VII. PRAGMATISM: FUNCTION

I. ARCHITECTURAL TRUTHFULNESS

There is however one grand principle at the foundation of all art, which must ever be far more than any other really obeyed and recognised when she does her work successfully and well. And this principle, or law, is that of truth. (George Edmund Street, "The True Principles of Architecture, and the Possibility of Development")

"There are only two modern styles of architecture, one in which the chimneys smoke, and the other in which they do not." Thus did W. R. Lethaby remark upon observing that all the flues of Butterfield's Keble College draw well, and if the opinion is somewhat reductive, it nonetheless accurately reflects the importance of efficiency in nineteenth-century architecture. This is not to say, of course, that efficiency as an architectural value was original in the Victorian age, for Vitruvius had spoken of fitness, and eighteenth-century French architects recommended a rational architecture. Furthermore, this aspect of architecture, what we are in the habit of calling functionalism nowadays, has always been an essential part of architecture as a practical art and will always separate it from the fine arts of writing, painting, sculpture, and music, whose ends can never be as pragmatically useful. It is to say, however, that the value of efficiency in architecture has fluctuated in emphasis from time to time and that its worth appreciated steadily throughout the nineteenth century until it came to be the principle criterion in modern architecture. To understand how the practical side of architecture rose to such dominance, we should begin with the term by which Victorians chose to call it—truthfulness.

We have already considered the different applications of truthfulness to art: how with expressionism it means the truthful correspondence between an artist's feelings and the work of art, and how with mimesis it means the truthful correspondence between the object and its depiction in art; how the Romantic shift from mimetic art to expressive art is indicated by the assertion that "poetic" truth is higher than literal truth;
and how, within the mimetic theory, there is a changing notion of what constitutes truth to nature from Reynolds, to Wordsworth, to the Pre-Raphaelites, to George Eliot. Truth, then, appears in many guises, but none so compelling to nineteenth-century architecture as a building's truthfulness to its purpose and function. That Victorian architects should regard this aspect of building in terms of truthfulness may be largely explained by their contempt for neoclassical architecture, for of the many sins committed by the Renaissance-Reformation ogre, Revival architects considered none so heinous as the introduction of nonfunctional features, be they to achieve symmetry, to disguise structure, or to misrepresent material. Such practices they thought of as architectural deceits, or more commonly, shams, and as deviations from the true principle established by the old builders of designing primarily for convenience. Their reasoning is clear: if nonfunctional architecture is false and deceitful, then functional architecture is honest and true.

In condemning neoclassical architecture as false and advocating Gothic as true, the Revivalists share the concern of other intellectual leaders about distinguishing between false appearances and true reality. So dominant and recurrent a theme is this that one could hardly overestimate its importance to Victorian artists and social critics. Carlyle had written in *Past and Present* that “we have quietly closed our eyes to the eternal Substance of things and opened them only to the Shows and Shams of things.” At the beginning of “Geraint and Enid,” Tennyson wrote one of the strongest statements of the theme, not only for this particular poem or for the *Idylls* as a whole, but for the Victorian society that Camelot reflects:

O purblind race of miserable men,
How many among us at this very hour
Do forge a life-long trouble for ourselves,
By taking true for false, or false for true!

These are but a few of the innumerable expressions of the same idea, an idea that the Revivalists translated into architectural terms by attacking the nonfunctional duplicity of neoclassical
architecture and by extolling the functional honesty of Gothic architecture. It is no accident that Pugin should modify "Principles" with "True" in *The True Principles of Pointed or Christian Architecture*, nor that one of the plates in *Contrasts* should use *Veritas* as the standard of measure by which a fourteenth-century cathedral outweighs several nineteenth-century examples of neoclassicism. He was criticizing contemporary architecture on the same basis that Carlyle and Tennyson were
criticizing society at large, and thus places himself and those he influenced in the mainstream of Victorian cultural thought.

There can be no denying that Pugin although perhaps not the first to advocate truthfulness in this sense of the word for architecture, nevertheless was responsible for making it the dominant architectural criterion that it was to become. The *Times*, for example, said this of Pugin not long after his death:

> He it was who first exposed the shams and concealments of modern architecture, and contrasted it with the heartiness and sincerity of mediaeval work. . . . Let us remember to his honour that, if now there seems to be the dawn of a better architecture, if our edifices seem to be more correct in taste, more genuine in material, more honest in construction, and more sure to last, it was he who first showed us that our architecture offended not only against the laws of beauty, but also against the laws of morality.

George Gilbert Scott also attributed the exposure of sham to Pugin and recognized his influence by saying that for later exponents of the Revival “the principle of strict truthfulness is universally acknowledged as their guiding star...” Sometimes the enthusiasm for truthfulness could be taken to amusing extremes. T. G. Jackson recalled that when he first entered Scott’s office in 1858, one year after Scott made the remark quoted above, one of his fellow students, Thomas Garner, fell “into raptures over a hansom cab. It was ‘so truthful,’ he said, ‘so-so-so mediaeval!’” Fifteen years later truthfulness had become firmly established as something of an architectural catchword, and not only for neo-Gothic but other styles, too, as illustrated by the *Building News* praising the New Zealand Chambers for being “thoroughly truthful.”

The three specific areas in which the criterion of truthfulness was most consistently applied by Victorian architects, and correspondingly the three areas in which Renaissance and neoclassical architects were most often thought to be guilty of deceitfulness, were overall design, material, and structure. To begin with design, we have already found in chapter 4 that the leaders of the Revival believed in the concept of organic form, which stipulated that the shape of organisms is determined from within, and applied this concept to architecture by insist-
ing that both the overall design of a building and its individual features be the outcome of function. In addition, we have seen that this concept overlaps with expressionism, which theory requires that an object of practical art faithfully express its purpose and that, as Pugin pointed out, a home should not pretend to be a castle, domestic furniture should not attempt to pass for ecclesiastical, and a clock should not be disguised as a Roman chariot. A final impetus to the concept derived from the discovery that the original Gothic builders had designed primarily for convenience. As a result, these naturalistic, artistic, and historic justifications collaborated to form a very strong argument for designing the plan of a building before the elevation, and, indeed, of allowing the plan to determine the elevation.

Revivalist architects used the argument to attack the neoclassical emphasis on a building’s façade and the simultaneous neglect of function. Joseph Gwilt tells the anecdote of a nobleman who boasted about his house’s beautiful façade to a friend. The friend suggested that the peer take the house opposite so that he could look at it all the time. The Revivalists also objected to the neglect of the sides and backs of buildings by those who attended only to façades, charging, as does Street in the following statement, such practice with deceit:

There is no real respect for an art when it is treated, as it always has been by the Renaissance architects and their followers, as a mere affair of display; no good building was ever yet erected in which the architect designed the front and left the flanks or the internal courts to take care of themselves. So also no good building was ever seen in which the exterior only was thought of, and the internal decoration or design neglected. In such treatment of art as this there is an ingrained falseness which is as demoralising as it is ruinous.

So successfully did they argue their point that later architects, not necessarily sympathetic to the Gothic cause, embraced the principle. Robert Kerr said that “a good house is like a good square of infantry: it looks you full in the face all round,” and Richard Norman Shaw wrote, concerning New Scotland Yard, “The regulation modern building has generally a show front, or fronts, but round the corner or in any part supposed to be
Fig. 28. The True. According to his own precepts, George Edmund Street paid as much attention to the rear of the Royal Courts of Justice (above) as to the front (fig. 12). The polychromy is perhaps less formal than the monocromatic Strand front, but the rear is designed with no less care.
Fig. 29. The False. Sir John Wolfe Barry and Sir Horace Jones disguised the steel construction of Tower Bridge (1886–94) with stone facing.
not much seen it is made plain and common, if not hideous. I
dwell on New Scotland Yard being a genuine building, in which
we have no sham or shew fronts, all is of the same quality and in
the court it is the same.”

A second consequence of designing the plan before the
elevation was to deal yet another blow to the classical principle
of symmetry. Already weakened by the new concept of nature
as irregular and by the popularity of picturesque irregularity,
symmetry suffered further from the precept that convenience
should be the foremost concern of the architect, and here again
classical architecture proved inferior to Gothic. C. F. A. Voysey
made this distinction between the two styles:

Renaissance is a process by which plans and requirements are more or
less made to fit a conception of a more or less symmetrical elevation, or
group of elevations. The design is conceived from the outside of the build­
ing and worked inwards. Windows are made of a size necessary to the
pleasant massing of the elevation, rather than to fit the size and shape of
room.

The Gothic process is the exact opposite: outside appearances are
evolved from internal fundamental conditions; staircases and windows
come where most convenient for use. All openings are proportional to the
various parts to which they apply, and the creation of a beautiful Gothic
building instead of being a conception based on a temple made with hands,
is based on the temple of a human soul.

This statement should be compared with Sir Joshua
Reynolds’s recommendation that since variety constitutes
beauty in other arts, the architect should design irregularity in
his buildings “if it does not too much interfere with con­
venience” (“Discourse XIII”). The great difference between
Reynolds and the Revivalists is that what for Reynolds is an end
is for the Revivalists a natural consequence. That is, the Re­
vivalists, working on the principle explained by Voysey, built
first for convenience and admitted irregularity as the result,
whereas Reynolds is interested first in the aristic effect of the
building, in other words, the elevation. Pugin, to the contrary,
 wrote his friend and client the earl of Shrewsbury, “I never
proposed anything for mere effect.” Whereas Reynolds sees a
possible conflict between irregularity and convenience, the Re-
vivalists believed that irregularity was the natural and inevitable outgrowth of convenience. For them it was symmetry that was opposed to convenience and that had long suppressed this most important true principle of Gothic architecture. One can sense the force of Pugin's wrath as he attacks "the mock-regularity system of modern builders":

The senseless uniformity of modern design is one of its greatest defects. The idea of everything being exactly alike on both sides, has created an unreal style of building which was quite unknown to our ancestors, and it is most delightful to see the very soul of modern deformities thus ably attacked. When once the trammels and bondage of this regularity system are broken through, and people are taught not to consider a portico and two uniform wings the perfection of design, we may expect vast improvements... Those improvements, Pugin believed, would be attained by following the system of the old designers, who made their plans "essentially convenient and suitable to the required purpose...."11

But symmetry had become so firmly entrenched through the centuries as a principle of taste that it was slow to relax its grip, even on those who agreed with Pugin that convenience should come first and that falsely symmetrical façades were shams. Barry's son tells us that his father was guided by two loves: foremost, the love of truth, which led him to abhor showy façades with such features as blank windows, and, second, a love of regularity, which caused him to subordinate all features to the general design.12 Apparently he was able to reconcile the two loves, as was Street, who, in noting the symmetry of some Gothic cathedrals, commented, "It is not necessary to have uniformity to the sacrifice of convenience, but it is possible to have uniformity when it is desirable."13 Burges believed that uniformity was desirable for the fronts of large building, although not necessarily for the backs or for small buildings; and, unlike Street, he was prepared to sacrifice convenience. With the fronts of large buildings, Burges wrote, "the architect must take more pains, and try to bring in his windows so as to balance in the general composition. Of course, this is much more difficult
to do than letting them crop out where they may be most convenient; but it can be done with care, and, in fact, it is simply an affair of trouble and ingenuity.”

The second area in which the Revivalists insisted upon truthfulness was in the use of materials, and here again they were reacting to what they considered to be the fraudulent practices of the preceding age. Robert Kerr believed that the Battle of Styles arose in response to the falseness of architecture in the latter part of the eighteenth century and the early part of the nineteenth, when “not only was fictitious design, the bane of all art, universally prevalent, but fictitious material came into use,—cement, painted and sanded wood, and so forth,—to the utter ruin of the art.” John Mason Neale brought the authority of the Camden Society to bear on the matter when he avowed that “the first great canon to be observed in Church-building is this: LET EVERY MATERIAL EMPLOYED BE REAL.” Butterfield, who met the approval of the Ecclesiologists in most things, was scrupulous in abiding by Neale’s canon. When Butterfield’s patron for the restoration of a little church at Knook once objected to plans calling for a wooden chancel arch instead of a stone one, the architect replied, “As you are aware the gable at the East end of the nave at Knook is only timber. There has never been a stone arch there. It is timber at present and disguised. I make it of timber and avow it. That is the difference.” Chiefly they objected to veneering, whether of furniture or of walls. Christopher Dresser wrote that veneering of furniture is “a practice which should be wholly abandoned. Simple honesty is preferable to false show in all cases; truthfulness in utterance is always to be desired.” A most flagrant example of dishonest use of material is provided in Thomas Hardy’s The Hand of Ethelberta, where Enckworth Court is described as

a house in which Pugin would have torn his hair. Those massive blocks of red-veined marble lining the hall—emulating in their surface-glitter the Escalier de Marbre at Versailles—were cunning imitations in paint and plaster by workmen brought from afar for the purpose, at a prodigious expense, by the present viscount’s father, and recently repaired and re-
varnished. The dark green columns and pilasters corresponding were brick at the core. Nay, the external walls, apparently of massive and solid freestone, were only veneered with that material, being, like the pillars, of brick within.

The reason for the exterior veneer is that when the viscount showed off his house to King George, the king had said only, "Brick, brick, brick." And the crestfallen owner immediately covered the walls with stone veneer. It is easy to see how architects were appalled by such practices and by the vain and ignorant motives behind them.

The third, and probably most important, area where Revivalists were concerned with truthfulness was structure. One of the main faults Pugin found with "revived pagan buildings" was that they concealed structure, and to illustrate his point, he explained in True Principles how Wren designed a wall screen circumscribing St. Paul's to hide the flying buttresses. This, Pugin says, is a "Miserable expedient! worthy only of the debased style in which it has been resorted to." On the same grounds he condemns the fictitious exterior dome of St. Paul's, which was designed only for effect, and considers St. Peter's, with its single dome, superior in this respect. In the next year (1842), Joseph Gwilt made the same evaluation. Street put the principle upon which Pugin and Gwilt were basing their judgments in terms of truthfulness when he wrote sometime later, "The architect who attempts by concealed construction to imitate a wholly different sort of work must inevitably fail, for sincerity is of the essence of good art, and the detection of insincerity is certain."

As with symmetry, however, all were not prepared to discard old practices so readily. Ruskin, for example, qualified his reproval of structural deceit by adding that "the architect is not bound to exhibit structure"; and George Gilbert Scott acknowledged that upon occasion, such as when two roofs form an uncouth intersection, nonfunctional features may be introduced for effect. But neither Ruskin or Scott would have condoned Tower Bridge, where Sir John Barry and Sir Horace Jones concealed a steel structure with stone veneer, ironically to
produce a medieval design consistent with the nearby Tower of London. The technical advances of the modern age make it capable of anything, Lethaby wrote, “anything that is, except the Tower Bridge as well.”

In addition to regarding the concealment of structure as a sham, the Revivalists thought it equally false to introduce exposed but nonfunctional structural features that exist only for effect. Pugin provides the premise behind this attitude in the first paragraph of True Principles when he declares that the first of the “two great rules for design” is, “there should be no features about a building which are not necessary for convenience, construction or propriety...” Ruskin agreed with this attitude in “The Lamp of Truth,” and in Principles of Decorative Design, Christopher Dresser applied the rule to furniture. While examining wardrobes and cabinets at the 1862 International Exhibition, Dresser recalls that he

was forcibly impressed with the structural truth of one or two of these works. One especially commended itself to me as a fine structural work of classic character. Just as I was expressing my admiration, the exhibitor threw open the doors of this well-formed wardrobe to show me its internal fittings, when, fancy my feelings at beholding the first door bearing with it, as it opened, the two pilasters that I conceived to be the supports of the somewhat heavy cornice above, and the other door bearing away the third support, and thus leaving the superincumbent mass resting on the thin sides of the structure only, while they appeared altogether unable to perform the duty imposed upon them. “Horrible! horrible!” was all I could exclaim.

One can imagine the consternation of the proud exhibitor, who no doubt expected to receive further praise for the workmanship of the wardrobe. Obviously he had not read Pugin, but even those who had (Butterfield, for example) did not always consider the first of the “two great rules for design” as wholly inviolable and were quite capable of attaching sham half-timbers to brick walls and filling in with cement.

II. TRUTH AND BEAUTY

Rudeness is better than a lie. (Edward Lacy Garbett, Rudimentary Treatise)

In True Principles Pugin maintained that an essential difference between classical and pointed architectures is that the
former conceals structure whereas the latter reveals it. But pointed architecture does not simply and starkly reveal structure, for once this style reveals structure, it beautifies it by decoration. The second of the “two great rules for design” is, “All ornament should consist of enrichment of the essential construction of the building.” Implicit in this idea is that bare, unadorned structural features are unbecoming, if not ugly, and that beauty lies in ornamentation, which must be applied to those features in order to render them pleasing. If, however, the architect must decide between the extreme alternatives of sham decoration on the one hand and rude simplicity on the other, most Revivalists favored the second of the two choices, preferring the sacrifice of beauty to truth. Pugin expressed the idea, which overlaps generally with Romantic primitivism and more particularly with the “doctrine of the imperfect,” in True Principles by saying that “the severity of Christian or Pointed Architecture is utterly opposed to all deception: better is it to do a little substantially and consistently with truth than to produce a great but false show.” Less than a decade later (1850), Garbett reiterated the notion in these direct terms: “If you cannot beautify without deceiving, do not beautify at all. Rudeness is better than a lie.” Because of the equation between fitness and truth, we seem to be witnessing here the triumph not only of function over beauty but of morality over beauty as well, and there is evidence to suggest that this triumph extended beyond the bounds either of the Gothic Revival specifically or of architecture more broadly. Carlyle, for example, who admired the Middle Ages but was impatient with any resuscitation of its forms, agreed in principle with Pugin when he wrote, “The Real, if you will stand by it, is respectable. The coarsest hob-nailed pair of shoes, if honestly made according to the laws of fact and leather, are not ugly; they are honest, and fit for their object; the highest eye may look on them without displeasure, nay, with a kind of satisfaction” (“Hudson’s Statue,” Latter-Day Pamphlets). Although not perhaps “the highest eye,” whatever Carlyle means by that, a discriminating eye, able to separate aesthetic from moral values, could in fact look with some displeasure upon the rude but honest. Robert Kerr, who had such
an eye, saw the rude simplicity of neo-Gothic buildings as a reaction to the shams and to the feebleness of refinement in the preceding age of architecture. This reaction, Kerr asserted, sometimes led to ugliness:

Hence the introduction of a love for undisguised honesty in the first place, however crude,—and in the second, for masculine simplicity, however unrefined; for unaffected construction, in other words, and unaffected form both in their extremes; for Gothic models, therefore, because, however rough-and-ready, they are truthful and sincere,—and for the Ugly, because, however odd, it has at least not the weakness of being feminine.\(^{30}\)

But even as Barry and Jones disregarded the precept against concealing structure in the design of Tower Bridge, there were those, principally concerned with housewares, who were quite prepared to forfeit utility to beauty and who wanted no part of rude simplicity. Christopher Dresser ridiculed the absurdity of some households having two pokers—one, with a highly ornate and therefore uncomfortable handle, kept for show, and another, with a plain and therefore serviceable handle, kept out of sight for use.\(^{31}\) More recently Nikolaus Pevsner has remarked on the uncomfortable handles of ornamental spoons, forks, and scissors, along with cut-glass drinking glasses and decanters, concluding that such items “remind us that there have been ages to which aesthetic considerations mattered more than utilitarian.”\(^{32}\) Although true in part, Pevsner’s statement should be tempered with the skepticism one brings to all generalizations, for the work of William Morris in furnishings and that of the Gothic Revivalists in architecture tend to prove the contrary in this age of paradoxes.

III. UTILITY AND BEAUTY

Who builds or plants, this rule should know,
FROM TRUTH AND USE ALL BEAUTIES FLOW.
John Dalton, “Some Thoughts on Building and Planting”

In the universal acceptation of the inseparable nature of beauty and utility has ever been and must ever be, the true hope of all architecture. (William H. White, “On the Hope of English Architecture”)

Alf Bøe has defined modern functionalism as a doctrine stipulating "that an object should be pre-eminently useful and practical; it implies the axiom that what is practical is also beautiful; and it excludes from the language of aesthetics the various kinds of associative ornament." In order for this doctrine to take shape, the attitude that usefulness was frequently ugly and that ornament was required for beauty—an attitude, as we have just seen, shared both by those who recommended rude
honesty and those who preferred decorated inutility—had somehow to be reversed so that beauty could be found in function, and ornament, now rendered aesthetically superfluous, could be dispensed with. In brief, beauty had to shift from ornament to function, or functionalism as we now know it, no matter how appealing pragmatically, could never have succeeded so well in the face of our aesthetic objections to it.

There were many in the Victorian age who opposed this reversal in values, and could muster in their support a long tradition of dissociation between beauty and usefulness. Longinus had contended that we consider homely those things of everyday use, and in more modern times, Edmund Burke, although allowing that frequently enough beauty is joined to usefulness in nature, asserted that the one does not necessarily entail the other. If beauty consists of fitness, Burke argues in his *Enquiry*, how does one account for the snout of a swine, the pouch of a pelican, or the quills of a porcupine, all eminently practical features and all eminently ugly (3.6)? In the following century William Whewell applied the same premise to building by pointing out that there was no architectural beauty in such utilitarian structures as a cotton mill or engine house (*The Architectural Notes on German Churches*, 1830), and twenty years later Garbett declared in his *Rudimentary Treatise* that when buildings were designed with no thought beyond utility they were invariably ugly. Surely, though, the foremost proponent of this attitude was Ruskin, who advised his readers over and again not to confuse beauty with fitness, urging them to keep in mind “that the most beautiful things in the world are the most useless. . . .” This theory led Ruskin to separate building from architecture. Building, which he defined as the fulfillment of practical requirements, is the first and essential thing; but architecture, which he equated with ornamental painting and sculpture, is the highest and noblest thing. Building, then, by itself is unworthy the name of architecture and rises to the status of a fine art only by the addition of painting and sculpture. It follows from this distinction that “a great architect must be a great sculptor or painter.”

The uselessness of art became, of course, a principal tenet of
aestheticism toward the end of the century. In the preface to *Mademoiselle de Maupin*, Gautier substituted a water-closet as an example of utilitarian ugliness for Burke’s swine snout and Whewell’s cotton mill; and in Wilde’s “The Decay of Lying,” Vivian observes that “as long as a thing is useful or necessary to us . . . it is outside the proper sphere of art.”

Despite this opposition, however, there is a discernible and steady shift of opinion toward the belief that ornament, although conducive to beauty in architecture, is not essential to it, and that the true essence of beauty in architecture lies in form rather than in decoration. Such architects as Street, Jackson, Lethaby, and Sedding, all in one way or another participants in, or sympathetic to, the Gothic Revival, directly refuted Ruskin’s distinction between building and architecture by insisting that architecture in its highest sense might exist quite independently of ornament. Though less well known than these architects, J. T. Micklethwaite disputed Ruskin’s contention with an argument typical of the group when he reversed Ruskin’s values by referring to decoration as a “less noble art” than building. “So far is true architecture from being a matter of ornament,” Micklethwaite continues, “that it may exist entirely without ornament. Ornament is one of an architect’s means, and he will seldom altogether neglect to use it: but a building of much grandeur and dignity may be obtained by the right management of the forms of construction only, without ornament of any kind.” But by the time Micklethwaite wrote these words in 1892, the next step toward modern functionalism had been taken by Edward William Godwin, who, in designing Whistler’s “White House” in Chelsea in 1877, had perhaps neglected ornament to a greater degree than Micklethwaite had in mind. Also, in the very year of Micklethwaite’s essay, Louis Sullivan wrote in “Ornament in Architecture” that “it would be greatly for our esthetic good, if we should refrain entirely from the use of ornament for a period of years, in order that our thought might concentrate acutely upon the production of buildings well formed and comely in the nude.”

These statements by Micklethwaite and Sullivan, along with
Fig. 31. Architecture without ornament—Goodwin's design (front elevation) for Whistler's White House, Tite Street, London (1877–79). Hunterian Art Gallery, University of Glasgow. Birnie Philip Gift; reproduced by permission.
similar ones made by other architects in the last part of the century, mark not only the beginnings of victory over the ornamentalists but an advance beyond the early stages of functionalism some decades before when simple and honest form, albeit infinitely preferable to purposeless decoration, was thought to be rude. True, the germ of this development was embedded in the ideas of the earlier architects, for Pugin had written that “every building that is treated naturally, without disguise or concealment, cannot fail to look well,” and he had found that picturesque beauty proceeds naturally from a convenient plan; but if there was any question of conflict between honest utility and sham beauty, he and his contemporaries chose the moral and pragmatic alternative. They were somewhat of a mind with Thackeray, who declared in the preface to Pendennis, “If truth is not always pleasant; at any rate truth is best. . . .” The later architects, however, in believing that it was possible to have at once both honesty and beauty, were able to have their cake and eat it, too. What complicated set of ideas and events combined to effect this radical shift of beauty from ornament to functional form I cannot say, but I do suggest as a partial explanation that a special application of the traditional equation of truth and beauty was in some way responsible.

In 1864 Richard Norman Shaw submitted a competition entry for the Bradford Exchange bearing the motto “Rien n'est beau que le vrai.” He could as well have sought authority in Platonism or Christianity as in an artistic treatise by Boileau since the idea has ancient and deep roots in Western culture. But in saying that only the true is beautiful, Shaw did not mean precisely what Plato or the church fathers or Boileau meant by it, there being as many meanings as there are definitions of truth; however, he could, just as the early Revivalists had appropriated the neoclassic principle of “truth to nature” and used it for their own ends to sanction irregularity, capitalize on the authority of the idea while applying it to his own particular, architectural purpose. Indeed, others had been doing the same thing. After commenting that rough simplicity is better than elegant sham, Garbett adds, in a literal translation of Boileau,
“Nothing is beautiful which is not TRUE...” The fifth general principle in Owen Jones’s *The Grammar of Ornament* is, “Construction should be decorated. Decoration should never be purposely constructed.” Although this part of the proposition comes directly from Pugin’s *True Principles*, the rest of it echoes Keats’s “Grecian Urn”: “That which is beautiful is true; that which is true must be beautiful.” Although there is no consensus as to what Keats meant by the line, none would suppose he shared Jones’s intention; and the quotation provides, therefore, a very good example of how this truism, with all the weight of authority such things have, could be adapted to particular ends befitting a revolt against the practices of an age that had itself embraced the same principle.

The equation of truth and beauty is the major premise of the syllogism toward which I have been working. The minor premise, that truth equals convenience (or function, to use the modern term), the Revivalists established by asserting that the non-functional features of neoclassical architecture were deceits and shams. By removing the common term, truth, one arrives at the conclusion, which is that beauty equals convenience. As the early Victorians approached this conclusion and as the later Victorians reached it, they established the basis of modern architecture, whose chief aim Bruno Taut has described as “the creation of the perfect, and therefore also beautiful, efficiency.”

Georg Germann has remarked that from early times all architectural theorists have regarded utility as the most important feature of architecture, but the nineteenth-century theorists were the first to equate utility with beauty. This may be true of architecture in particular, but for aesthetics in general the idea is quite ancient. In *Memorabilia* Xenophon wrote that a dung-basket is beautiful if suited to its purpose and that a golden shield is ugly if it is not useful. Happily, the wonderfully wrought shield of Achilles combines beauty and utility; but had it not deflected the spear of Hector, no doubt Homer would have agreed with Xenophon. In more recent times the equation appears in prominent writers of the eighteenth century. David Hume wrote in *A Treatise of Human Nature* (1738) that “a great
part of the beauty which we admire either in animals or in other objects is derived from the idea of convenience and utility,” and a few years later illustrated this idea in *An Enquiry Concerning the Principles of Morals* (1751) by pointing out that a ship built to be seaworthy is more beautiful than one designed to be geometrically regular and that the windows and doors of a building are more beautiful when in proportion to human needs than when formed as perfect squares. Only two years later Hogarth used similar examples in *The Analysis of Beauty* to support his theory that fitness is an essential part of beauty. The steps of stairs and the seats in windows must be of heights suitable to human requirements, no matter the largeness of the building and the corresponding disproportion of these features to the overall bulk, else “they would lose their beauty with their fitness. . . .” With ships “the dimensions of every part are confin’d and regulated by fitness for sailing. When a vessel sails well, the sailors always call her a beauty; the two ideas have such a connexion!” (chap. 1). Both Hume and Hogarth would seem to agree with William Mason, who summarized the equation of utility and beauty poetically in his *English Garden*: “beauty scorns to dwell/Where use is exiled” (bk. 2, 1777).

There was, then, both ancient and modern authority for finding beauty in usefulness upon which the Revivalists could rely in justifying aesthetically the convenience of Gothic architecture. In *Contrasts* Pugin writes that “the great test of Architectural beauty is the fitness of the design to the purpose for which it is intended,” and in *True Principles* he repeats the contention by saying that “all really beautiful forms in architecture are based on the soundest principles of utility.” The equilateral triangle, Pugin proposes as illustration, is because of its proportions the most beautiful of triangular shapes and is also the most functional design for the pitch of a roof since a roof with an obtuse angle at the apex does not throw off snow adequately and one with a severely acute angle creates too great a vertical strain. Implicit in these statements by Pugin, and in those of others writing in the earlier stages of the Revival, is the concept of utility as being not so much beautiful in itself, or an
actual source of beauty, as coincidental with beauty. Ruskin, for example, argues for the pointed arch on the basis of its strength and beauty; but the beauty of the arch derives from its similarity in shape to a leaf, which “by its frequent occurrence in the work of Nature around us, has been appointed by the Deity to be an everlasting source of pleasure to the human mind.” For Ruskin it is only a happy accident that this pleasing form should be the strongest as well. So, too, argues Professor George Wilson, of Edinburgh, whom Dresser quotes approvingly in Principles of Decorative Design: “If there be one truth which the Author of all has taught us in his works more clearly than another, it is the perfect compatibility of the highest utility with the greatest beauty.” The nautilus, Professor Wilson points out, is both beautiful and utilitarian at once; but, like Ruskin, he believes that the combination of the two results from divine beneficence rather than from any innate beauty of usefulness. The word he uses to describe the relationship of the two elements—“compatible”—suggests the distinctness of them.

For those, however, who were less convinced of such fortuitous or divine combinations, these arguments would not serve to justify aesthetically the principle of functionalism in architecture; and a sounder, more integral relationship between beauty and use had to be found. By the end of the century, the premise that efficiency in itself is beautiful provided the solution and allowed for functionalism as we know it today. In 1892 Lethaby proposed “high functional beauty” as the ideal of modern architecture, and in his biography of Philip Webb, he quotes Webb as saying, in a latter-day version of Xenophon’s dung-basket, that a new building’s drainage system “is so beautiful I don’t like it to be covered up.”

To see beauty in the efficiency of drainage pipes is to take a rational, mechanistic approach to aesthetics, and it is significant that such viewpoints occur either before the advent of Romantic emotionalism or after its full effect had waned. When Newton, for example, spoke of the “most beautiful system” of the universe, he was referring to the wonderful mathematical and physical laws by which the sun, planets, and comets mechanically operated. In 1785, before the Pre-Romantic doctrines of
Edmund Burke had come to dominate aesthetic judgments, Thomas Reid found a correspondence between fitness and beauty, remarking that when “an expert mechanic views a well constructed machine... he pronounces it to be a beautiful machine” (Essays on the Intellectual Powers). Burke, on the other hand, held that though one may admire the workings of a watch, one could not find them beautiful since beauty depended on the emotional responses of love or passion (Enquiry, 3. 7). This doctrine, as we have seen, became the basis of associational aesthetics and was to control artistic evaluations for the better part of the nineteenth century. But at the same time that Romantic sensibility dominated the field of art, the rationalism of science and industry produced biologists, geologists, mechanics, and builders who saw beauty in a different, functional light; and when this rationalism entered architecture through its technical aspect, architects, too, especially those preoccupied with the truthful efficiency of their craft, could come to see the beauty of mechanical function. When Lethaby wrote that houses should be “as efficient as a bicycle,” 47 his attitude was a long way indeed from Ruskin’s denunciation of machine-work in architecture, but it approached very closely Le Corbusier’s famous statement in Vers une architecture that a house should be a machine for living in. From this time forward architects would no longer have to justify convenience in building by resorting to the appeal for rude but honest simplicity, for although the Dynamo had succeeded the Virgin, the Dynamo had assumed a special beauty of its own.

IV. DURABILITY

Build to-day, then, strong and sure
With a firm and ample base;
And ascending and secure
Shall to-morrow find its place.

Henry Wadsworth Longfellow,
“The Builders”

Therefore, when we build, let us think that we build for ever. Let it not be for present delight, nor for present use alone; let it be such work as our descendants will thank us for, and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our
hands have touched them, and that men will say as they look upon the labour and wrought substance of them, "See! this our fathers did for us." (John Ruskin, "The Lamp of Memory")

It would be a mistake, and one that I hope I have not fostered, to think of the Revivalists as utilitarians in a strict sense of the word, because they looked with no more favor upon those buildings erected in the name of inexpensive usefulness than their friends in the church regarded the social and theological implications of Benthamism. Pugin treated with contempt modern churches "built on exactly the same principle as theatres, to hold the greatest number of persons in the smallest possible space," and Baillie Scott termed utilitarianism a false ideal in architecture. Yet, even while scorning stark utility and thinking of themselves preeminently as artists, they time and again refuted Ruskin's distinction between architecture and building by consistently defining architecture not as ornamental sculpture and painting but as the art of building well. This belief that architecture's definitive essence lay in sound building rather than in superadded ornamentation or structural shams is reflected in a distrust of eye-catching competition designs. Hardy's Mr. Havil says bitterly that "nowadays 'tis the men who can draw pretty pictures who get recommended, not the practical men. Young prigs win Institute medals for a pretty design or two which, if anybody tried to build them, would fall down like a house of cards . . ." (A Laodicean). Mr. Havill, whose architectural apprenticeship had been in gardening and road construction, might be dismissed as a biased observer, but others with more traditional backgrounds were of much the same opinion. Butterfield had little use for these academic designs, and Lethaby, in saying that architecture may be divided into "sound, honest human building, or brilliant drawings of exhibition designs," leaves no doubt which of the two is preferable.

Beckford's Fonthill Abbey, which, like the competition designs, was planned more with an eye to effect than to use, had indeed collapsed like a house of cards; but there were other threats to durability, the aspect of function with which I shall
conclude, than the precedence of art over building, and all of these participate in the general flux and instability of the age. Ruskin attributed bad modern architecture to the attitude, created by the habit of constantly moving from one dwelling to the next, of regarding houses as no more than temporary lodgings. To this habit was added the law of leasehold, for, as Burges argued, “who will build in a substantial manner when he knows that all his outlay will go to his landlord after a certain time?” Although both of these threats to durability in building remain with us today, perhaps the plea against temporality that strikes the most responsive chord in a modern reader is that of Street’s against planned obsolescence. “I have myself been told by a high Government official,” Street lamented, “that the best building is not that which will last longest, but rather that which will last a limited time, and may then be rebuilt with all the latest improvements.” Thus did progress lay its snare. On the one hand, it made the Victorians mindful of the future and urged them to build for tomorrow against the arrival of some traveler from New Zealand, who would sketch the ruins of St. Paul’s from London Bridge. But on the other, it militated against the durability of buildings by rendering them obsolete, thereby ensuring that when this traveler from a far-off land eventually came, what few architectural remnants survived as monuments to the achievements of the age would speak only the victory of time. Thus also did functionalism set a paradoxical trap, for the same pragmatic principle that had called for durability as an element of usefulness now disallowed durability on the grounds of nonfunctional obsolescence.