not qualify in any way the use of the term "concrete." The early and middle medieval periods are not considered—there is no mention of Romanesque construction. Late Gothic styles are similarly omitted. Finally, while the author points out (preface, p. xiii) that the only "remaining [post-medieval] challenge to the imagination and the technical mastery, both structurally and constructionally, of Renaissance builders was huge masonry domes raised high aloft on window-pierced drums," they are nowhere mentioned in the text.

Occasionally, there are oddly misplaced emphases or misleading explanations due to incomplete presentation of the known facts, although I noted only a few errors of fact, and they are hardly major ones. Disappointingly, however, many of the illustrations are drawn from earlier—sometimes much earlier—publications; and there is no list of illustrations.

The tone of the book is rather anecdotal and it often reads like excerpts from *National Geographic* magazine, which indeed is an oft-quoted source. There is a contrast between the frequent basic explanations and the rigorous use of an extensive technical vocabulary; such terms are not always specifically defined in the text and the reader is not offered the convenience of a glossary. Finally, Fitchen is a master of the meticulous statement of the obvious; and the general character of the book offers observations and anecdotes rather than explanations, with the result that it forms neither a history nor a reference work. One is sorely tempted to ask for whom the book was intended.

According to the author's prefatory explanations, the book was intended for two audiences: intelligent laypeople on the one hand, and architectural historians—whose background and training, as he quite rightly points out, provides only a peripheral knowledge of building construction—on the other. I suspect the work will not satisfy the intelligent and curious layperson because of its unsystematic character and failure to provide precise information about how a particular thing was done at a certain time in a specific place. On the other hand, the work will leave laypeople with a great admiration for the inventiveness of their fellow human beings—a sentiment the author frequently expresses in an upbeat note at the ends of chapters.

I am rather more confident, however, that art historians like myself, deficient in a background of building construction (and structures), will be disappointed. True, the author does recommend (p. xvii) that those wishing to go deeper consult his voluminous notes and bibliography. The book is characterized by informative and extensive quotations in the main body of the text and in the notes, which are more descriptive of the actual processes of building. However, I question the usefulness of the bibliography. Three hundred and twenty-four items are arranged alphabetically and are not broken down by any subject headings—which surely would have been a great aid to those individuals wanting to delve into a particular aspect of building construction. However, Fitchen's knowledge of and intimate familiarity with nineteenth-century bibliography, especially periodicals, journals, and dictionaries, must be unparalleled.

Nor is this an easy book to recommend to students in history courses, and not just because its organization does not parallel the usual course structure. Despite the numerous examples of various constructional practices, the lack of any sense of historical development ("progress"), either within a culture or between cultures, is a serious drawback, as is the absence of any kind of an analytical comparative approach. Even though, as Fitchen points out, it is not a well-documented subject, I do think that a history of building construction providing a "systematic historical coverage" of the kind suggested in the author's opening remarks (p. xiii) would be most useful for teachers and students of architectural history. Unfortunately, this book, although attractively produced, is not it.

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