

## **Course Syllabus**

Jump to Today

Architectural Visualization since 1900

Reinhold Martin

Wed 11am-1pm

114 Avery Hall

### **Fall 2016**

As a rule, architects do not build. They draw, write, annotate, diagram, model, map, sketch, photograph, animate, and otherwise visualize objects, spaces, and territories; they make visual and verbal presentations; they compile visual and written analyses and reports; and they issue visual and written instructions.

These lectures introduce key episodes in the history of architectural visualization, in a variety of geographic and cultural contexts across the “long” twentieth century, with close attention paid to housing. The approach is thematic; it follows a loose chronology built around concepts, problems, and practices associated with international modernism and its aftermath. In and through these, we will observe architectural knowledge being constructed, drawings and buildings interacting, and ideas, techniques, and imagery circulating.

Each lecture considers a specific set of techniques within the history and theory of modern and contemporary architecture, the history of technology, and theories and practices of visualization. A limited number of drawings, models, photographs, and other visual artifacts will be analyzed in depth. Some readings situate these examples historically, while others offer conceptual orientation. Together, the lectures offer a historical perspective that reframes concerns shared among different aspects of the GSAPP architecture curriculum, including the design studios, visual studies, and the technology sequence.

The history of architectural visualization is also a history of globalization. Architectural discourse and techniques move constantly across a variety of national, cultural, and geographic boundaries, both historically and in the present. The lectures will therefore emphasize problems and effects of visual translation, standardization, reproduction, interface, transformation, site, and circulation that accompany this movement.

Material covered includes diagrams, travel sketches, orthographic projection, axonometry, perspective, the representation of movement, construction drawings, urban cartography, architectural and aerial photography, rendering, and stages of digitalization, from the period around 1900 to the present. Through these visual materials we will witness the ongoing invention and dissemination of “architecture” as a category in a manner that explains much about contemporary assumptions.

Course Requirements

Students are required to attend all classes, complete the required readings, and complete the class assignments. Additional materials listed as Further Reference are suggested for those wishing to read more deeply in a given subject, or those writing research papers.

There will be two assignments during the semester: A 500-word (max.) paper abstract and research bibliography and a final research paper of 15 pages (max.), double-spaced in 12 point font (about 3,500-4,000 words); plus illustrations.

All papers should follow bibliographic, footnoting, and other guidelines outlined in the Chicago Manual of Style (available as an E-Book through CLIO).

All required and further readings are available on Courseworks or through e-journals on different online databases as indicated (JSTOR, MUSE, WILEY ONLINE, etc.). Most books are available in Avery Library. E-Books are listed as such and may be accessed through CLIO. E-journals may be accessed through the Columbia University Libraries "Databases" at: <http://library.columbia.edu/>

## Grading

Grades for the class will be determined as follows:

Attendance / participation	20%
Paper abstract (Due: 19 October 2016)	20%
Final paper (Due: 16 December 2016 5:00pm)	60%

NOTE: All assignments will be submitted through Turnitin. Instructions will be provided by instructor.

Students with limited experience in writing research papers or writing in academic English are STRONGLY encouraged to seek support at the Columbia College Writing Center:

<http://www.college.columbia.edu/core/uwp/writing-center>

Students should adhere to standard guidelines regarding academic honesty, such as those described in the GSAS Statement on Academic Honesty, available at:

<http://www.columbia.edu/cu/gsas/rules/chapter-9/pages/honesty/index.html>

## Schedule and Readings

### **Week 1      Media: From Representation to Communication**

7 September 2016

## Required Reading

Bruno Latour, "Drawing Things Together," in Michael Lynch and Steve Woolgar, eds., *Representation in Scientific Practice* (Cambridge: MIT Press, 1990), 19-68.

Friedrich A. Kittler, *Gramophone, Film, Typewriter* [1986], trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999), Preface, xxxix-xli.

Friedrich A. Kittler, *Optical Media: Berlin Lectures 1999*, trans. Anthony Enns (Malden, MA: Polity Press, 2010), Chap. 3, "Optical Media," 118-224.

## Further Reference

Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), Chap. 1, "The Medium Is the Message," 7-21.

Vilém Flusser, "On the Theory of Communication [1986]," in *Writings*, trans. Erik Eisel (Minneapolis: University of Minnesota Press, 2002), 8-20.

Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964), Chap. 2, "Media Hot and Cold," 22-32.

Hans-Ulrich Gumbrecht and Karl Ludwig Pfeiffer, eds., *Materialities of Communication*, trans. William Whobrey (Stanford: Stanford University Press, 1994)

Ian Hacking, *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science* (New York: Cambridge University Press, 1983), "Reals and Representations," 130-146.

Friedrich A. Kittler, "Perspective and the Book," trans. Sarah Ogger, *Grey Room 5* (Fall 2001): 38-53.  
JSTOR

Friedrich A. Kittler, "On the Relation of Art and Techne," lecture, European Graduate School, <http://www.egs.edu/faculty/friedrich-kittler/videos/the-relation-of-art-and-techne/>

Werner Oechslin, "Architecture, Perspective, and the Helpful Gesture of Geometry," *Daidalos* 11 (March 1984): 38-54.

Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge: MIT Press, 1997)

Werner Szambien, "Architectural Drawings at the Ecole Polytechnique in Paris at the Beginning of the Nineteenth Century *Daidalos* 11 (March 1984): 55-64.

## **Week 2      Drawing Architecture**

**14 September 2016**

### Required Reading

Robin Evans, "Figures, Doors and Passages," *Architectural Design* 48, no. 4 (1978), 267-278.

Robin Evans, "Architectural Projection," in Eve Blau and Edward Kaufman, eds. *Architecture and Its Image: Works from the Canadian Centre for Architecture* (Montréal: Canadian Centre for Architecture, 1989), 18-35.

Jacques Guillerme and Hélène Vérin, "The Archaeology of Section," trans. Stephen Sartarelli, *Perspecta* 25 (1989): 226-257. JSTOR

### **Further Reference**

James S. Ackerman, *Origins, Imitation, Conventions: Representation in the Visual Arts* (Cambridge: MIT Press, 2002), Chap. 2, "The Origins of Architectural Drawing in the Middle Ages and Renaissance," 27-65. EBOOK

Mario Carpo, *The Alphabet and the Algorithm* (Cambridge: MIT Press, 2011), Part 1, "Variable, Identical, Differential," 1-48; Part 2, "The Rise," 50-79.

Mario Carpo and Frédérique Lemerle eds., *Perspective, Projections, and Design: Technologies of Architectural Representation* (New York: Routledge, 2007), selections.

Catalogue of the Andrew Alpern Collection of Drawing Instruments at the Avery Architectural and Fine Arts Library Columbia University in the City of New York (New York: Trustees of Columbia University in the City of New York, 2010)

Hubert Damisch, *The Origin of Perspective*, trans. John Goodman (Cambridge: MIT Press, 1994), Chap. 2, "Perspective, a Thing of the Past?" 22-40.

Robin Evans, "Translations from Drawing to Building," in Evans, *Translations from Drawing to Building* (Cambridge: MIT Press, 1997), 153-193.

Werner Oechslin, "Architecture, Perspective, and the Helpful Gesture of Geometry," *Daidalos* 11 (March 1984): 38-54.

Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge: MIT Press, 1997)

Werner Szambien, "Architectural Drawings at the Ecole Polytechnique in Paris at the Beginning of the Nineteenth Century *Daidalos* 11 (March 1984): 55-64.

### **Week 3      Translation: The Movement of Information**

21 September 2016

Required Reading

Hyungmin Pai, *The Portfolio and the Diagram: Architecture, Discourse, and Modernity in America* (Cambridge: MIT Press, 2002), Chap. 2, "The Portfolio and the Academic Discipline," 40-73.

Li Shiqiao, "Writing a Modern Chinese Architectural History: Liang Sicheng and Liang Qichao," *Journal of Architectural Education* 56, n. 1 (September 2002): 35-45.

<http://onlinelibrary.wiley.com/doi/10.1162/104648802321019155/pdf> (Links to an external site.)

### **Further Reference**

Zeynep Çelik, "Le Corbusier, Orientalism, Colonialism," *Assemblage* 17 (April 1992): 58-77. JSTOR

Le Corbusier, *Journey to the East*, ed. Ivan Žaknić, trans. Ivan Žaknić with Nicole Pertuiset (Cambridge: MIT Press, 1987)

Banister Fletcher, *A History of Architecture on the Comparative Method for Students, Craftsmen & Amateur* [1896], 4th rev. ed. (London: B.T. Batsford, 1901) EBOOK

Julien Guadet, *Éléments et théorie de l'architecture: cours professé a l'École nationale et spéciale des beaux-arts*, 4 v. (Paris: Librairie de la construction modern, 1901-1904) EBOOK

Mark A. Hewitt, "Beaux Arts Representation and the Golden Age of American Draftsmanship." *Classicist* 3 (1996): 27-34.

Annie Jacques, "The Programmes of the Architectural Section of the École des Beaux Arts, 1819-1914," in Robin Middleton, ed. *The Beaux-Arts and Nineteenth-Century French Architecture* (London: Thames & Hudson, 1982), 58-65.

Neil Levine, "The Competition for the Grand Prix in 1824," in Robin Middleton, ed. *The Beaux-Arts and Nineteenth-Century French Architecture* (London: Thames & Hudson, 1982), 66-123.

Richard A. Moore, "Academic 'Dessin' Theory in France after the Reorganization of 1863," *Journal of the Society of Architectural Historians* 36, n. 3 (October 1977): 145-174. JSTOR

Patricia A. Morton, "Disorienting Le Corbusier: Charles-Edouard Jeanneret's 1911 Voyage d'Orient," in Tyler Stovall and Georges van den Abbeele, eds. *French Civilization and Its Discontents: Nationalism, Colonialism, Race* (Lanham: Lexington Books, 2003).

Gülsüm Baydar Nalbantoğlu, "Toward Postcolonial Openings: Rereading Sir Banister Fletcher's 'History of Architecture,'" *Assemblage* 35 (April 1998): 6-17. JSTOR

Kevin Nute, *Frank Lloyd Wright and Japan: The Role of Traditional Japanese Art and Architecture in the Work of Frank Lloyd Wright* (New York: Routledge, 2000)

Liang Sicheng (Liang Ssu-ch'eng), *A Pictorial History of Chinese Architecture: A Study of the Development of Its Structural System and the Evolution of Its Types* ed. Wilma Fairbank (Cambridge, MIT Press, 1984)

David van Zanten, "Architectural Composition at the École des Beaux-Arts from Charles Percier to Charles Garnier," in Arthur Drexler ed., *The Architecture of the École des Beaux-Arts* (New York : Museum of Modern Art, 1977), 111-323.

#### **Week 4      The World Picture: Numbers and Standards**

28 September 2016

#### Required Reading

Robin Evans, *The Projective Cast: Architecture and Its Three Geometries* (Cambridge: MIT Press, 1995), Chap. 7 "Comic Lines," 272-319.

Peter Galison, "Aufbau/Bauhaus: Logical Positivism and Architectural Modernism," *Critical Inquiry* 16, No. 4 (Summer 1990): 709-752. JSTOR

Nader Vossoughian, *Otto Neurath: The Language of the Global Polis* (Rotterdam: NAI Publishers, 2011), Chap. 3, "Globalism," 88-141.

## **Further Reference**

John Bender and Michael Marrinan, *The Culture of Diagram* (Stanford: Stanford University Press, 2010), Chap. 5, "Numbers," 152-197.

Don Graf, *Data Sheets: Thousands of Simplified Facts about Building Materials and Construction* (New York: Reinhold, 1944)

Ernst Neufert, *Bau-Entwurfslehre* (Berlin: Bauwelt Verlag, 1936)

Hyungmin Pai, *The Portfolio and the Diagram: Architecture, Discourse, and Modernity in America* (Cambridge: MIT Press, 2002), Chap. 8, "New Genres and New Formations," 198-235. (on Architectural Graphics Standards)

*Planning: The Architect's Handbook* (London: Architecture and Building News, 1936)

Kenchiku Shiryo Shioshu (*Architectural Design Data Collection*) (Tokyo: Japan Society of Architecture, 1941)

Brian Rotman, "The Technology of Mathematical Persuasion," in Timothy Lenoir, ed. *Inscribing Science: Scientific Texts and the Materiality of Communication* (Stanford: Stanford university Press, 1998), 55-69.

## **Week 5      Object-Experience: Axonometry versus Photography**

5 October 2016

### Required Reading

Yve-Alain Bois, "Metamorphosis of Axonometry." *Daidalos* 1 (September 1981): 41-58.

Peter J. Booker, *A History of Engineering Drawing* (London: Northgate Publishing, 1982), Chap. 17, "Axonometric Projection," 198-212.



Claire Zimmerman, "Photographic Modern Architecture: Inside the 'New Deep,'" *Journal of Architecture* 9, n. 3 (Autumn 2004): 331-354. TAYLOR & FRANCIS ONLINE

### **Further Reference**

James S. Ackerman, *Origins, Imitation, Conventions: Representation in the Visual Arts* (Cambridge: MIT Press, 2002), Chap. 4, "On the Origins of Architectural Photography," 95-124. EBOOK

Walter Benjamin, "Little History of Photography" [1931], trans. Edmund Jephcott and Kingsley Shorter, in Benjamin, *The Work of Art in the Age of Its Technical Reproducibility and Other Writings on Media*, ed. Michael W. Jennings, Brigid Doherty, and Thomas Y. Levin (Cambridge: Harvard University Press, 2008), 274-198.

Auguste Choisy, *Histoire de l'architecture* (Paris: E. Rouveyre, 1899) EBOOK

Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media* (Cambridge: MIT Press, 1994)

Sergei M. Eisenstein, "Montage and Architecture," with introduction by Yve-Alain Bois, *Assemblage* 10 (December 1989): 110-131 (read Bois intro, 110-115) JSTOR

Richard A. Etlin, "Le Corbusier, Choisy, and French Hellenism: the Search for a New Architecture," *Art Bulletin* 69, n.2 (1987): 264-278.

Robin Evans, *The Projective Cast: Architecture and Its Three Geometries* (Cambridge: MIT Press, 1995), Chap. 9 "Rumors at the Extremities," 336-349.

El Lissitzky, "A. and Pangeometry" [1925], in Lissitzky, *Russia: An Architecture for World Revolution*, trans. Eric Dluhosch (Cambridge: MIT Press, 1970), 142-149.

Thierry Mandoul, "From Rationality to Utopia: Auguste Choisy and Axonometric Projection," in Mario Carpo and Frédérique Lemerle eds., *Perspective, Projections, and Design: Technologies of Architectural Representation* (New York: Routledge, 2007).

Robin Middleton, "Auguste Choisy, Historian: 1841-1909." *International Architect*. 1.5 (1981): 37-40.

Bruno Reichlin, "Reflections: Interrelations between Concept, Representation, and Built Architecture," *Daidalos* 1 (September 1981): 60-73.

Bernhard Schneider, "Perspective Refers to the Viewer, Axonometry Refers to the Object," *Daidalos*. 1 (1981): 81-95.

Massimo Scolari, "Elements for a History of Axonometry." *Architectural Design*. 55, nos. 5-6 (1985): 73-78.

Massimo Scolari, *Oblique Drawing: A History of Anti-Perpspective* (Cambridge, MA: MIT Press, 2012).

## **Week 6      Dynamism: Time and Movement, Machines and Organisms**

12 October 2016

### Required Reading

Stephen Kern, *The Culture of Time and Space 1880-1918* (Cambridge: Harvard University Press, 1983), Chap. 6., "The Nature of Space," 131-180.

Hyungmin Pai, *The Portfolio and the Diagram: Architecture, Discourse, and Modernity in America* (Cambridge: MIT Press, 2002), Chap. 7, "Scientific Management and the Discourse of the Diagram," 163-197.

### Further Reference

Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye*, [rev. ed., orig. 1954] (Berkeley: University of California Press, 1976), Chap. 8, "Movement," 372-409; Chap. 9, "Dynamics," 410-443.

Walter Benjamin "The Work of Art in the Age of Its Technological Reproducibility" [1936], trans Edmund Jephcott and Harry Zohn, in Benjamin, *Selected Writings 1935-1938*, ed. Michael W. Jennings, Howard Eiland, and Gary Smith (Cambridge: Harvard University Press, 2002), 101-133.

Marta Braun, *Picturing Time: The Work of Étienne-Jules Marey (1830-1904)* (Chicago: University of Chicago Press, 1992)

Jimena Canales, *A Tenth of a Second: A History* (Chicago: University of Chicago Press, 2009), Introduction, 1-19. EBOOK

François Dagobert, *Étienne-Jules Marey: A Passion for the Trace*, trans. Robert Galeta and Jeanine Herman (New York: Zone Books, 1992)

Sigfried Gideon, *Mechanization Takes Command: A Contribution to Anonymous History* (New York: Oxford University Press, 1948)

Linda Dalrymple Henderson, "The Image and Imagination of the Fourth Dimension in Twentieth-Century Art and Culture," *Configurations* 17, n. 1-2 (Winter 2009): 131-160. MUSE (online)

Gyorgy Kepes, *Language of Vision* (Chicago: Paul Theobald, 1944) EBOOK

Detlef Mertins, "Architectures of Becoming: Mies van der Rohe and the Avant-Garde," in Terence Riley and Barry Bergdoll, eds., *Mies in Berlin* (New York: Museum of Modern Art, 2001), 106-133.

László Moholy-Nagy, "Production, Reproduction," in Moholy-Nagy, *Painting Photography Film* [1925], trans. Janet Seligman (Cambridge: MIT Press, 1969), 30-31.

László Moholy-Nagy, *The New Vision: From Material to Architecture* [1928], trans. Daphne M. Hoffman (New York: Brewer, Warren & Putnam, 1932)

László Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947)

Anson Rabinbach, *The Human Motor: Energy, Fatigue, and the Origins of Modernity* (Berkeley: University of California Press, 1990), Chap. 4, "Time and Motion: Etienne-Jules Marey and the Mechanics of the Body," 84-119.

Frederic J. Schwartz, *Blind Spots: Critical Theory and the History of Art in Twentieth Century Germany* (New Haven: Yale University Press, 2005), Chap. 2 "Walter Benjamin and the Avant-Garde," 37-102.

Bernhard Siegert, *Cultural Techniques and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (Stanford: Stanford University Press, 2015), Chap. 8, "Waterlines: Striated and Smooth Spaces as Techniques of Ship Design," 147-163.

## **Week 7      Horizon as Symbolic Form: Plans and Grids**

19 October 2019

### Required Reading

Peter Collins, "The Origins of Graph Paper as an Influence on Architectural Design," *Journal of the Society of Architectural Historians* 21, No. 4 (December 1962): 159-162.

Le Corbusier, *Towards an Architecture* [1923], trans. John Goodman (Los Angeles: Getty Research Institute, 2007), "Three Reminders to Architects, III Plan," 115-130.

Rosalind E. Krauss, *The Originality of the Avant-Garde and Other Modernist Myths* (Cambridge: MIT Press, 1985), "Grids," 8-22.

### **Further Reference**

Allen Brooks, "Frank Lloyd Wright and the Wasmuth Drawings," *Art Bulletin* 48, No. 2 (1966): 193-202.

Arthur Drexler, *The Drawings of Frank Lloyd Wright* (New York: Horizon Press, 1962)

Arthur Drexler, ed., *The Mies van der Rohe Archive, Vols. 1-20* (New York: Garland, 1986-1992)

John Elderfield, "Grids," *Artforum* 10 (May 1972): 52-59.

Rosalind E. Krauss, "The Grid, the /Cloud/, and the Detail," in Detlef Mertins ed. *The Presence of Mies* (New York: Princeton Architectural Press, 1996), 133-148.

Werner Oechslin, "Raumplan versus Plan Libre," *Daidalos* 42 (15 December 1991): 76-83.

Bruce Brooks Pfeiffer, *Frank Lloyd Wright Drawings: Masterworks from the Frank Lloyd Wright Archives* (New York: Abrams, 1990)

Henry Plummer, "The Horizon Reveries of Frank Lloyd Wright," *Daidalos* 21 (15 December 1991): 110-121.

Bruno Reichlin, "The Pros and Cons of the Horizontal Window: The Perret-Le Corbusier Controversy," *Daidalos* 13 (15 September 1984): 64-78.

Max Risselada, ed., *Raumplan versus Plan Libre: Adolf Loos / Le Corbusier* (Delft: Delft University Press, 1987)

Bernhard Siegert, *Cultural Techniques and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (Stanford: Stanford University Press, 2015), Chap. 6, "(Not) in Place: The Grid, or, Cultural Techniques of Ruling Spaces," 97-120.

Wolf Tegethoff, "On the Development of the Conception of Space in the Works of Mies van der Rohe," *Daidalos* 13 (15 September 1984): 114-123.

## **Week 8      Pattern Seeing: Systems**

26 October 2016

John Harwood, *The Interface: IBM and the Transformation of Corporate Design 1945-1976* (Minneapolis: University of Minnesota Press, 2011), Chap. 2, "The Architecture of the Computer," 59-99.

Sean Keller, "Fenland Tech: Architectural Science in Postwar Cambridge," *Grey Room* 23 (Spring 2006): 40-65. JSTOR

Reinhold Martin, *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge: MIT Press, 2003), Chap. 2, "Pattern Seeing," 42-79.

### **Further Reference**

Larry Busbea, *Topologies: The Urban Utopia in France, 1960-1970* (Cambridge: MIT Press, 2007), Chap. 1, "Spatial Culture in France, 1960-1970," 9-31.

Eric DeBruyn, "Topological Pathways of Post-Minimalism," *Grey Room* 25 (Fall 2006): 32-63.

Gyorgy Kepes, *The New Landscape in Art and Science* (Chicago: Paul Theobald, 1956)

Gyorgy Kepes, *Module, Proportion, Symmetry, Rhythm* (New York: George Braziller, 1966)

Gyorgy Kepes, *Sign, Image, Symbol* (New York: George Braziller, 1966)

Gyorgy Kepes, *Education of Vision* (New York: George Braziller, 1965)

Gyorgy Kepes, *The Nature of Art and Motion* (New York: George Braziller, 1965)

Gyorgy Kepes, *Structure in Art and Science* (New York: George Braziller, 1965)

Gyorgy Kepes, *The Man-Made Object* (New York: George Braziller, 1966)

Gyorgy Kepes, *Arts of the Environment* (New York: George Braziller, 1972)

Friedrich Kittler, *Optical Media: Berlin Lectures 1999*, trans. Anthony Enns (Malden, MA: Polity Press, 2010), Chap. 3, "Optical Media," 118-224; Chap. 4, "Computers," 225-230.

Claus Pias, "'Hollerith Feathered Crystal:' Art, Science and Computing in the Era of Cybernetics," trans. Peter Krapp, *Grey Room 29* (Winter 2008): 110-133. JSTOR

Antoine Picon, *Digital Culture in Architecture: An Introduction for the Design Professions* (Basel: Birkhäuser, 2010), Chap. 1 "People, Computers, and Architecture: An Historical Overview," 15-57.

Lancelot Law Whyte, *Aspects of Form: A Symposium on Form in Nature and Art* (London: Lund Humphries, 1951)

## **Week 9      From Above, From Below: Power and Control**

**2 November 2016**

### Required Reading

Laura Kurgan, *Close Up at a Distance: Mapping, Technology, and Politics* (New York: Zone Books, 2013), "Introduction," 9-38.

Vittoria Di Palma, "Zoom: Google Earth and Global Intimacy," in Di Palma, Diana Periton, and Marina Lathouri, eds., *Intimate Metropolis: Urban Subjects in the Modern City* (New York: Routledge, 2009), 239-270.

### **Further Reference**

Beatriz Colomina, "Enclosed by Images: The Eameses Multimedia Architecture," *Grey Room 2* (Winter 2001): 5-29. JSTOR

Paul Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge: MIT Press, 1996), Chap. 4, "From Operations Research to the Electronic Battlefield," 113-145. EBOOK

David Gissen, "Drawing Air: The Visual Culture of Bio-political Imaging," in Marco Frascari, Jonathan Hale, and Bradley Starkey, eds., *From Models to Drawings: Imagination and Representation in Architecture* (London: Routledge, 2007), 155-167.

Ernst Gombrich, "Mirror and Map: Theories of Pictorial Representation," *Philosophical Transactions of the Royal Society of London, Series B, Biological Sciences* 270, n. 903 (13 March 1975): 119-149. JSTOR

Tanis Hinchcliffe, "Aerial Photography and the Postwar Urban Planner in London." *London Journal*. 35.3 (2010): 277-288.

John Macarthur, "Landscape and Prospect from the Picturesque to Aerial Photography," In Steven Jacobs and Frank Maes eds., *Beyond the Picturesque* (Ghent: Stedelijk Museum voor Actuele Kunst, 2009), 209-219.

John Macarthur, *The Picturesque: Architecture, Disgust and Other Irregularities* (New York: Routledge, 2007)

Tom McDonough ed., *The Situationists and the City* (New York: Verso, 2009), Chap. 6, "The Critique of Urban Planning," 139-167.

Bernhard Siegert, *Cultural Techniques and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (Stanford: Stanford University Press, 2015), Chap. 7, "White Spots and Hearts of Darkness: Drafting, Projecting, and Designing as Cultural Techniques," 121-146.

Anthony Vidler, "Photourbanism: Planning the City from Above and from Below," in Vidler, *The Scenes of the Street and Other Essays* (New York: Monacelli Press, 2011), 317-328.

Eyal Weizman, *Hollow Land: Israel's Architecture of Occupation* (New York: Verso, 2007), Chap. 7, "Urban Warfare: Walking through Walls," 185-220.



Catherine de Zegher and Mark Wigley, eds. *The Activist Drawing: Retracing Situationist Architectures from Constant's New Babylon to Beyond* (Cambridge: MIT Press, 2001)

## **Week 10 Risk: The International Division of Labor**

9 November 2016

### Required Reading

Felicity D. Scott, *Architecture or Techno-utopia: Politics after Modernism* (Cambridge: MIT Press, 2007) Chap. 8, "Shouting Apocalypse," 208-245.

Ulrich Beck, *Risk Society: Towards a New Modernity*, trans. Mark Ritter (London: Sage, 1992), esp. Chap. 1, "On the Logic of Wealth Distribution and Risk Distribution," 19-50. EBOOK

### Further Reference

Peter J. Booker, *A History of Engineering Drawing* (London: Northgate Publishing, 1982)

Reinhold Martin, *Utopia's Ghost: Architecture and Postmodernism, Again* (Minneapolis: University of Minnesota Press, 2010), Chap. 3, "Language: Environment c. 1973," 49-67.

David E. Nye, "Energy in the Thought of R. Buckminster Fuller," in Hsiao-Yun Cho and Roberto G. Trujillo eds., *New Views on R. Buckminster Fuller* (Stanford: Stanford University Press, 2009), 86-98.

Andrew Saint, *Architect and Engineer: A Study in Sibling Rivalry* (New Haven: Yale University Press, 2007), Chap. 5, "Reconciliation," 364-429.

Felicity D. Scott, "Fluid Geographies: Politics and the Revolution by Design," in Hsiao-Yun Cho and Roberto G. Trujillo eds., *New Views on R. Buckminster Fuller* (Stanford: Stanford University Press, 2009), 160-175.

Eyal Weizman, *The Least of All Possible Evils: Humanitarian Violence from Arendt to Gaza* (London: Verso, 2012), Chap. 3, "The Best of All Possible Walls," 65-98.

## **Week 11    Black and White and Color: Form/Figure/Context**

16 November 2016

### Required Reading

Michael Hays, *Architecture's Desire: Reading the Late Avant-Garde* (Cambridge: MIT Press, 2010), "Repetition," 51-88.

Colin Rowe and Robert Slutzky, "Transparency: Literal and Phenomenal," in Rowe, *The Mathematics of the Ideal Villa and Other Essays* (Cambridge: MIT Press, 1976), 159-183.

### Further Reference

Christopher Alexander, *Notes on the Synthesis of Form* (Cambridge: Harvard University Press, 1964)

Robin Evans, "Not To Be Used for Wrapping Purposes," *AA Files* 10 (Autumn 1985): 68-78; also in Evans, *Translations from Drawing to Building* (Cambridge: MIT Press, 1997).

*Global Architecture* (Tokyo: A.D.A. Edita, 1970-1999), various issues.

Klaus Herdeg, *The Decorated Diagram: Harvard Architecture and the Failure of the Bauhaus Legacy* (Cambridge: MIT Press, 1983), Preface, vi-vii; and Chap. 3, "Teaching: A Critique of the Gropius Method," 78-97.

Klaus Herdeg, *Formal Structure in Indian Architecture* (New York : Rizzoli, 1990)

Klaus Herdeg, *Formal Structure in Islamic Architecture of Iran and Turkistan*  
(New York : Rizzoli, 1990)

Heinrich Klotz ed., *Postmodern Visions: Drawings, Paintings, and Models by Contemporary Architects*  
[1984] (New York: Abbeville Press, 1985)

Kevin Lynch, *Image of the City* (Cambridge: MIT Press, 1960)

Mimar: *Architecture in Development* (Singapore: Concept Media, 1981-1992), various issues.

Aldo Rossi, *The Architecture of the City* [1966], trans. Diane Ghirardo and Joan Ockman (Cambridge: MIT Press, 1982)

Colin Rowe and Fred Koetter, *Collage City* (Cambridge: MIT Press, 1978)

Colin Rowe, "The Mathematics of the Ideal Villa" [orig. 1947], in Rowe, *The Mathematics of the Ideal Villa and Other Essays* (Cambridge: MIT Press, 1976), 1-27.

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## **Week 12    Computerization Takes Command**

23 November 2016

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### **Week 13    Planetary Pictures**

30 November 2016

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