

Registration and Concealment: Rhetorics of Architectural Illumination

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The history of architecture is also a history of building with light. In spite of today's highly technological architecture light must not only answer the basic need for sufficient and correct lighting required for seeing, it must also have and "ethical and moral quality."

Hans Malotki¹

Light is a difficult subject for architects; it is too abstract, too much the subject of physics, metaphysics, and perceptual psychology. Architectural illumination is equally subject to the dictates of common sense, history, novelty, or fashion, and of the inquiring, speculative gaze with which it is invented. While technical investigations produce admirable analytical standards, this study seeks those phenomenal topics which occur at the intersection of physical mechanisms and human curiosity. Over the last five years, two related principles have been identified around which inventive illumination can be constructed, tentatively identified as *Registration* and *Concealment*. These are not intended to replace technical analysis nor to exclude other approaches, rather they begin where analysis ends and are perhaps but two among numerous, equally rich topics in architectural illumination. Keeping in mind the close rhetorical connection between *topos* (place) and *topoi* (topic or theme), the rhetorical concept of topic is meant to indicate a physical site or condition as well as a theme in the production of a condition which is best described as the *play of light*.

In the theory of work, productive activities which have a determined end are opposed to activities which do not. The opposite state is called leisure and is not to be confused with rest, inaction, or recreational play that merely serve to prepare us to work again. On the contrary, leisure is defined as "a state of being in which activity is performed for its own sake or as its own end."² In the spirit of productivity, architectural illumination is generally taught and examined in terms of utility, in terms of the work it can do and the energy required to do it. Consideration of light for its own sake reverses that mode of inquiry, taking the same physical principles and material conditions as the subject of the study.

The Exercise

The projects discussed in this paper were produced for a graduate seminar in the Department of Architecture at the University of Pennsylvania (1991-1996). The independent work of the course begins with an investigative survey of an existing situation—indoors or outdoors, accidental or staged—demanding close attention to the luminous and material conditions of the situation. That situation is then analyzed for the physical mechanisms in effect and the particular conditions of interest that are exhibited. In the second phase, a responding project is constructed that elaborates, extends, corrects, or subverts the condition which was studied. There are no limits placed on the situations or mechanisms that can be examined.

The projects were studied in large-scale models and photographed with slide film. The final presentations required both the display of those slides and explanations of the luminous mechanisms at work. It is those discussions in particular that forced the invention and clarification of the terms elaborated here. It is necessary, but not sufficient, to understand the underlying physical processes of illumination, construction, and perception for the presentations. In fact, the act of modeling the phenomena is itself an exploration and demonstration of the physical process. However, explaining the other qualities of the projects, the play of light, directed our attention to the concepts of *Registration* and *Concealment*; they were drawn from the work rather than imposed on it and have slowly become guideposts for the subsequent participants in the seminar.

Registration and Concealment

Registration is generally understood as a permanent recording: ink registers on paper, luminous images register on film, and births and deaths are registered in logbooks. The word also suggests registrations that are transient or impermanent: surprise registers on a face or temperature registers on a thermometer. It is that sense which is developed here. Light in-and-of-itself is invisible, having no presence until it illuminates some material, however solid or ephemeral. On the one hand, this is a trivial fact of lighting, we do not "see"

radiant flux, but only luminous objects or surfaces, so any luminous condition that we can discuss has already been registered. On the other hand, we can devise remarkable manipulations of light, but they do not exist until they are registered and their character is determined by the specifics of that registration. Registration is a "making visible and material" the sources of illumination and their mechanisms of its production or manipulation. These two topics continue to elude abstract definition; they must be indicated with examples to fully indicate their features.

With most of the projects, the specific material conditions are integral to the registration. C. Haley began a study of glass etching, studying the interaction between patterns inscribed on the two surfaces of the glass. The "shadows" of the outer etching produced remarkable reversals in the appearance of the inner etched surface.

The most startling discovery was revealed when the sunlight used for the study shifted to illuminate one edge of the glass. The irregular coil pattern visible in the image was produced by reflections from the very slight irregularities of the cut edge of the glass. It achieves such formal presence because it is splayed across the inner surface of the etching, magnifying both its irregularities and its motion. The lesson was simple. The smallest feature in the interaction of material and light can be made visible if it the registration accommodates it.

A. Cavallero undertook to model a skylight which would



Fig. 1. C. Haley, "Etched glass showing reflected edge pattern."

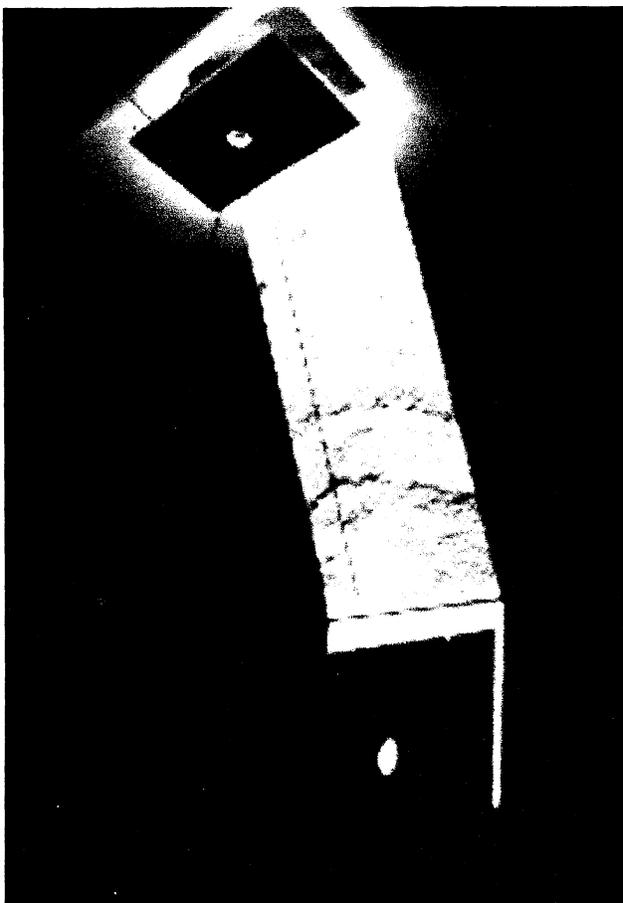


Fig. 2. A Cavallero, "Registration on wall."

produce both everyday illumination and a dramatic luminous event at a specific date and time. The everyday light was achieved by reflecting or directing sunlight onto the sloped ceiling surfaces, whose texture, modeled here with paper, proved to be a surface of surprising interest.

The singular event was achieved with a beam of light projected from a slot in the skylight that daily sweeps across the room. On the "event" day it passes into a whole in the opaque upper surface of a platform into the translucent material below, illuminating and enlivening it. In both the everyday and event lighting, the manipulation or selection of the surface of registration was decisive.

Registering the sun's motion proved decisive in recognizing the topic of **Concealment**. As the popular window advertisements on television illustrate, though the sweep of sun through a room is dramatic, its familiar mechanism only attracts our attention when it is animated and sped up. That is not say that sunlight is generally uninteresting, but rather that as a luminous event considered for its own sake, either its everyday occurrence encourages no further notice or it only offers speculation about the sun itself. When the source and mechanisms of the light are concealed, then its movement registers as an independent phenomenal entity. Two projects exemplify that topic.

S. Plant used an array of vertical glass fins placed at slight



Fig. 3. A. Cavallero, "Traveling beam of sunlight."

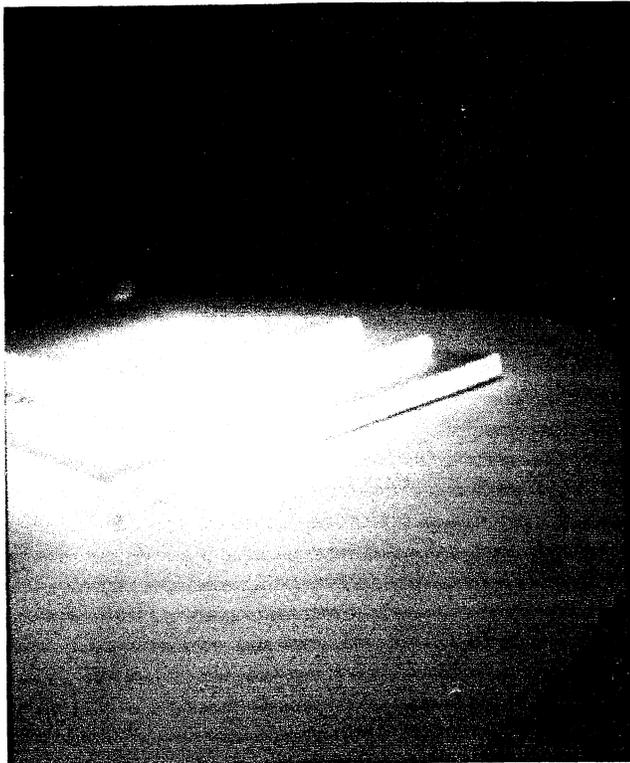


Fig. 4. A. Cavallero, "Illuminated pedestal."

angles to one another to alter the passage of sunlight through a skylight. She was modeling an existing stair whose wall is briefly bathed in light each day. The installation of the fins above the skylight allowed them to catch and reflect light that

would not normally enter the stair, while their relative angles and sizes caused a nearly random splaying of light across the wall of registration below. The result was a wall whose illumination varied more-or-less unpredictably from hour-to-hour and day-to-day. Moreover, the use of raised fins to catch low angled light yielded a more efficient, productive skylight.

C. Chung began her project with an exploration of the edge lighting of glass, studying the color shifts produced at different angles of illumination by different types of glass. In the process she noted the beaming and splaying of light produced by the planar optics of the individual glass pieces. She then installed a number of pieces through a south-facing wall in a simple model of a rectilinear room, producing a surprisingly subtle projection and transformation of the sun's motion. The light registers on the surfaces of the room, while the internal reflections of the glass redirects it and, at some angles, multiplies it.

As these examples illustrate, the two topics are physically independent, though they operate most successfully in concert: registration makes visible the phenomena whose mechanism is concealed, while concealment allows the registration to exist as an independent phenomenal entity. The topics of *Registration* and *Concealment* form one of the sites in which "ethical and moral quality" is discovered.

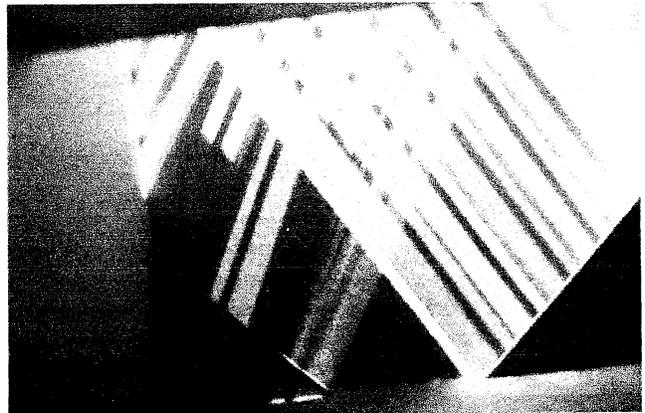


Fig 5. S. Plant, "Stair Wall, 1."



Fig 6. S. Plant, "Stair Wall, 2."

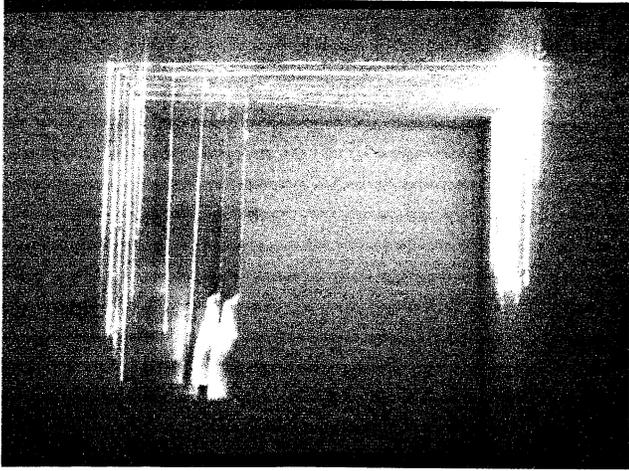


Fig. 7. C. Chung, "Planar optics."

Fig. 8. C. Chung, "Planar optics, splayed sunlight."

NOTES

- 1 Hans T. Malotki, "Toward an Architecture of Light." *Daidalos*, 27, 66-85.
- 2 Sebastian de Grazia, *Of Time, Work, and Leisure* (New York: The Twentieth Century Fund, 1962), 17.

