LIGHT STRUCTURES
STRUCTURES OF LIGHT: THE ART AND ENGINEERING OF TENSILE ARCHITECTURE

By Horst Berger

Birkhäuser Verlag, Basel, Switzerland; 1996; 186 pages.

This book deserves appreciation on several levels. Designed and crafted with love by its Basel-based publisher, it does honor to the renowned Swiss artbook-making tradition. As literature, it conveys with simplicity and directness the adventure, the conflicts, the frustrations and, above all, the exhilaration of the design and building enterprise. It is the testimony of an exuberant poet whose language is form, space, light, and the visible tension inherent in force interactions. It is a wide-ranging and uniquely personal treatise on a specialized branch of architecture and structural engineering.

Berger's craft is as old as the craft of the makers of tents and sails. His medium is translucent polymeric fabrics, held in place by cables in ways revealed by intuition, physical modeling, and the computer. It is a medium that allows him to create forms and spaces of which light is a constitutive part, and to imbue them with beauty, grace, playfulness, and spirituality. There is no room in his work for pretense, ponderousness, or kitsch.

Reverence for his predecessors informs his work. They are the master builders of old, from those of the Roman Pantheon to those of the Gothic cathedrals; their modern heirs, from Robert Paxton to Pierluigi Nervi and Buckminster Fuller; and the masters of tensile architecture, from John Roebling to Frei Otto and Lev Zetlin.

Berger's book includes much material on the history of tensile architecture that is not covered by Otto's now dated survey (Otto 1973). A striking sketch by Erich Mendelsohn is juxtaposed to a photograph of Saarinen's Dulles Airport terminal, and is convincingly suggested to be the source of Saarinen's design. Photographs of the Yale skating rink and of Kenzo Tange's National Gymnasia for the Olympic Games suggest Tange's debt—and tribute—to Saarinen. I believe that, on a more technical level, the Utica Auditorium cable roof may similarly have inspired Berger's double-layer cable net sketched in Figures 7–10 of the book.

The concept of the Utica Auditorium roof was copatented by Zetlin and his Ammann and Whitney colleague, Tryggvason. The book omits giving the latter the credit that is his due. (New York's Museum of Modern Art, whose collection honors the Utica Auditorium roof as an architectural landmark, might also have to check its credits.) I also note an error: the book refers to the University of Western Ontario as the University of Southern Ontario. Last, I am tempted to quibble with the book's description of wind-induced suspension bridge instability that, though correct, could have been more precise.

Forewords by New York artist Tony Robbin and structural engineer Mamoru Kawaguchi are useful complements to the text. Kawaguchi sees postmodern architecture as a superficial fad that preempts the beauty inherent in structural truth. One may take issue with this view and suggest that postmodern architecture and structurally expressive architecture can be relevant to different classes of works. According to Jencks (1981), while the factory—technology—failed as a major metaphor for modern architecture, this metaphor has "taken hold in appropriate areas: stadia, sports grounds, aircraft hangars, and all the large-span structures traditionally associated with engineering. Here the poetry of process is exhilarating without being wildly inappropriate or surreal, and we can claim the single, unmitigated triumph of modern architecture on the level of content." This is undoubtedly true of Berger's work. But, like other creators—Saarinen is one example—Berger transcends simple classifications. His work is an original synthesis in which structural honesty goes hand in hand with sensitivity to the needs from which postmodernism arose. I have in mind Berger's use of tent-like structures for an airport terminal in Saudi Arabia; his creation of the sail-like structures that became San Diego's civic emblem; his respect for the past, for context, and environment; his playfulness; and, perhaps, in spite of the durability of his structures, an unstated sense of transitoriness.

Never facile, his is a work of integrity. No doctrine or ready-made cast is allowed to interfere with his creation. By their very essence, with nothing pasted on, Berger's structures proclaim that man does not live by technology alone. They are a product of both natural science and art.

Ruskin wrote in 1853: "We require of any building

1. That it act well, and do the things it was intended to do in the best way.
2. That it speak well, and say the things it was intended to say in the best words.
3. That it look well, and please us by its presence, whatever it has to do or say."

This is the "law of right, which we may apply to the architecture of all the world and of all the time; and by help of which . . . we may . . . pronounce whether a building is good or noble . . . (Ruskin 1960)."

I believe Berger's work is good and noble. To see why, study his structures and read his book.

APPENDIX. REFERENCES

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