For R.M. (who got it wrong, but did not apologize) and in memoriam M.F.

In a lecture he gave at UCLA in 1948, nearly thirty years after the event, Erich Mendelsohn recalled the great scientist’s one-word approval at the opening of the Einstein tower: “Einstein in person pronounces his scientific judgement: ‘organic!’ . . . I understand what he means: that you can’t change or take away a part without destroying the whole.” And a few sentences later he adds: “The principle of elasticity is dictated by nature. Upon it nature works in all her organisms—in her material, vegetable and animal kingdoms: in man and plant. This is the structural meaning of ‘organic’ architecture.”

Einstein’s one-word compliment to Mendelsohn was very much in vogue, but it also had a long and involved intellectual history: Organic is from organon, the Greek word meaning “instrument” or “tool.” Aristotle’s group of writings, which is his main contribution to logic, came to be called the Organon, because it was thought to be a “collection of treatises constituting an instrument for the accurate verbal enunciation of all mental conceptions whatsoever,” as a nineteenth-century commentator put it. The Scholastics and many later philosophers took over this notion of instrumentality. It was refined by Francis Bacon into a new logic, his Novum Organum, which was first printed in 1620. This was to be the second installment of his Instauratio Magna, in which deduction was replaced by induction as the primary intellectual procedure.

Much later, Immanuel Kant did not think that an organon of Pure Reason, a “compendium of those principles according to which all pure cognitions a priori can be obtained,” could yet (or perhaps ever!) be attempted; his Critique—being concerned only with synthetic, and therefore excluding analytic a priori knowledge—could not be a complete system of pure reason. In Kant’s conception, Organon had therefore shifted from being considered an instrumental compendium of the pieces that regulated the procedure of verbal formulation to a much more articulated notion: that of a systematic and complete exposition of mental operation.

Kant had a distinct and crucial conception of the organism, moreover—as of a thing that has an interior binding purpose—a purpose that secured the different parts of the whole to one another in an intimate interdependence, and yet has a design unto itself. This is in opposition to an instrument, whose purpose is relative and accidental. In the Critique of Judgement, Kant was restating a traditional (by then) use of the term. Indeed, his observation can be read as a brilliant gloss on a passage of Aristotle’s on the body as a function of the soul.

The generation after Kant’s produced another and quite different mutation of the word. Johann Gottfried Herder was the first to posit an organic principle of political life: the collective (particularly the nation) is its plantlike and basic—its organic—unit, not the individual, who has been the true subject of natural history but can only ever act as a member of that organism. Mankind is the “vast and multifarious organ” of the Godhead, but each member-group of humanity has grown according to its particular inner and plantlike necessity. Understanding between individuals belonging to different communities is possible only through a deliberate act of empathy, of Einfühlung—a term that Herder coined to label the effort of historical and cross-cultural understanding. With Herder the notion of nationhood that made the unity of language, climate, and soil into an organic whole, which had already been implicit in the writings of Vico and Montesquieu, was made into the one concept essential for understanding the diversity of all cultural phenomena.

In a book that he produced jointly with Herder, Von Deutscher Art und Kunst, Goethe (perhaps inevitably therefore) attempted to eradicate the concept of mimesis in architecture. The essay “Über Deutsche Architektur” is now chiefly remembered as a paean to Master Erwin von Steinbach, the quasi-mythical master designer of Strasbourg cathedral. What now seems most important about it, however, is its emphatic rejection of the theory,

2. Octavius Freire Owen, in his introduction to the Organon for Bohn’s (London, 1853).
4. Immanuel Kant, Kritik der Urtheilskraft, 2d ed. (Berlin, 1793), sec. 80, pp. 368ff.
5. Aristotle, De Partibus Animalium, 1, 5; 645b, 14ff.
7. 1773; this very important publication pioneered the revaluation of medieval German art and architecture.
which had been fashionably advanced a generation earlier by the Abbé Laugier, that the primitive hut, made of upright tree trunks and crowned by a double-pitched roof lay at the origin of all architecture, and any renewal of the art of building must ultimately appeal to it.

The time-honored notion that human need is typically—and in some sense definitively—answered by the hut, a primal artifact but also the product of rational human reflection, Goethe eagerly contradicts: the true work of art springs almost spontaneously out of the spirit of a people, as a plant does from the soil. It is not columns that grow out of the ground to support the roof, but walls, which a genius such as Erwin can transform, so that they "rise against the sky like a sublime, overspreading tree of God, which, with its thousands of branches, millions of twigs, and leaves as numerous as the sands of the sea declares the beauty of the Lord its Master."8

Goethe’s argument echoes another one that had been advanced nearly a century earlier by the younger Félibien: that the thin columns of Gothic churches retain the character of the leafy shelters to which the peoples of temperate climates so often resorted. Curiously enough, Félibien seems to think that northern peoples (such as the Germans) commemorated ancestral caves rather than the leafy woods by their buildings. Subsequently, it was not Félibien’s but Goethe’s notion (of which he later repented) that passed into the romantic commonplace: genius is directly inspired by the beauty of nature to wholly original creation. This idea particularly suited the Schlegel Brothers and their followers, although this highly developed analogy of plant life was not yet seen as suggesting the word organic.

There was a quite different but even more violent change in the use of the word among Kant’s immediate disciples. Both Fichte and Schelling concerned themselves with its implications. Schelling particularly thought of the whole world in terms of a special application of the one general concept: organism. "Organism," he says, "is the principle of things. It is not the property of any single object . . . [because there] are separate modes of apprehending universal organism—and universal organism is the precondition of the mechanical working of the whole physical world. Furthermore, since this life is the precondition of all things, even those things in nature which seem dead are in fact only extinct of life."9 Schelling’s organism is a process in which the essential polarities, the conflicts of nature, are reconciled; it is the highest natural power, below which exist those of mechanism and of matter.

In Hegel’s somewhat later systematic account, Organic Physics makes up the third part of his description of the outside world: the first is Mechanics, which deals with general notions of space and time, material and movement; the second, Physics, speaks of individuality and differentiation. Organic Physics in its turn is also tripartite—it concerns itself with idea as unmediated existence. Geological nature describes form, or the general representation of life, whereas vegetable nature is particular and formal subjectivity. Individual concrete subjectivity is animal organism.10 Moreover, the primal organism is not a living thing, Hegel further maintains, in that it is quite unlike Goethe’s seed of all being, that Urpflanze that he had reconstructed as the stock from which all life had sprung, and which—to his mind—already had the characteristics of a formed vegetable. The separate members of Hegel’s primal organism do not contain the life process. The dead, or at least the "unliving" organism, earth, is a crystal of life. It is, however, subject to the meteorological process that fructifies it into vitality.11 To understand the true nature of his use of the word, it is important to appreciate how Hegel determined another force, disease, which he considered an inorganic, or perhaps more accurately, an antiorganic, principle.12 Disease results from one individual part setting itself against the totality of the manifold, and insistently isolating its activity against the unity. In his very conception of disease, Hegel shows that he is concerned with a force that has no exact physical (or, at any rate, tangible and observable) equivalent. The nature of the Hegelian conception of what is, and what is not, organic was closely dependent on the way in which natural phenomena had been studied in the preceding generations.

The determining factor in those earlier studies is the absence, until the end of the eighteenth century at least, of a specific scientific discipline dealing with living beings, or at any rate with what was particularly "living" about them. Natural historians had, of course, been around since antiquity. Yet natural history could not (or would not) deal with what the eye could not see: it was very much la nomination du visible, so that the natural historians’ main enterprise was taxonomic.13 The

11. Ibid., p. 341.
12. Ibid., pp. 371ff.
distinction between animal, vegetable, and mineral which is the basis of Hegel’s Organic Physics was first established by Nicolas Lemery in his Cours de Chimie of 1675, and became the fundamental classification of natura—what opposed to heavenly or elemental phenomena—which required instrumental help for the eye, or even inference from observation.

Although two of the greatest natural historians of the seventeenth century, Claude Perrault and Christopher Wren, were also very influential and prolific architects, all this affected architecture—and even architectural theory—only indirectly. In antiquity the word organic had entered architectural discussion as a rather lowly by-product of the Aristotelian notions: organic referred to organon in the sense of instrument only, so that Vitruvius found it necessary to distinguish between machinae and organa. The first were moved, mostly cyclically, by a great force, the second could be moved by one man alone. Both words were of Greek origin: machina and mechanicus (from the Greek mechos—a means, an expedient, or a remedy) referred to any kind of contrivance; organon came from an archaic term, ergon, work. It followed that the Latin organicus did not mean anything very different from mechanicus: something done by means of instruments, indirectly. Organic music, therefore, was any kind of music played on instruments; and an organon or organus, any kind of musical instrument. In this Vitruvius was following the normal Latin usage of his day, whereas the Greek word had simply followed Gresham’s law of language—the coarser word will always drive out the more complex: Vitruvius’s contemporary Lucretius, in discussing the body as a sensorium, uses the word organicos to mean only “musicians,” and makes no reference to the organs of the body there.

In late antiquity people who played on organa were called organici; but people who made them were mechanici. This late antique usage of both words continued throughout the Middle Ages; it reached a kind of paroxysm in a musical instrument invented in the mid-seventeenth century by Michele Todini (or Todino, a famous virtuoso on the bagpipe); he called it the mechanical organ. It occupied a whole apartment housing numerous freestanding string as well as wind instruments. None of the instruments were connected physically. Only one of the instruments was played, the others sounded sympathetically: in its quasi-magical working this mechanical organ combined the attributes of a natural and an artificial object.

Organa, like Todini’s one, often astonished even the initiated: the astonishment at the quasi-magical feats of mechanici is evident in Hellenistic books of instruction on the subject, such as those of Hero of Alexandria or Philo of Byzantium. The feeling of surprise at such man-made miracles is echoed by sixteenth- and seventeenth-century writers. It is paradoxical that the two words that are now taken to be diametrically opposed were almost synonymous for such a long time. In Byzantium, in the Islamic world, and as well as in the West, the parallel was maintained. The singing golden birds and the roaring lions round the Imperial throne of Constantinople; the robot servant of Albertus Magnus; the talking head of Roger Bacon; the fluttering (and airborne) iron fly of Regimontanus—all these mythical and semimythical automata were fairly rare. The increasing diffusion of precise, refined mechanical skills at the outset of the industrial revolution—which produced new and cheaper clockwork, for instance—also culminated in an explosion of interest in, and of skill in making, androids. Automatic “writers,” flautists, trumpeters, and even a swimming, quacking, digesting duck coincided with the intellectual elaboration of Descartes’s view, that corporeal man is just one special case of res extensa, into the doctrinally materialist homme-machine and homme-plante of Julien de la Mettrie.

But La Mettrie’s use of the machine as an interpretative analogue of the living body was in a sense much the same as Aristotle’s. The miracle-machines of the Hellenistic and medieval engineers imitated the effects rather than the movements or the structure of animate beings. The idea of constructing machines that replicate or emulate (or even improve on) the movement of bodies begins with the anatomist-engineers of the Renaissance.

Aristotle had used organon as the exalted title of his great logical summa; but he had also used the term (in a


17. “We marvel at something,” says Thomas Aquinas, “when we see an effect, but do not know its cause” (Summa contra gentiles, III, 101). On medieval marvelous machines, see most recently Michel Camille, The Gothic Idol, Ideology and Image-Making in Medieval Art (Cambridge, 1989), pp. 244f.
Kircher writes of Todini’s celebra et pen prodigios machina that he exhibit is . . . artis sae specimina summo omnium stupore & admiratione eorum, qui magno . . . numero confluunt.
sense that he took over from Anaxagoras) to signify every bodily member as an instrument, and especially the hand, because it is the more particularly human faculty, in “that [it] was not one instrument but many, an instrument that represents many instruments.”

The commonest unqualified use of the word organ for any part of the body was to signify the mouth and tongue, the instruments of the human voice, from which by metonymy the term was transferred to several other parts, until it was used for most of the harder-working organs, both human and animal in silver Latin. But because it was also used as a synonym for “agent,” it came to be used as a metaphor of the whole body (and of the human body in particular) in the eighteenth century. And that is how it was assimilated to the much later notion that the building is in some ways organic.

Yet the passages in Vitruvius that set out this idea (and dependent ones in many later writers) have been used very selectively in recent controversy to assimilate this ancient notion of the body image to an “organic” theory of architecture. I hope to show that this assimilation is misleading because the body image in antique and in “humanist” theory was used as an abstract model—mathematical and functional—for imitation in building, with no plastic, formal implications. The old dictionary of the French Academy still says for organique “terme de physique . . . qui se dit du corps de l’animal, en tant qu’il agit par le moyen d’organes,” and it is in that straightforward sense that the term enters architectural theory proper. The Venetian Carlo Lodoli, a Franciscan friar who attempted to revolutionize thinking about architecture, and succeeded (if not entirely in the way he expected), is the first to have spoken of an “organic architecture” (even if he applied the term only to furniture) because he was using the word more in the Latin than in the Greek sense. Furniture, he considered, should take the concave form of those parts of the body that come into contact with it. And he had indeed made (or at least had made) a chair with a curved shoulder-rest like the antique ones that were known from sculptures, and what is more, that chair (which was in advance of the fashions of the day) also had the seat hollowed out “as the English are now beginning to do.” In the same passage, his follower Andrea Memmo, who is our main authority for Lodoli’s ideas, also discusses other kinds of architecture the master considered beside the organic: topiary, or garden architecture, curule architecture, or coach-building, and so on.

Memmo’s influence on the next two or three generations of theorists was enormous, if almost entirely indirect, and it helped to transmit his reading of Lodoli and the way it related the body to the members of a building, and suggests that a building must be, among other things, also a visible working out of its mechanical forces, its functions.

However, a quite different development outside the direct control of philosophers was giving the transformation of the word yet another unexpected turn: that same Nicolas Lemery, who had formulated that tripartition of naturalia into animal, vegetable, and mineral, had also first seen that the distinction between acid and alkali implied the universality of chemical action. More than a century later, Antoine Lavoisier and Johann Jakob Berzelius showed the fundamental unity of vegetable and animal matter, as well as the general validity of chemical laws, which applied to living matter in the same way as they did to inanimate. But it was Friedrich Wöhler’s synthesis of urea in 1828 that demonstrated (even if the notion was not immediately accepted) that organic material did not require the presence of the imponderable “vital force” for its existence, although its action, animating inert matter, had been inferred by many chemists.

It was generally agreed by the middle of the nineteenth century that as a result of the chemists’ onslaught the word organic could no longer be used in the venerable sense it had retained until the eighteenth century, but would be needed for matters that were either directly concerned with, or were being regarded as an analogy of, things in the vegetable and animal world. And, some maintained, the term could be extended as a representation: “To say that physiology is the physics of animals is to give a highly inaccurate idea of it; I might as well say that astronomy is the physiology of stars,” wrote the surgeon-anatomist Marie-François Bichat in 1800.

Physics and engineering had dominated the scientific life of the seventeenth and eighteenth centuries, and chemistry had still been suspect (as being akin to alchemy and sorcery, as well as tainted by immediate commercial applications of various kinds), yet quite a new interest in it brought about the separation of natural history into the twin disciplines of organic and inorganic chemistry. This extended the realm of naturalia to the stars and to

20. Vitruvius, De Architectura, III; IV, 1ff.
microorganisms, but also separated animal and vegetable decisively from mineral study. And in fact, organic chemistry was also subject to a new discipline: biology. That word was coined by Gottfried Reinhold Treviranus for the title of a book, Biologie; oder die Philosophie der Lebenden Natur, which appeared in parts beginning in 1802; it was immediately taken up by the great French naturalist Lamarck for his own use, and he gave it universal currency.

The arrival of this new organic chemistry finally transformed the word out of recognition. It was first circumscribed in the 1830s and 1840s by Friedrich Wöhler and then more definitively by Justus von Liebig, whose Handbuch der Organischen Chemie of 1839 (although one of a series of academic textbooks) became the classic statement. Now the "vital force" of eighteenth- and nineteenth-century chemists also had its Aristotelian and Scholastic antecedents and was understood to be not only the life-giving agency, inherent in matter, but also the presumed cause of the temporal articulation of life into generation, growth, and decay. When this vis vitalis was no longer required as part of the chemists' conceptual baggage, it was taken over by philosophers: Schopenhauer identified it with the will.24 The biologist-philosopher Hans Driesch created a summa of the doctrine in his Science and Philosophy of the Organism,25 although a few years later Driesch saw entelechy "accomplished" when an organic society, a nation, located its vital part in a leader; his accession to the Führerprinzip did not help to validate his theories more generally. Although by the 1920s it was scorned by many scientific biologists, it was seen as a valuable hypothesis more recently, particularly by some Marxist biologists (notably Trofim Lysenko), who regarded it as the agent that made its transactions with the environment in spite, as it were, of chemically transmitted heredity.

For all the divisive action of the new sciences, there is another field of study that develops at the end of the eighteenth century, and which suggests that the Naturphilosophie's unified conception of nature had not exhausted its scientific, even empiric, usefulness: morphology, or the science of forms. The word was newly minted by Goethe already in the 1790s, although it was first printed in 1800 by another scientist.26 This morphology was the study of organic form in the old sense, and various attempts were made in the nineteenth century to suggest that in fact organic and inorganic matter were organized on closely analogous mechanical principles. The term was also taken up by Lamarck and his followers in a study of the development of species through time, which came to be called evolution, and which was to absorb such vast intellectual energy in the nineteenth century. Lamarck first formulated the notion that species were modified by their own activity under the influence of environment. The two conflicting developments from Lamarck, that of Georges Cuvier and of Etienne Geoffroy de Saint-Hilaire, were discussed by the aged Goethe in 1830.27 Such transformations of late-eighteenth-century taxonomy lead up to the general possibility of a history of nature, as against the old notion of natural history, in which evolution referred only to the transformations of the individual in the course of his or her development. Georges Cuvier, who in fact belonged to the generation immediately after Lamarck, suggested a completely new system of classifying living beings. It was his notion that all plant and animal organs should be classified not by surface similarity but by their relation to the elemental functions of the individual. Breathing, digestion, movement, circulation, and nervous excitation were the essential functions. The most important organs, therefore, were not the visible (and on the whole symmetrical) ones on which the whole classificatory scheme of the old natural history had been based but the more complex asymmetrical ones that (in the larger animals, at any rate) are only visible on dissection. Cuvier supposes a classification by the topology of functions: the way in which they relate to each other, and the way in which the primary internal and secondary external organs are conditioned by these interrelationships is what makes the unity of a natural class.28 Within the organism, therefore, it is function that determines the form. Cuvier's systematic account of organisms presupposed that they were not a continuous chain of resemblances but a discontinuity of groupings organized around a functional nexus. Whatever the fate of his "catastrophic" theory of evolution (which was overshadowed by Darwinian accounts of a gradual natural selection), still his primary account of the relation between organ and function remained of the greatest interest; and of course his influence on architecture, wholly unintended, was capital. Unfortunately, the one

27. Ibid., pp. 380ff.
architect who was known to be a friend of Cuvier’s, Theodore Bronchiart, although he was an enormously prolific designer, left no writings, and his only scientific contact with Cuvier was said to be in discussion about fossils in building stones. However, Cuvier’s doctrine was to have a powerful effect on both Gottfried Semper and Eugene Viollet-le-Duc in the next generation, so that virtually no architect in the second half of the nineteenth century escaped its influence in one way or another. Moreover, a vast popular and semipopular literature followed in the wake of Cuvier’s theorizing, of which even architects could not remain ignorant.

Yet the most influential carrier of such ideas turned out to be not an architect but a sculptor, “the Yankee Stonecutter,” Horatio Greenough. The author of very many not very distinguished (and sometimes very large) sculptures, which might quite accurately be called neoclassical (although he certainly would not have liked that), Greenough is now best remembered for having coined the dictum or precept that “form follows function.” Although this was destined to become an all-purpose slogan, it was very clear to Greenough that he was formulating a strictly organic notion. Indeed, he continued to think of artifacts in terms of the relation between function and organ—which explains his definition of beauty as the promise of function, action as its presence.29 And the very promise of function is agreeable to the senses because all forms of organic life require an envelope, a protection greater than they can in fact support—and therefore the envelope is always stretched to the limit of its economic possibility—as is the sail bellowing in the wind. Organic life was, to Greenough, much the same as organized life, and meant in the first place human life, which is why it is articulated into three phases: of beauty, of action, and of character. This division reflects the much later introduction of the action of time into the static taxonomies of natural history.

Greenough’s influence is well chronicled; one of the few intellectual debts that Louis Sullivan was prepared to acknowledge was to him, and his ideas were generally received through Transcendentalist writers, particularly through his friend Emerson. Those very striking insights of Greenough’s owed more to his eclectic reading than to the Florentine milieu in which he worked—the circle of Luigi Bartolini at the Florentine Academy—although his sculpture owes everything to his Florentine contemporaries.

Another carrier of such ideas, much less known but perhaps even more influential, was Leopold Eidlitz, who was born in Prague and, after being trained as an architect in Vienna, arrived in New York as a young man in the 1840s. He was a convinced practitioner of the Romanesque–Christian manner that had been developing in Germany; the best-known episode in his career is his partnership with H. H. Richardson in the building of the New York State Capitol at Albany. But Eidlitz was also something of a scientific thinker and a theorist; his “Nature and Function of Art, More Especially of Architecture”30 restated themes that had been bandied about by idealist philosophers and romantic writers. The work of art must be a realized idea, like a natural phenomenon. The artist in his godlike way attempts to create a new organism, but just “because it is new it cannot be an imitation of any work of nature.” On the other hand, being an organism, it must be developed according to the methods of nature. Ornament must be an integral part of the structure as “a flower appears amid leaves of a plant.”31 That thought could have been Eidlitz’s, but the metaphor is definitely Sullivan’s. And the metaphor suggests what had already been implicit in Eidlitz’s thinking. For the ornament to be seen as functioning like a plant, it would also have to look like one. How else would the visual metaphor be presented to the innocent spectator? The scaling down from the grand philosophical and scientific questions of principle to their architectural application was slow but definite. Greenough would talk about form following function, and even extol the beauty of sailing ships, yet he made sculptures for buildings with great Corinthian porticoes. Still, his express preference was for buildings that would have the beauty of a Yankee clipper, “the beauty of her bows, the symmetry and rich tracery of her masts and rigging—and those grand wind muscles, her sails!”32 Elsewhere Greenough asserts, “The men who have reduced locomotion to its simplest elements . . . are nearer to Athens . . . than they who would bend the Greek temple to every use. I contend for Greek principles, not Greek things.”33 The model of beauty is doubled: it is the animal, the organism, but also its rival, the machine—the clipper, the architectura curule, of the new light coach builders that Lodoli had also admired. The machine is in some sense present as the “Greek,” the

perfectly spare and economic answer to need—much as the organism is shaped when its function is adapted to environment.

“Machine” is, therefore, again presented as an analogue of “organism,” although in quite a different sense from that of Vitruvius. Nor is Greenough interested in the quarrel between Gothic and Greek. When he died in 1852, he was still a young man, and the Gothic revival had barely started in the United States. Before his death, practically all the major public buildings on the East Coast were more or less “classical.” Of course, Ruskin’s Stones of Venice had only been published the year before. Ruskin was to become—if anything—more popular in the United States later in the century than he was in England, and he proposed, in the wake of Pugin (it was a debt that he was not prepared to acknowledge), that all ornament derived directly from nature, and that the superiority of Gothic architecture over classical is guaranteed by its closer imitation of natural forms. In the course of the decade, another highly influential book, The Grammar of Ornament by Owen Jones, one of the designers associated with the Crystal Palace and the government-sponsored teaching of art in England (all of which was abhorrent to Ruskin), offered ten plates of natural forms, of leaves and flowers, as a token of the sort of ornament that future architects, weary of the imitation of the past, would want to devise. Jones had known and (briefly, unhappily) collaborated with Gottfried Semper, whom I mentioned earlier, and whose great work Der Stil first appeared in 1863. In the United States it was not read or translated until much later, when the Chicago architect John Wellborn Root (a friend of Louis Sullivan’s, and familiar with the ideas of Eidlitz and Greenough) first published passages from Semper’s texts in English. Semper’s views, issuing from the new biology and the linguistic ideas of the Romantics, and neutral on the problems of industry in architecture, were in fact much more acceptable to the midwestern architects than Ruskin’s—involved as they were with his insistence on the value of manual work.

Ideas about a new way of imitating nature, of relating the organism to the built form, were therefore cultivated in the third quarter of the nineteenth century in a fairly close circle with which Louis Sullivan had constant contact. When young, Sullivan had found employment in the office of Frank Furness, to whom he was drawn by admiration for the buildings that he saw while walking around Philadelphia. Of his generation, Furness was perhaps the most idiosyncratic Gothic revivalist: in his work and thinking, many of the notions I have been discussing were gathered up. He was a self-confessed admirer of Viollet-le-Duc, but also an emulator of Owen Jones. His father, who was a Bostonian Transcendentalist and a Unitarian minister, was a friend of Emerson as well as an acquaintance of Eidlitz. The influence of the Anglo-German theorists and of Viollet-le-Duc, which presented both the invention of ornament and the creative digestion of new material as the substantial problems of a new architecture, was a most important counterweight to the ornamental conventionality and structural indifference of the French and Frenchified academies. Against their cosmopolitan gloss, it came to appear as a native and even homespun philosophy, and Frank Furness was seen as one of its earliest and most inspiring representatives.

Organic architecture, then, in the 1880s and 1890s had its focus in the inventions of Sullivan and Root, their Chicago (and later their West Coast) contemporaries, as well as in the burgeoning Art Nouveau movement in Europe—although that would be food enough for another article. In the work of the Belgian and the French designers particularly, the obsessional interest in the devising of an ornament that would flow, or “grow” like real plant forms without depending on any obvious model, became a compulsion. Art Nouveau was a movement that was over very quickly: in the United States and in Britain it was succeeded by a philistine classicism; in Germany by a more learned and refined revival of Prussian post-Napoleonic sobriety; in France by the return to academic “normality” that was leavened by Auguste Perret’s particular understanding of archaic post-and-beam construction.

Although it had been born out of the anticipation of the grandeur of the forthcoming twentieth century, by the time the century had taken measure of itself, Art Nouveau was finished and its leaders converted to other ways, dispersed, or dead. The First World War made the enlightened sobriety of that first decade unacceptable, particularly in Germany. Erich Mendelsohn, when visiting the United States in the early 1920s, had appreciated the work of Sullivan and Wright—he had particular praise for the Larkin Building, the Unity Temple, and the Heurtley House. But Mendelsohn also saw himself as a product, or perhaps even as the heir, of Art Nouveau. Already in 1914, at the time of the great Werkbund exhibition in Cologne, he had turned against Peter Behrens, whose contribution, the Festival Hall, he thought a “total failure,” whereas the theater by Henri van de Velde seemed to him the only really worthwhile thing in the exhibition. And of course this accomplishment of the Art Nouveau masters, the introduction of plant forms, of curvilinear and irregular, yes organic, elements, into the horizontal plane—even the structuring of the whole plan on such
forms—was their specific accomplishment, without which there would have been no Einstein tower. The Einstein tower, which still owes much to the plan convolutions and the linear flow of van de Velde, had been praised as “organic!” by Einstein. That word Mendelsohn had understood to mean “that you can’t change or take away a part without destroying the whole,” a definition that echoes almost literally Leon Battista Alberti’s slightly more elastic definition of beauty five centuries earlier as “that reasoned harmony of all the parts . . . so that nothing may be added, taken away, or altered but for the worse.”

This definition and its many derivatives that have the human body as their model are often quoted in the literature of modernism as being typically “classical” and, therefore, also paradoxically “inorganic” and antigrowth.

Both Mendelsohn and Wright (in their different ways) elide the Art Nouveau appeal to the plant form as a visible and structuring model: Wright’s organic architecture was in fact to be a total work of art—a notion that he introduced into architectural thinking from the theatrical writing of Edward Gordon Craig and Adolph Appia, long before the much-abused Gropius; in Wright’s organic theory, the formal inclusion of heating and ventilation (as well as of lighting), which had in fact been very imaginatively treated in the early buildings of Horta (in the Hotel Solvay and in his own house), was to become part of a “complete work of art” together with structure and furniture. It is a doctrine of which he did not repent, and which he drew from his immediate Art Nouveau predecessors. He could not accept with it the strange version of empathy that Sullivan had developed out of the earlier ideas of Eidlitz and Greenough, and in fact was not really interested in the body image, which was so obsessively investigated by some of his contemporaries, such as the mystical Claude Bragdon.

The development that was brought about in Germany by the First World War and its aftermath came to Scandinavia a decade later when a number of architects, most notably the mature Gunnar Asplund and the young Alvar Aalto, shed their highly accomplished, and sometimes very lyrical, version of Schinkelian classicism for the charms of “free form,” which owed much to the Germans, and something to the Americans: their eager use of “natural” as against man-made materials—something that they did not share with Wright, for instance, who always used concrete enthusiastically—transferred the Art Nouveau dependence on plant form into a tactile naturalism.

There is, therefore, no identifiable organic theory of architecture (based on a direct appeal to nature, at any rate to the nature that biology and chemistry study) that can be usefully summarized. Yet the constant appeal to the notion of the organism, particularly as it relates to the body image in architecture, seems to be an important recurring theme in speculation about building. Mendelsohn’s forms may have seemed new and disturbing in the 1920s, yet his justifying appeal to the conception of an organism was almost pedestrianly old-fashioned because it was glimpsed only through the flowery veil drawn by the masters of Art Nouveau. To them it seemed that a kind of Goetheian Urpflanze was the seed of all formal thinking, as it had once been the germ of vegetable, as well as animal, being. And yet perhaps the notion might again be isolated from vegetative implications. The wider importance of a conception of organism will perhaps then be seen as central to architectural thinking.

35. Frank Lloyd Wright: Ausgeführte Bauten (Berlin, 1911). C. R. Ashbee quoting Wright’s words (p. 10) in the introductory essay.