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1 Mobile electronic sign. Tokyo, Japan

2 Andrea Palladio, architect; Paolo Veronese, muralist. Villa Barbaro, Maser, Italy, 1559. The painted image restricted to place

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The ceaseless torrent of print and pixel presents multiple cognitive and perceptual challenges to architecture's mediation of the image and how it is perceived, represented and taught.

The image: print and pixel

Marc Treib

There is little question that we live in an age of images, in a mediated environment in which the image is ever-present – with its effects nevertheless still growing *[1]*.[1] This essay – as an introduction to the four papers that follow – examines aspects of the complex questions surrounding the image and those that accompany the shift from print to pixel.

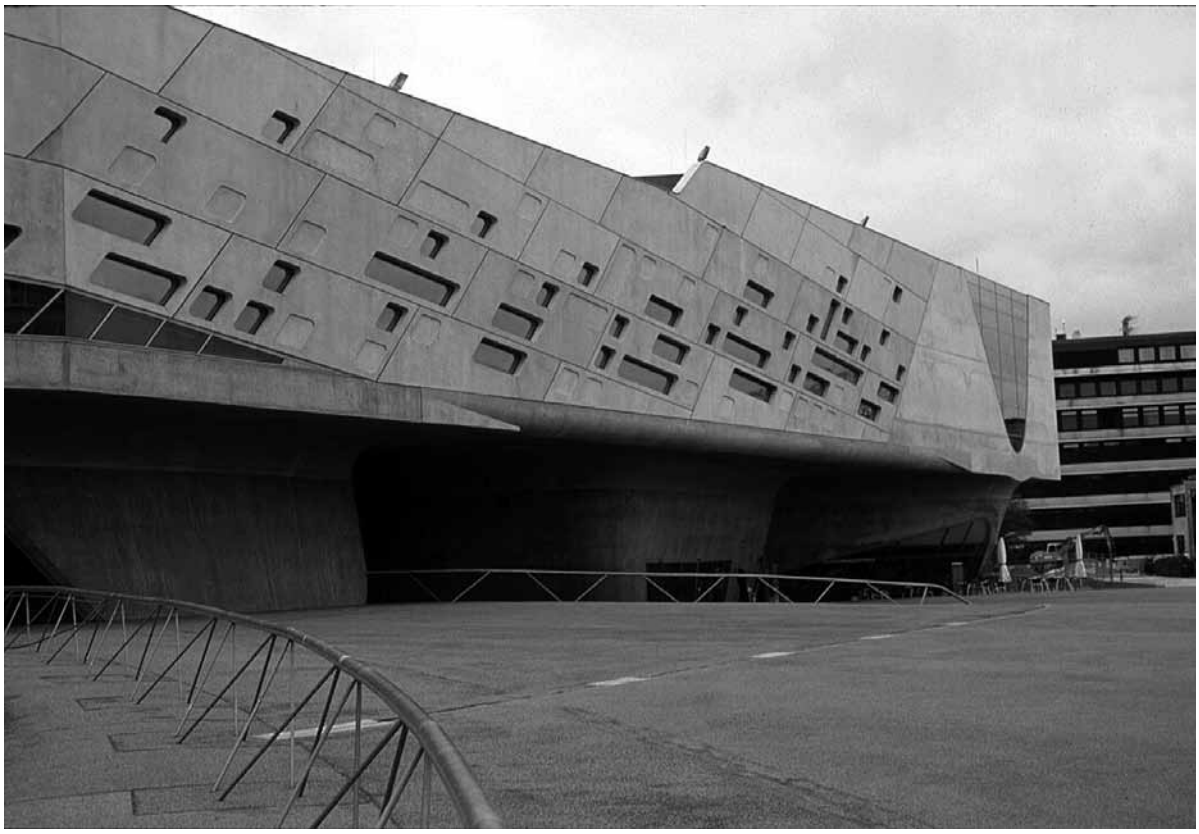
Whether in the presentation of what has been constructed as 'the news', or in print and electronic media and environmental advertisements – or even in research and university teaching – the constant presence of images necessarily shapes what and how we feel, and what and how we think. The influence is rarely neutral or benign. For example, the information design critic Edward Tufte has condemned the detrimental effects that have accompanied the adoption and spread of Microsoft PowerPoint presentations in business, and in particular their reliance on 'bullet points' as a primary structure of thought. Citing a study in the *Harvard Business Review*, Tufte asserts that the use of bullet points fosters 'generic, superficial, simplistic thinking … in business planning and corporate strategy'.[2] 'By leaving out a fuller narrative between the points', he argues, 'the bullet outline ignores and conceals the causal assumptions and analytic structure of the reasoning'.[3] The use of images in PowerPoint presentations is rarely less problematic, especially to those unversed in visual media. Imagery drawn mindlessly from the internet well illustrates the impoverishment of thinking encouraged by bullet-point organisation. In contrast, the specialist carefully considers the formation or selection of an image and the sequencing by which the individual frames are linked as a whole. More often neither selection nor sequence seems to be of great concern to the lecturer, alas. Because a limitless multitude of images can arrive at the mere click of a mouse, lecturers seem to assume that any image will do – whether truly appropriate or not – to jazz up their presentation if for no other purpose. Has this ubiquity and ease of access to the sources today diminished the merit of the image as well as its critical interpretation?

In the disciplines of architectural design and architectural history the image has been consequential, of course, despite its more limited presence before the rise of electronic media in the last two or three decades. Before the advent of electricity and photography, images took form through drawing and painting; they were rendered and reproduced by engraving and wood block, and the number of strikings was limited. One may argue persuasively that Andrea Palladio's *I Quattro Libri dell'Architettura* of 1570 was, and remains, a major episode in architectural history more for its illustrations than its text. Books can endure even where construction falters, and historically books have enjoyed wide dissemination in striking contrast to the singular and inert architectural object. However, variations in the nature of the images in these books, often reproduced by woodcuts or engravings, were cause for concern. Were discrepancies in the depictions of the same object or place due to true variations in aspect, or did they stem from differences in the drawing conventions used by the artists?[4] If discrepancies in the pictorial codes were one limit, dimensions were another. Size was restricted to the limits of the copper plate or wooden panel that formed the substrate, and more often than not, the image was rooted – at extremes, literally embedded – in a particular place *[2]*. At the very least, the image painted or printed by hand was difficult to transport, much less export.

The advent of photography

The mechanical process of photography changed all that, and also changed how we study art and architectural history. André Malraux tackled the subject head on in his seminal *The Voices of Silence*.[5] Before photography, he noted, it would have been impossible to compare paintings by the same artist should one be housed in the Louvre in Paris, another in the Prado in Madrid, and a third in the Metropolitan Museum in New York. Photographic reproduction allowed comparisons and more detailed study through the simultaneous regard of more than one art work, at least in reproduction. There was a price to be paid, of course: commonly

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3 Zaha Hadid. Phaeno Science Center, Wolfsburg, Germany, 2006. Experienced under less than perfect weather conditions, or seen with less than perfect framing and lighting, the reading of the building changes significantly, if not drastically. Good building or good photographs?

4 West 8 / Adriaan Geuze. Oosterschelde Storm Surge Barrier, The Netherlands, 1992. Because of the effects of time the iconic image often published cannot be matched by the experience on site

the dismissal of colour – before the advent of the more economical four-colour offset reproduction – and almost always a grave reduction in scale. Malraux was even more critical of photography as a medium by which to record *sculpture*. 'Indeed', wrote Malraux, 'reproduction (like the art of fiction, which subdues reality to the imagination) has created what might be called "fictitious" arts, by systematically falsifying the scale of objects; by presenting oriental seals the same size as the decorative reliefs on pillars, and amulets like statues'.[6] In depicting sculpture, a three-dimensional object is normally portrayed by a single view and reproduced at a compressed size. That singular photographic image then becomes the key representation, an icon or symbol of the piece, and in turn it replaces the experience of the actual sculpture in the mind of those who read the book – or attend the talk and view the slides. Only in rare instances, for example the book *A Landscape for Modern Sculpture: Storm King Art Center,* have publishers used multiple views of the same art work to suggest its volume in the round and the multiplicity of viewpoints available to the visitor on site.[7] Given his prescient observations half a century ago, we can only surmise how Malraux would have framed these issues in regard to the global reach of the internet or the application of his ideas about photography and publication if applied to architecture.

Dismissal of the aura

In the early decades of the twentieth century, Walter Benjamin famously examined the dismissal of the aura that attends the original work in his classic essay on the effects of mechanical reproduction.[8] As Victor Hugo had once claimed that the printed page will kill the architectural narrative, so the mechanically reproduced image dismisses the aura of the original art work.[9] What Benjamin might have overlooked, however, is the idea that the photograph itself represents a distinct view and object that can be considered as a work of art in and of itself. The photograph is as much a specific object and potential art work as the painting or sculpture, even if it is reproduced in numbers.[10] But that is really another subject. More germane to this essay is the relation between the photograph and what we call 'reality', and our relation to it. Susan Sontag confronted the question head on, noting: 'Photography implies that we know about the world if we accept it as the camera records it. But this is the opposite of understanding, which starts from *not* accepting the world as it looks'.[11] Given a critical distance can not photography be a means by which we come to understand the world? What are its gifts and its deceits, its uses and its limitations?

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Illustrating Modernist myths

That diminution of dimensions, and that replacement of a dynamic three-, even four-dimensional experience with a single image – or even groups of images – has also affected the experience of architecture, perhaps in an even more significant way than it has the discreet work of art. Several authors, Juan Pablo Bonta among them, have written about the importance of the photograph in constructing the Modernist myth of Mies van der Rohe's 1929 German Pavilion.[12] Relatively few people actually saw the pavilion on site during its brief existence at the exposition in Barcelona. On the other hand, multitudes have experienced the building through images alone, in the handful of photographs and plans of the building published at the time of its construction and republished ever since. In this instance – at least until the building's reconstruction in 1986 – the representations and the building were, for all practical purposes, synonymous. In a related vein, we often come to know an architect's work through the vision of one certain photographer, for example Julius Shulman's Richard Neutra, or Luis Barragán as viewed by Armando Salas Portugal.

Shulman's carefully, often dynamically, composed views added an augmented Modernist thrill to Neutra's already Modernist houses. In particular Shulman's use of black and white congealed the strength of Neutra's forms as well as heightened the architect's seamless integration of interior and exterior space.[13] Shulman's views, like those of many mid-twentieth century architectural photographers, were hardly neutral attempts at a hands-off *vérité*. Interior shots were often staged and almost always artificially illuminated; in Shulman's case to render both interior and exterior lucidly and in detail, and to smooth that path from inside to out in a way unmatched by the physics of the eye.

If Shulman's Neutra was a dynamically framed composition reinforced by a play of lights and darks, Salas Portugal's version of Barragán may have been less contrived but no less careful and interpretive.[14] His photographs of projects such as the rooftop of the architect's own house in Tacubaya or the horse stables and facilities at San Cristobál outside Mexico City evidence patience, prediction, and the application of Henri Cartier-Bresson's notion of 'the decisive moment'. 'Space, for him, is where he can manage to anticipate or triangulate a spot from which he can press his shutter', writes the critic Lincoln Kirstein of Cartier-Bresson; 'time, for him is the chosen instant in a continuum of preparatory moments when he can finally press'.[15] It is by his isolating of this single instant, this moment removed from the temporal continuum, that Cartier-Bresson renders it indelible: the click of the shutter captures the decisive moment.

Similar thoughts apply to the construction of architectural photography in that it removes buildings from their own time and spatial continuum by capturing them – often isolated from the immediate context – in an idealised instant. In the celebrated Salas Portugal photograph of the Casa Barragán's roof terrace, the shadow precisely falls across the enclosing wall as a diagonal that perfectly divides the wall plane into two similar triangles: one luminous, one umbrous. His photographs of San Cristobál capture similarly perfect moments in which horse, man, architecture and chroma swirl

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5 Jože Plečnik. Zale Funeral Complex, Ljubljana, Slovenia, 1940. Photographs including people, and in this case a funeral, greatly colour our reading and evaluation of the architecture

6 Charles Lutwidge Dodgson, *Alice in Wonderland*. Spaces that feel small

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oxymoronically in static movement.[16] Barragán's solicitation of Salas Portugal's collaboration was hardly an offhand decision. The photographer well understood the intentions behind the architect's work as well as the resulting architecture and landscapes, for example in the residential development of El Pedregal, where Barragán posed a meeting of the modern and geologic. As the architectural historian Keith Eggener has noted, Barragán did not accept the terrain as it was, but instead cleared, reshaped and planted where he believed it would improve the effect and ambience.[17] 'He treated the lava formations selectively', wrote Salas Portugal in accord, 'he eliminated, used, or hid them with vegetation and formed spaces where mysterious and strange gardens sprang up'.[18] His photos, which often singled out primary forms or the intersection of walls, captured a vision shared with the architect, what Salas Portugal considered a 'captivating interrelation of matter and design, of volumes and planes, of colour gyrating and flowing and tinting the spaces'.[19] Since few members of the architectural community and the general public will ever experience these settings firsthand, the printed book – or today the electronic image on screen – becomes our primary vehicle for encountering, engaging and evaluating Barragán's architecture. In the process the photograph supplants the architectural reality and the photographer shares with the architect the construction of the architecture. Artistic vision, in this case, represents a mediation that interprets the work, and at its extreme replaces the original in its totality.

Representations and realities

We have all had the experience of visiting a building previously known from photographs or images. We may have happily discovered instances where our experience of the building has trumped its reproduction: 'Oh, it's much larger than I pictured it'; 'Oh it's so colourful'; or 'It's far more complex and beautifully crafted than I thought'. And so on. Conversely, buildings read in striking photographs taken under ideal weather conditions or curiously composed may render the subject far more engaging than when it is confronted in situ, under dark skies paired with whipping wind and cold rain. Through the writings of many perceptive critics, John Berger among them, we know that like paintings we *make* photographs rather than *take* them.[20] At the very least the photograph removes the building from its setting while its rectangular frame recomposes the architectural elements within those orthogonal limits. In the process it becomes a new work less a picture of architecture than a picture that contains an architectural subject *[3]*.[21] We never see the actual building, and certainly not a landscape design, within a similar box. Instead we regard the building in a continually shifting frame that is less defined, less constrained. Thus we see the power of the image to condition, if not completely control, our perceptions of architecture first encountered in pictures. We may come to confuse an engaging photo with rewarding architecture – a tendency that becomes more rampant with the global spread of internet broadcasting *[4]*.

Some professionals today argue that the sweeping computer-animated simulation is the best way to represent space to this date. I would beg to differ. The unbroken, fluid movement characteristic of most simulations does little to replicate how we normally move and view – not to mention the haptic aspects of architectural experience missing from any two-dimensional graphic representation, of course. Simulations, films and videos may suggest the movement of eye and body around or through a building, but none of them replicates to any acceptable degree the saccadic sweep of the eye as it compensates for its very narrow cone of foveal vision, nor the stopping and starting of normal circulation. Nor do they address the turning of the head and body perhaps independently of the eye; nor do they incorporate the benefits of peripheral vision with its unfocused general sensing. But there is no question that the moving image does contribute a sense of time to the presentation – although the artist David Hockney argues that the making of a painting encompasses time in a manner missing in the instant of the photograph, and by extension in the computer rendering.[22]

The question then becomes how time could be manifest in any graphic representation other than one depicting real time. One might suggest that the photo-mosaics, so much a part of Hockney's work, reinvent Cubism with its multiple viewpoints and its attempt to congeal changes through time within the frame of a single panel. Similarly, one might argue that the early films of Charles and Ray Eames, which relied on a sequencing of slides rather than true motion, better represented space given that it was easier to follow differences between the individual slides that might be lost in the smooth transitions endemic to film.[23] In many instances the moving image is an improvement over the still shot, but not necessarily in every instance. Each medium contributes in its way to our understanding; each is framed by its limits. Both constitute mediated experience. Neither matches being there *[5]*. The image always remains a representation, a surrogate that at its best can only simulate – that is, unless it achieves its own identity as a distinct work rather than solely documentation.

The shift from the printed page of the journal and book to the electronics of the television, video screen and the internet constituted an enormous leap; today its effect has become literally astronomical. It has also fostered a continually increasing passivity on the part of students and some researchers – and one would imagine, with the general public as well. Instead of our going to the subject, we now expect the subject to come to us. A hunt on Google or similar search engines is expected to tell us everything we need to know – in fact everything that exists: no listing on Google, no existence. That may be the down side, but the benefits are enormous of course. While colour reproduction was an expensive proposition in print, it costs no more in electronic media. In fact, today the black-and-white image has

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almost become an art form in and of itself, striking in its monochromatic contrast to the saturated colours achieved with the pixel. The electronic medium itself is seductive, especially at the high resolution easily achieved by available technology. Projected upon the eye the illuminated pixel of the computer screen augments the vibrancy of all images – architectural as well as advertising – a vibrancy that can never be matched by the reflected light of the printed page. Although flattened into two dimensions on the screen and vastly compressed in size, the glowing image becomes more vibrant and even seductive than actuality: a lot of architecture looks better on the computer screen than it ever does in reality, especially when the weather conditions are less than perfect.

In architectural education and draughting the nearly worldwide use of the computer has created new problems as well as new numerous solutions. With computer-aided design, precision is a given even at stages of design – like conceptual study – where it may not be desirable. On the small computer screen students often lose a sense of the complete plan or section – what classically might be termed its 'figure' – because they work on only a single segment at a time; rarely do they want to bear the expense of printing their drawings at a scale sufficient to understand what they have created. In a related vein they lose the sense of scale and human dimensions that were long a byproduct of drawing at a given architectural scale. The computer facilitates modification and multiplication: adjusting a design already in the memory or replicating single units as required. These practices may result in a hesitancy to begin anew when a prior scheme has proven intractable, or to design a single unit and repeat it endlessly without regard for the particularities of access, location, view or solar orientation. By constructing perspectives one learned the effects of choosing or moving the station point and raising or lowering the eye level. With rendering programs it is a virtual mystery – data in, magnificent rendering out.[24] Those luminous pixels and their vivid colours can seduce even the most critical eyes.

Concomitantly with electronic ubiquity, we now experience images of both vastly increased and vastly reduced scale that further distort our sense and reading of space *[6]*. Unlike the restrictions of the printed page or the painted panel, almost nothing limits the size of prints from pixellated images. Relatively cheap printouts permit wall-size murals of almost any image, an economy that has drastically changed exhibition design, for example. Conversely the high-definition screens of mobile phones and iPods allow us to see miniature images in acute detail. Formerly the province only of the wide-screen cinema in fixed locations, films now can be downloaded almost instantaneously and viewed on a two-inch-wide screen – although why anyone would want to view a film in that way, at that size, is beyond me. Thanks to the binary code of 0 and 1 it is an easy matter to enfold moving images or images of moving subjects. Panoramas effortlessly capture the world in 360-degree fields that allow the viewer to choose just where and what to focus upon – and then to zoom in to view and examine that place image in incredible detail. In recent years, scholars have become involved in the interactive reconstructions of ancient environments while film clips posted on the internet now offer us panoramic sweeps of heritage sites.[25] The possibilities seem limitless and as a result we tend to forget the mediation that accompanies every image, whether conceptual issues like the representation of a building by one image or technical ones like the distortion of images to neatly fit the varying dimensions of computer monitors.

As a result of this plethora of possibilities we now confront a number of cognitive and perceptual crises, should we so look at the issues in that way. It is not that these are entirely new problems non-existent before today. It is instead the vast scale and the distribution of these issues and limitations that have become critical. There is the question of passivity and disengagement with the world at large; the question of the image superseding the solidity, reality and power of its referent. To these we need add the question of spatial displacement and distortion of representations and scales. But without question there is also the benefit of an extended range of media and an almost infinite number of sources with which to work – accessible at virtually any time in any place. All of these affect the experience and teaching of architecture. We may then ask: what is the power of the image and its relation to our so-called reality? What are the key differences between images in printed and pixellated forms? How do these affect our study and teaching of architecture and architectural history?

Print and pixel

A number – but not all – of these issues are addressed in the papers to follow. Sérgio Miguel Figueiredo examines the preconditioning of architectural experience through media – literally mediated experience. Bruno Notteboom investigates the dimension of time captured in the photograph, in addition to differences between the singular tangible photograph and its mass-distributed, pixellated kin. Hannah Lewi and Wally Smith discuss the use of portable digital media as a means to link history and the present, pairing off-site and on-site experience. And finally, Nicholas Adams looks historically at the relations between word and image as well as its transformation by digital technologies. All of these essays – at least to some degree – address certain very basic issues raised by the shift from the printed image to one rendered in pixels.

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Notes

An earlier version of this text, with the preliminary versions of those that follow, were presented in the session 'The Image: Print and Pixel', chaired by Marc Treib, at the 2010 Annual Meeting of the Society of Architectural Historians in Chicago.

1. Studies of the image – real, cognitive or metaphorical – are hardly a new practice. Among the most interesting I have encountered are Kenneth E. Boulding, *The Image: Knowledge in Life and Society* (Ann Arbor, MI: University of Michigan Press, 1956), and W. J. T. Mitchell, ed., *The Language of Images* (Chicago: University of Chicago Press, 1980).
2. Edward Tufte, *The Cognitive Style of PowerPoint* (Cheshire, CT: Graphics Press, 2003), p. 5.
3. Tufte, *The Cognitive Style of PowerPoint*, p. 6.
4. William M. Ivins, Jr., *Prints and Visual Communication* (Cambridge, MA: MIT Press, 1969).
5. André Malraux, *The Voices of Silence* (Garden City, NY: Doubleday, 1956), p. 49.
6. Malraux, *The Voices of Silence*, p. 24.
7. John Beardsley, *A Landscape for Modern Sculpture: Storm King Art Center* (New York: Abbeville, 1985). In this case two images, one far and one near, represent many of the works in the collection.
8. Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', in *Illuminations*, ed. by Hannah Arendt, trans. by Harry Zohn (New York: Schocken, 1969), pp. 217–52.
9. Victor Hugo, *The Hunchback of Notre-Dame* (1831), trans. by Walter J. Cobb (New York: New American Library, 1963), pp. 174–88.
10. This notion of the original and the edition in numbers is a central topic in Nelson Goodman, *Languages of Art* (Indianapolis: Hackett, 1976).
11. Susan Sontag, *On Photography* (New York: Farrar, Straus and Giroux, 1973), p. 23. (Emphasis in original.)
12. Juan Pablo Bonta, *Mies van der Rohe: Barcelona 1929* (Barcelona: Gustavo Gilli, no date), reprised and augmented in his later book *Architecture and Its Interpretation* (New York: Rizzoli, 1979), pp. 131–74 and 203–24.
13. In the last decade there has been a flood of publications on Shulman's work which is now held in the archives of the Getty Center in Los Angeles. A sample would include Joseph Rosa, *A Constructed View: The Architectural Photography of Julius Shulman* (New York: Rizzoli, 1994); *Julius Shulman, Photographing Architecture and Interiors: Updated and Expanded* (Glendale, CA: Balcony Press, 2000); and Julius Shulman; Pierluigi Serraino, *Julius Shulman: Modernism Rediscovered* (New York: Taschen America, 2009).
14. Among the many publications on Luis Barragán that feature Armando Salas Portugal's photographs see Isabelle Bleecker and Andrea Monfried, eds., *Armando Salas Portugal Photographs of the Architecture of Luis Barragán* (New York: Rizzoli, 1992).
15. Lincoln Kirstein, 'Henri-Cartier Bresson', in *Photographs by Cartier-Bresson* (New York: Grossman Publisher, 1963), no pagination.
16. For a more complete discussion of this photograph and these issues see Marc Treib, 'Photographic Landscapes: Time Stilled, Place Transposed', in *Representing Landscape Architecture*, ed. by Marc Treib (London: Taylor and Francis, 2008), pp. 188–203.
17. Keith Eggener, 'Contrasting Images of Identity in the Post-War Mexican Architecture of Luis Barragán and Juan O'Gorman', *Journal of Latin American Studies* 9, No. 1 (2000), (p. 32).
18. Bleecker and Monfried, *Armando Salas Portugal Photographs,* p. 10.
19. Bleecker and Monfried, *Armando Salas Portugal Photographs,* p. 12.
20. Indicatively, Kodak's guidebooks to popular photography published through the 1950s were titled *How to Make Good Pictures*. See John Berger, *Ways of Seeing* (Harmondsworth, UK: Penguin, 1977).
21. This is one of the reasons that much blob architecture looks better in photos: it grabs power from the relation of the curve to the rectangle of the photographic box.
22. David Hockney, *On Photography* (New York: Andre Emmerich Gallery, 1983).
23. The two best examples of this technique are *House: After Five Years of Living* and *Two Baroque Churches in Germany*, both from 1955.
24. There is admittedly some hyperbole used here as any form of graphic rendering will be instructive – it is more a question of degree and depth of knowledge.
25. The *Journal of the Society of Architectural Historians* has recently appeared in an electronic co-publication that includes interactive colour images that may be scaled.

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Biography

Marc Treib is Professor of Architecture Emeritus at the University of California, Berkeley, a practising graphic designer and a noted landscape and architectural historian and critic. He has published widely on modern and historical subjects in the United States, Japan and Scandinavia, including *An Everyday Modernism: The Houses of William Wurster* (1995) and *Space Calculated In Seconds: The Philips Pavilion, Le Corbusier, Edgard Varèse* (1996). Other books include: *Thomas Church, Landscape Architect* (2004); *Settings and Stray Paths: Writings on Landscapes and Gardens* (2005); *Representing Landscape Architecture* (2007); *Drawing/Thinking* (2008); *Spatial Recall: Memory in Architecture and Landscape* (2009), and *Appropriate: The Houses of Joseph Esherick* (2009).

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