ARCHITECTURE

MODERNISM MEETS MANNERISM—*and logic goes out the fenestration*.

As I looked through the camera to frame the shot, I saw, in the viewfinder, a man running toward me, gesticulating wildly. As he got closer I could hear that he was quite upset, and I could see that the thing he was waving was a machine gun. I began to get a little nervous.

The year was 1982. I was in Iraq making photos of all the buildings along a hot and dusty three kilometer stretch of neighborhood near the Tigris River in downtown Baghdad. The team I was working with would use the pictures to decide which houses to save in our new city-planning design for that section of town. I later learned through the local, Yousef, who was my translator, that my near-death experience was occasioned by my inadvertently photographing the headquarters of the PLO! Their existence in Baghdad, at that time, was supposed to be a secret.

Architecture is not always so exciting or so dangerous, and although teaching is a more serene activity, it does have its frustrations. Convincing young people that design means merely making something work—in the broadest most thorough sense—is particularly difficult. Freshmen design students think that creating architecture means making art, and to many of them art is a weird-looking building. They are quick to point to their favorite examples as precedents, and it is hard to convince them that not all existing buildings are good architecture.

Considering the proliferation of unusual buildings these days, I am glad that I now lecture to private groups, and am not trying to teach logic, order, and economy to a new generation of would-be designers. The overwhelming popularity of the buildings now replacing the Modernist paradigm is playing right into students' hands.

In the 19th century, the Industrial Revolution set the architectural world on a rampage of invention and audacity. Materials of unbelievable strength made possible structures spectacularly tall and slender, in pristine elegance. That design momentum continued into the 20th century with the Bauhaus, and with geniuses like Walter Gropius, Corbusier, Mies van der Rohe, and other giants, creating the style, based upon logic and economy, called Modern.

New ideas for Modern architecture are still trickling out of the best offices, including the Hearst Tower (2006) in New York, by Foster and Partners. The corner treatment, resulting from the structural design of that modest-height tower, brings a refreshing change to the boxiness of the mature skyscraper style without seriously departing from what I see as the basic tenets of Modern high-rises—economy and logic in the use of reinforced-concrete, glass, and steel.

Today, however, designers like Frank Gehry and Daniel Libeskind erect ridiculous challenges to the established order, and the novelty of their fanciful creations has enchanted a public bored with economy and logic. Now, I feel the time has come to point out that these emperors of Mannerism have no clothes, and to agitate for some discussion about where this outrageous architectural trend is leading.

In the 15th century, iron, the precursor of steel, was early used to innovative advantage in architecture, and its use changed the face of the prevailing style. The architect, Brunelleschi, used iron-chain rings within the base of the Florence cathedral dome. Those chains resist the outward thrust which is characteristic of a dome, and which was, in previous domes, resisted by heavy masonry fins (buttresses) running down the sides of the buildings. Newcomers to Florence must have been staggered by the sight of that huge, octagonal dome strangely maintaining its composure without the requisite buttresses.

It wasn't until the late 1700s when iron (cast iron) was used in England to make a complete structure, the bridge over the Severn River, constructed at Coalbrookdale with modular parts made in the nearby Darby mill. The next 100 years saw the replacement of iron with steel, and the (accidental!) refinement of concrete, used by the Romans 2000-years ago, into a stronger material by reinforcement with internal steel rods.

New materials brought with them a new way of building

Glass made its appearance as a plentiful commodity when Joseph Paxton built the Crystal Palace in London for the Exhibition of 1851. To show off the remarkable products of the emerging machine age, he created a 1,848-foot long basilica-style building made of glass and iron. For the building's skeleton he designed modular iron frames to be fitted with countless identical-size glass panes. Unlike previous times when building materials were shaped, or actually created on the construction site, Paxton's frames came ready for assembly, as did the glass, ready to be put into place.

Thus, new materials brought with them a new way of building, and by the late 1800s, with steel, reinforced-concrete, and glass available, architects were beginning to face questions of what to do with these new materials. How should they fit together? What would the resulting architectural style look like?

The necessity and the possibility of an architectural revolution met in downtown Chicago.

Designers confronted those questions in the American Midwest. The impetus for the development of tall buildings emerged in Chicago due to a number of factors including the unprecedented growth of the city's population during the century, the development by Elisha Graves Otis and others of a reliable elevator, and the devastation of the City's wooden architecture by numerous fires, culminating in the Great Chicago Fire of 1871. The necessity and the possibility of an architectural revolution met in downtown Chicago.

The development of the skyscraper, from the late 1800s through the first half of the 20th century, formed an architectural style which emerged from the characteristics of the new materials and the *logical* possibilities of their use. Materials want to be used in certain ways which are inherent in their characteristics. Wood boards want to be used as they are cut from the tree—as straight pieces. Making a round window frame of wood boards is neither logical nor economical. It can be done—almost anything in construction can be done—but it is not the logical, economical thing to do. Bricks, on the other hand, can form (relatively large) curves

because they are small units. By the slight adjustment of each brick, for example, a wall can be made to curve.

The introduction of a curve, however, increases the complexity (and thus affects the economy) of building. In our world, straight-line construction with 90-degree corners is the simplest, quickest, and most economical method. Curves are possible—even necessary—to accommodate uses which require part of a building to be curved. In that case, the logic of accommodating a required function trumps the additional difficulty and expense of deviating from straight-line geometry.

The introduction of "expressive" curves (or other unusual forms) as opposed to practical, and therefore justifiable ones, is difficult to rationalize. Steel beams and girders are used for tall buildings because of their light weight, and the ease and rapidity of their erection. They are, however, straight-line items off the shelf, and logically form straight-line buildings.

To see this logic, imagine you are building one of the stud walls of a garage for your new car. You lay out two parallel 2x4s eight feet apart, one for the plate (bottom of the wall) and another for the head (the top of the wall). Then you place wood studs, sixteen inches apart, perpendicular to those two, and you nail their ends to the plate and head. Finally, you lift the wall and nail it into place. Now, suppose you are building a stud wall for your garage but, instead of a flat plane, the wall has an S-curve geometry which someone has designed for you. How much longer do you think it will take you to create that wall? Furthermore, how much more material (and money) do you think it will require?

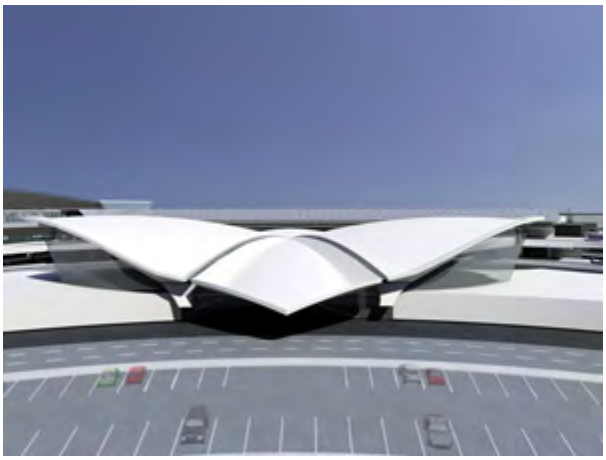
At the apex of the development of the Modern style are buildings like the Lever House office building in Manhattan (1952). They are, basically, what you can see: horizontal layers—beams and floor slabs—tied together visually and structurally by vertical column lines. If you could see the bare skeleton of the structure, the apparent insubstantiality of the materials would be revealed. Such is the efficiency and economy of Modern architecture.

A frequent criticism of the Modern style is its lack of decoration, or, better stated, its lack of *traditional* decoration. Aficionados of the style, however, see great decorative qualities in the placement, vis-à-vis each other, of multiple buildings (*a la* the TD Centre in Toronto), in the minimalist geometry of the facades, and in the elegance of their restraint. Moreover, Modern facades change by the minute as the sun moves across the sky and their shadows shift, grow, and diminish, or as you move across the street and the reflections in the buildings' façades change, or as the reflected clouds move across the sky. Furthermore, building facades become transparent or opaque, depending upon lighting conditions inside and out.

Decoration on high-rises is naturally limited by the fact that various forces make protruding elements impractical. Ice may form on some decorative protrusion, then fall onto the sidewalk below, or, the wind might start some protuberance vibrating, causing a distracting (at the least)

sound which will be carried throughout the building's steel structure. Vibrations can be dangerous, as demonstrated by a singer's prolonged high note causing nearby stemware to shatter (*Is it live, or is it Memorex?*), or (perhaps more dramatically) the collapse of a bridge brought on by winds causing the structure to vibrate at its resonant frequency (the Tacoma Narrows Bridge, Washington, 1940).

Traditional decoration is possible on high-rises as demonstrated amply by the Wainwright and the Guarantee buildings (in St. Louis and Buffalo respectively), designed by Louis Sullivan during early skyscraper development in the late 1800s. Both buildings are covered with sculpted terracotta tiles. That this decorative aspect of buildings has disappeared can probably be attributed to our collective negligence, or our unwillingness to pay the extra cost of creating the art.



Just as straight-line materials logically lead to straight-line architectural forms, other materials have inherent in their characteristics the ability to take almost any form. Plaster is one; concrete is another. The basic form of concrete is similar to a slightly more liquid version of crunchy peanut butter. Its form is whatever one might make of it, and it will take the form of whatever cavity it is poured into. For building floors, concrete very easily—thanks to gravity—forms a flat surface. Placed into the void between the vertical forms generally used for building construction, concrete may, with ease, form straight or curved walls. In extreme cases, concrete can be so plastic (moldable) as to make highly sculptural forms, such as the spectacular TWA Terminal building at Kennedy Airport in New York, designed by Eero Saarinen, and built in the 1950s.

Exploiting the inherent plasticity of a material, and deviating from straight-line form usually leads to increased complexity, construction time, structural components, and costs, but the tendency to use more lyrical forms with plastic materials comes naturally. Concrete easily makes rounded forms, and, while there may be a lack of economy, there is no lack of logic in putting the material through its paces. Natural forms for concrete include arches, vaults, and domes, all of which are logical (curvilinear) structural systems, easily made with concrete.

Gravity is a formidable force. Its reckless defiance costs dearly.

Although plastic materials can be shaped into numerous forms which straight-line materials don't naturally take, there are some uses that neither plastic nor straight-line materials achieve logically or economically. Walls and columns, systems which support weight from above, or merely themselves, want logically and economically to be vertical. Make those elements lean, and the forces acting on them multiply alarmingly. (While you are standing with feet together, try leaning forward at a 30-degree angle. After a few seconds, you will feel additional forces acting upon your legs, your torso, your neck, and virtually all of your muscles.) In buildings, those additional forces must be resisted by additional structural material which equals additional complexity and cost. At some point, one must weigh

the benefits derived from cavalierly defying gravity against the costs of doing so. Gravity is a formidable force acting on buildings, and the reckless defiance of that force costs dearly.

At this point in architectural history, some might say that the Modern style has reached its end where no further useful evolution can occur. In a Toronto high-rise, for example, the face of Modernism melts into a caricature of itself when bored designers doodled strange cosmetic alterations while casting about for new ideas. Although Modernism espouses economical and logical building methods which are always laudable architectural goals, some of us yearn for something new—fresh technical and aesthetic problems to solve, new forms to savor. The refrain is familiar. We hear it often in the field of fashion, and periodically in the field of architecture. The soaring, robust, highly textured, intricate structure of Gothic architecture gave way to the smooth, restrained (some would say plain) elegance of the Renaissance style which itself succumbed to the ornate, plastic, lyrical, sometimes over-decorated buildings of the Baroque, the subsequent styles being reactions to the previous ones.

During the periods between full-blown architectural styles, when designers are searching for that next idea which they will nurture, develop, and refine over the coming decades, there are tendencies toward mannerism—*affectation!*—toward breaking the established rules just for the sake of doing something else. At some point in the past, boys started wearing their baseball caps backwards, with the visor pointing toward the rear. No longer did the visor protect their eyes and faces from the sun, nor keep raindrops off their glasses; its function was entirely negated by the whimsical decision to be different, to look different—affectation. But fashions change! Wearing one's cap backwards has become old hat, and now, to be different, one must wear the cap sideways.

In architecture these days, wearing one's cap backwards—Mannerism—equals breaking the logical, economical rules of structure and form that have been our guides since prehistoric times. Daniel Libeskind's renovation of the Royal Ontario Museum (Toronto, 2007), for which he created a series of forms in which we no longer see anything resembling traditional building volumes, is a good example. Walls lean at rakish angles and come to sharp edges at the top of the building and at various other places, producing a dynamic group of forms which threatens to devour the existing building to the east. These forms loom over the sidewalk, and are a shock to behold. Windows are random slashes in the tilted walls which appear to be clad in aluminum siding.

No less novel or chaotic (but, thankfully, more lyrical and gratifyingly sculptural) is the Disney Auditorium (Los Angeles, 1996) designed by Frank Ghery. While the Royal Ontario Museum is threatening, the Disney Auditorium, with its whimsically curved volumes whose sides swoop and tilt and interact—as if to music—is pleasingly fantastical. For either building, however, a reference to architectural anarchy would not be out of place.

Anarchy, because although both buildings are sculptural, they are not sculpture. Sculpture need not satisfy requirements of any practical nature, nor justify its cost nor, indeed, its very existence. Sculpture is whimsy.

A poignant example can be found in the curved steel walls of one of Richard Serra's sculptures, so big there wasn't a museum that could house it. It was kept in storage until one was built for it—after the fact! He had created something for which there was no place.

Architecture to the rescue. Architecture has a great deal of responsibility to people, and to housing the functions which serve them. Architecture is a practical pursuit: certain spaces must be near each other, and others must not; volumes must be particular sizes to serve specific functions; rooms must be heated and ventilated; the roof must not leak; sewage must be removed.

In shaping a building to accommodate all of its necessary functions, a designer makes countless—one hopes logical—decisions. At what point in the process do we approve of that designer abandoning logic to whimsy? When do we say something so precise as, "This seating arrangement requires 1255 square-feet of floor space," then "but you can make that wall lean outward at some crazy angle, for no practical reason, and increase its cost tenfold, if you want to."?

Sculpture is whimsy; architecture is a practical pursuit.

How much more effective would an institution be if it built logically and economically, and spent the extra tens-of-millions on its chief pursuit instead of on self-indulgent architecture? On the other hand, in a discussion about this subject with several architects in France, I asked if an owner should be expected to pay the extra costs which the current Mannerism incurs. "If the owner has the money, and wants to pay for the style, why not?" was the consensus. (An architect's commission is a percentage of the cost of the building.)

Several years ago, TIME magazine had a two–page spread of a simulated downtown area populated with buildings emulating the current Mannerism. It is hard to imagine a sight like that in our future, expensive and chaotic as that architecture would be. More likely we'll get our caps on straight once again, and some moderation of the current experiments, blended with the tenets of logic and economy, will give us something to work on and develop into the future. I hope so. I feel silly wearing my hat sideways.