



Lewis Mumford: Prophet of Organicism

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An age that worships the machine and seeks only those goods that the machine provides, in ever larger amounts, at ever rising profits, actually has lost contact with reality; and in the next moment or the next generation may translate its general denial of life into one last savage gesture of nuclear extermination. Within the context of organic order and human purpose, our whole technology has still potentially a large part to play; but much of the riches of modern technics will remain unusable until organic functions and human purposes, rather than the mechanical process, dominate.

-- Lewis Mumford, 1962¹

Lewis Mumford's career in twentieth-century American letters is unlike any other that comes to mind. He published his first book, The Story of Utopias, in 1922, and since then -- he now is ninety-three -- he has brought out some thirty more. His chief subjects have been the history and criticism of architecture, cities, literature, art, and technology. Between 1931 and 1963 he also wrote "The Sky Line" column for The New Yorker (an assignment which earned him a reputation as a leading -- many would say the leading -- American critic of architecture and city planning), and all in all he has written more than a thousand occasional essays and reviews during his sixty-five year career as a writer.

But this display of literary energy, astonishing as it is, does not account for Mumford's uniqueness. Other nonfiction writers have been as industrious, but few if any also have been as original; the fact is that a remarkably large part of Mumford's work was radically innovative. I have in mind his seminal work in American architectural history and criticism: Sticks and Stones (1924), The Brown Decades (1931)]; in urban studies and the history of cities: The Culture of Cities (1938), The City in History (1961); in American literary and cultural history: The Golden Day, (1926), Herman Melville, (1929); and in the history and criticism of technology: Technics and Civilization (1934), The Myth of the Machine (2 vols., 1966, 1970). It is hard to think of another twentieth-century American, in or out of the academy, who

has written as many books regarded by academic experts as signal contributions to as many -- and as diverse a group of -- scholarly fields. Except for Edmund Wilson, whose writing may have been as influential but whose interests were not as diverse, not one comes to mind.

Another distinguishing feature of Mumford's career is his outspoken criticism of advanced industrial society. One comes away from Donald Miller's judiciously selected 1986 anthology of Mumford's work with a renewed sense of his persistent, bold if politically uncommitted iconoclasm, and his increasingly intense alienation from America's dominant institutions, its militarism, and its nationalistic ethos.² I say "politically uncommitted" because Mumford, in spite of the obvious affinities between much of his thought and that of the radical left, always has kept clear of left politics. He is opposed to Marxism. In his youth he was a cultural radical, an exponent of avant-garde, stripped-down, functional modernism in the arts, yet from the beginning that commitment was accompanied by his fear that the technological power of the modern state might prove to be uncontrollable. Hiroshima and the onset of the nuclear arms race seemed to him a virtual confirmation of that fear, and everything he has written since has been charged with a mounting, urgent sense of outrage and alarm. Much of that animus has been directed against the intellectual establishment, especially the contributions of American scientists to corporate and military power. In view of Mumford's unconcealed disdain for the bland, compartmentalized, morally disengaged kind of scholarship the academy nurtures and rewards -- a disdain which on occasion has led him to repudiate empirical rationality itself -- it is all the more surprising that he has been awarded just about every prize for which writers of nonfiction are eligible, including the National Book Award, the National Medal for Literature, and the Smithsonian Institution's infrequently awarded Hodgkins gold medal for innovative work in relating the sciences and the humanities.

How shall we account for this unusual achievement? Part of the answer is that he was born, as Thoreau said of himself, "just in the nick of time." In the 1920s, when Mumford began publishing, circumstances were unusually propitious for his kind of unspecialized quasi-scholarly work. The professionalization of learning in the United States was just beginning, and in the areas that interested him most, indeed, the process had scarcely begun. No coherent programs in architectural history or urban studies or city planning, conceived as discrete subjects of university teaching or scholarship, had yet been formulated, and much the same may be said about American literature, American studies, and the history of technology. Although these subjects already were being explored by some unaffiliated intellectuals and professors, the difference between their status then and now is immense. By now each has become a full-fledged, independent, academically authorized field of inquiry with its organized cohort of committed specialists working in university degree-granting programs and departments; its own scholarly organization, one or more specialized journals, regular conferences, and a rapidly growing corpus of published scholarship. If we conjure up the huge stock-pile of scholarly literature that now has accumulated in any one of these fields -- say, the thousands of historical, biographical, and critical works on the nineteenth-century American writers about whom Mumford wrote in The Golden Day -- it is easy to see why a young scholar starting out today could not hope to match Mumford's achievement.³ But then of course it is necessary to remember that Mumford's contemporaries were unable to match it either. How did he do it? What intellectual equipment, what viewpoint, enabled him to range so widely and productively in so many fields of inquiry?

The place to begin, I think, is with Mumford's special vocation as a writer. From the outset he saw himself as a nineteenth-century man of letters like Carlyle,

Emerson, Ruskin, Arnold, or Morris -- a writer who addresses general audiences on central issues of public concern. Russell Jacoby recently has argued that Mumford, along with Edmund Wilson, Walter Lippman, Paul Goodman and a few others, belonged to a now endangered if not extinct breed of "public intellectuals."⁴ They have much more in common with Emerson's idea of an unprofessional "American Scholar" who writes in the common language than with today's academic specialists and their esoteric discourse. Indeed, Mumford always has presented himself as a non- or anti-academic type. He never took a college degree, and save for occasional stints as a visiting lecturer, he never was a regular member of a university faculty.⁵ In the 1920s his affinities were with Bohemia, not Academia, with nonconforming writers and artists like his friends Van Wyck Brooks, Waldo Frank, and Alfred Stieglitz. He had strong aesthetic inclinations, as indicated by a recent University of Pennsylvania exhibition of his charmingly spontaneous drawings and water colors. A large part of his later writing was unacademic in another sense: it consisted of polemics on public policy issues -- war and peace (Men Must Act, 1931), urban renewal (The High-way and the City, 1963), regional planning, disarmament, and environmental protection -- and he also wrote a few books in an old-fashioned vein of moral philosophy or general wisdom addressed to Everyman, books like Faith for Living (1940), Values for Survival (1946), and The Conduct of Life (1951).

Mumford's anti-academic stance was not merely temperamental. It was grounded in a principled rejection of the prevailing empirical, scientific ideology of American universities, with its ideal of detached, context-free, or "objective" knowledge. He routinely condemned the increasingly minute division of intellectual labor to which that orthodox concept of learning gave rise. That animus makes itself felt everywhere in Mumford's writing. Take, for example, his encyclopedia entry about his mentor, Patrick Geddes, the British biologist, city planner, regionalist, and social

philosopher, whose work he describes as aiming:

...to break down the sterile isolation and impoverished abstraction of specialized knowledge, so as to be able to move and act freely over the entire range of human experience, even that which lay beyond rigorously scientific description.⁶

Following Geddes, Mumford embraced the opposed conception of the synthesizing "generalist," an intellectual type reminiscent of the unspecialized, unprofessional Emersonian scholar who simply exemplifies democratic "Man" thinking. Here, incidentally, Mumford was anticipating the current neo-Emersonian rejection, by contemporary philosophers like Stanley Cavell, George Kateb, and Richard Rorty, of philosophy as a special, privileged academic discipline or discourse. The generalist, as Mumford describes him, is like a balloonist floating high over the contested intellectual terrain, a writer who aims to bring together "widely separated fields, prudently fenced in by specialists, into a larger common area, visible only from the air." Here is the way he describes the generalist's approach to prehistory:

Only by forfeiting the detail can the over-all pattern be seen, though once the pattern is visible new details, unseen even by the most thorough and competent field workers...may become visible. The generalist's competence lies not in unearthing new evidence but in putting together authentic fragments that are accidentally, or sometimes arbitrarily, separated, because specialists abide too rigorously by a gentleman's agreement not to invade each other's territory.⁷

This is in fact Mumford's characteristic approach to most subjects. The invidious distinction between narrow specialization and wide-ranging, cross-disciplinary generalization is the first principle of his method. His commitment to writing as a generalist accounts for much of the intellectual coherence -- the remarkable consistency -- of his writing. Unlike many journalistic generalists who write about a wide range of subjects from a neutral, largely undefined viewpoint, however, Mumford is a generalist with strong philosophic convictions. Indeed, I believe that his work is best understood as a sustained vindication of a single view of reality, a comprehensive historical, moral, and metaphysical -- one might say cosmological --

doctrine which may be called "organicism."

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The essential presuppositions of Mumford's thinking derive from the counter-Enlightenment, or what Alfred North Whitehead called, in Science and the Modern World (1925) "the romantic reaction." Mumford admired Whitehead's influential book. "It's a book of first importance," he wrote to Patrick Geddes, "he has an ingenious solution of the problem of mechanism versus vitalism."⁸ Whitehead described the romantic movement as a late eighteenth-, early nineteenth-century reaction against the version of scientific materialism known as "the mechanical philosophy" -- the view, he wrote, "which asserts that physical causation is supreme, and which disjoins the physical cause from the final end." The romantic reaction, in other words,

was a protest on behalf of the organic view of nature, and also a protest against the exclusion of value from the essence of matter of fact...The romantic reaction was a protest on behalf of value.⁹

The opposition between the organic and the mechanical, omnipresent in nineteenth-century thought, dominates Mumford's thinking. Allusions to this all-encompassing conflict, like the one cited at the beginning of this essay, recur at crucial junctures of his writing, and they provide it with a telling coherence and persuasiveness. Mumford derived aspects of this conception from many of the writers he most admired, among them Emerson, Carlyle, Horatio Greenough, Arnold, Ruskin, Morris, Spengler, and Geddes. The ultimate source of the doctrine was post-Kantian German idealist philosophy, chiefly as transmitted to Anglo-American culture by Coleridge, Carlyle, and other English writers.¹⁰ In its broadest implications, it is an all-embracing anti-materialist philosophy that rests at bottom on the opposition

between the concepts of the organism and the machine as alternative models of ultimate reality. Mumford's preference for the organic comports with the emphasis upon the biological view of life he admired in Geddes's work; Geddes in turn was influenced by Herbert Spenser and the widespread post-Darwinian (though not explicitly the social-Darwinist) tendency to apply biological concepts to the study of society and social behavior.¹¹ The fulcrum of this viewpoint, as applied to the human realm, is a seemingly straightforward proposition: human beings are organisms, hence their behavior and their arts are best understood as the outcome of organic processes.

The version of the mechanical-organicist polarity most pertinent to Mumford's work, especially his architectural criticism, was Coleridge's well-known if more limited distinction between two conceptions of aesthetic form:

No work of true genius dares want its appropriate form, neither indeed is there any danger of this...The form is mechanic, when on any given material we impress a pre-determined form, not necessarily arising out of the properties of the material; -- as when to a mass of wet clay we give whatever shape we wish it to retain when hardened. The organic form, on the other hand, is innate; it shapes, as it develops, itself from within, and the fullness of its development is one and the same with the perfection of the outward form. Such as the life is, such is the form. Nature, the prime genial artist, inexhaustible in diverse powers, is equally inexhaustible in forms; -- each exterior is the physiognomy of the being within...¹²

Implicit in Coleridge's statement is the powerful notion that the biological principles governing the form of organisms also can and, indeed, should govern the form of all human constructions: cities, buildings, works of art and literature.

Mumford's most cogent application of the principles of organic form has been to architecture. By the time he began writing, to be sure, Frank Lloyd Wright already had given prominence to the organicist approach to architecture. Wright's ideas and practices were more or less directly traceable to Louis Sullivan's, and back to the aesthetic ideas of Whitman, Emerson, and Horatio Greenough, who in turn were indebted to Carlyle, Coleridge and their borrowings from the German post-Kantian idealist philosophers (especially Hegel). The two famous mottoes associated with the

work of Sullivan and Wright, "form follows function" and "in the nature of the materials," represent a Coleridgean version of functionalist modernism; in their work Mumford found abundant confirmation of the energizing power, the aesthetic and moral unity -- a kind of architectural probity -- that would issue from the application of the organic principle, properly understood, to the design of buildings.

Mumford's influential essay, "The Case Against 'Modern Architecture'" (1962), illustrates his effective use of the organic/mechanic distinction in the criticism of current trends in building.¹³ When architects first made themselves "at home with mechanical processes," the modern movement had been full of promise. But architectural modernism later had disintegrated into a haphazard multitude of sects and mannerisms because, he contends, architects had adopted the prevailing "belief in mechanical progress as an end in itself." The disintegration began with the misconstrual, by Sullivan's successors, of "form follows function," taking it to mean (primarily) "mechanical form and mechanical function." Meanwhile Le Corbusier was giving a central place to the machine, proclaiming its attributes (austerity, economy, and geometric cleanness) to be "almost the sole virtues of the new architecture."

The result, Mumford argues, was a superficial aesthetic "which sought to make the new buildings look as if they respected the machine, no matter what the materials or methods of construction." Mies van der Rohe completed the deformation of architectural modernism by designing a kind of building which is less like a machine than a package; he used steel and glass to create a "dry style of machine forms without the contents," buildings which are "elegant monuments of nothingness." Although Mumford concedes that Mies's hollow glass shells possess a crystalline purity of form, they exist in "the Platonic world of his imagination" without any "relation to site, climate, insulation, function, or internal activity."

What modern architects lack, Mumford argues, is a "principle of order" capable

of allying architecture to an equally coherent theory of human development. They have

no philosophy that does justice to organic functions or human purposes, and that attempts to build a more comprehensive order in which the machine, instead of dominating our life and demanding ever heavier sacrifices..., will become a supple instrument for humane design, to be used, modified, or on occasion rejected at will.

The missing "philosophy," Mumford's favored alternative to the reigning belief in mechanical progress, is of course organicism. Whereas organic evolution "is cumulative and purposeful," thus linking past, present, and future, "mechanical progress" exists in a one-dimensional time: the present. To believers in mechanical progress, who assume that human improvement comes about most rapidly when we devote "all our energies to the expansion of scientific knowledge and to technological inventions," only the present counts; progress therefore should be "measured by novelty, constant change, and mechanical difference, not by continuity and human improvement."

Mumford's timely account of the decline of architectural modernism exemplifies the persuasiveness, the critical power, of his organicist doctrine. Writing in 1962, he was one of the first to recognize the essential coldness, sterility, and inhumanity of urban areas dominated by "glass box" skyscrapers. These buildings are not integrated into the already existing cityscape, nor are they functionally related to the non-economic needs of the city and its citizens. The power of the organic principle as Mumford's all-purpose intellectual standard, is indicated by his successful use of it here as a frame both for an aesthetic assessment of architectural modernism, and for a historical explanation of the movement's failure.

The buildings are aesthetic failures, Mumford is saying -- failures as buildings -- because they were not designed according to organic principles. Had the architects been faithful to the functionalist creed, they would have determined each building's

form, and selected the materials out of which to construct it, in accord with its purpose or function in its relation to the surrounding environment. This would have resulted in both innovative diversity and a measure of harmony with already existing buildings -- with the past. The controlling principle, as with any organic process, is integration: the integration of the parts guided by a coherent conception of the whole. But the reigning style of modern architecture, like many other aspects of modernity analyzed by Mumford, exhibits the supplanting of organicism, sometimes deliberately, sometimes inadvertently, by the mechanistic ethos of scientific and technological progress. That mechanistic bias is exhibited in the unadorned, precise, sharp-edged, rectilinear building style -- the architectural embodiment of the machine aesthetic.

But the fate of modern architecture, as Mumford describes it, is merely one instance of the far-reaching triumph of mechanism in our time. In the work he has done since the beginning of the Cold War, Mumford has been increasingly explicit about the conflict between the organic and mechanic principles as having dominated the history of the West since the Middle Ages. He regards the medieval city as the last significant, relatively enduring societal embodiment of the organic principle; its street plans tended "to follow nature's contours," not because of some preconceived goal, but as the inescapable consequence of "organic planning," a process he defines as moving

...from need to need, from opportunity to opportunity, in a series of adaptations that ...become increasingly coherent and purposeful, so that they generate a complex, final design, hardly less unified than a preformed geometric pattern.¹⁴

Each medieval town developed out of a unique situation, "presented a unique constellation of forces, and produced, in its plan, a unique solution." It grew, as it were, from the inside out, because the decisive determinant was

a consensus ... so complete as to the purposes of town life that the

variations in detail only confirm the pattern. That consensus makes it look, when one views a hundred medieval plans in succession, as if there were in fact a conscious theory that guided this town planning.

In Mumford's history of cities, as in his analysis of modern architecture, the controlling theme is a conflict between organic and mechanistic ways of thinking. The medieval spirit of wholeness was kept alive in the greatest fifteenth- and sixteenth-century European cities -- cities like Florence and Turin, whose original Roman outlines were still visible; indeed, the post-medieval style (ordinarily called "renaissance," a period label Mumford rejects) remained "so deeply organic," he contends, that it seems "a continuation of its own past." In time, however, this organic mode of urban development was supplanted by one that lent expression to "a new ideological form ...derived from mechanistic physics." The city plans in the new baroque mode, which was closely bound up with the politics of oligarchy and centralized despotism in the new nation states, resembled the plans of ancient royal cities. Compared with the planners of antiquity, indeed, the planners of baroque cities were

even more ruthless, one-sided, non-cooperative; even more indifferent to the slow, complex interactions, the patient adjustments and modifications, through trial and selection, which mark more organic methods of city development.

The baroque style, according to Mumford, arose in tandem with fundamental social changes, among them the shift from a goods economy to a money economy, the development of new military and bureaucratic forms of power and, all in all, the emergence of a whole new way of life.

The abstractions of money, spatial perspective, and mechanical time provided the enclosing frame of the new life. Experience was progressively reduced to just those elements that were capable of being split off from the whole and measured separately: conventional counters took the place of organisms.¹⁵

The baroque capitals of Western Europe thus represented "a mechanical order" based "not upon blood or neighborhood or kindred purposes and affections," but upon

subjection to a new breed of ruling princes and their new forms of military power.

To Mumford the fate of medieval organicism is a prevision of the late twentieth century. Ours is a society dominated by a latter-day version of the mechanistic mentality, an ideology of raw power not unlike that embodied in the great baroque cities of Europe. The triumph of mechanism he discerned in our debased modernist city architecture is most significantly (and fearsomely) embodied in the nuclear-armed nation state. The "megamachines" he identifies with today's superpowers are the latest socio-political and economic expressions of this mechanistic philosophy. Hence the increasingly hyperbolic character of Mumford's writing during the cold war.

In our own time, the mechanical world picture at last reached the state of complete embodiment in a multitude of machines, laboratories, factories, office buildings, rocket-platforms, underground shelters, control centers. But now that the idea has been completely embodied, we can recognize that it had left no place for man. He is reduced to a standardized servo-mechanism: a left-over part from a more organic world.¹⁶

By the late 1960s he was arguing that to avoid a nuclear holocaust it was urgently necessary to replace the mechanistic ideologies of the "megamachines" with an updated version of the organic philosophy. Our best -- probably our only -- hope is to get rid of the militarized superpowers, and create instead a global network of relatively small-scale, decentralized, varied, regionally integrated communities.

So far I have tried to suggest that the remarkable abundance, scope, and coherence -- the persuasive power -- of Mumford's work is in large measure attributable to its conceptual unity. "Lewis was one of the few men," wrote Van Wyck Brooks, who had "not ideas but an idea, and was to spend his life working this out."¹⁷ The conflict between organicism and mechanism is that idea. It is the chief ordering principle of his critical-polemical and his scholarly-historical writing; of his moral and aesthetic judgments, and of his explanations of history. Yet it is inappropriate to divide Mumford's work into such distinct genres, for he is a monistic thinker whose scholarly and historical writings are always critical, and whose political,

moral, and aesthetic polemics are always informed by a sense of history. In Mumford's work "organic" and "mechanic" are names for warring principles, or belief systems, whose unending struggle has dominated human history at least since the age of pyramid-building.

Granted that this Manichean vision lends an admirable coherence and drama to Mumford's work, the question of its validity -- and its effectiveness -- necessarily arises. If we credit the vision with much of the remarkable unity of his work, we also must acknowledge that this same totalizing doctrine probably accounts for the disconcertingly tendentious, predictable, hence not infrequently boring aspect of Mumford's writing; at times in fact it makes his oeuvre seem like a huge, panoramic morality play in which actors representing key abstractions -- especially those indefatigable rivals, Organicism and Mechanism -- contend on a world-historical stage. I now want to consider certain defects or distortions which seem to follow from, and may well be inherent in, his universalizing conception of human experience.

If, as I believe, Mumford makes most effective use of his organicist philosophy in his architectural history and criticism, that is in large part due to the greater specificity required by the subject. In writing about architecture he necessarily deals with the creativity of particular people whose ideas issue in tangible, observable artifacts. In praising the builders of medieval or renaissance cities for their seeming adherence to organic principles, however, Mumford neglects an important distinction between them and modern adherents of the doctrine. Unlike Sullivan or Wright, the city-builders of the past were not themselves conscious proponents of organicism as such. In that case Mumford was applying the doctrine retroactively or, as it were, extrinsically, to the work of historical actors who did not expressly adhere to it. For the cultural historian the distinction between the intrinsic and extrinsic roles that ideas play in human affairs is not trivial; it distinguishes between the ideas which

actually figure in history -- are present to the minds of the actors themselves -- and the explanatory ideas retroactively applied to past events. For Sullivan and Wright the organic principle was a conscious article of belief, an aesthetic code to which they deliberately adhered in their work. No comparably explicit doctrine of urban planning was present to the minds of the builders of medieval cities.

This is not to imply that Mumford necessarily is wrong or misleading when he describes the form of medieval cities, or the process by which they were built, as "organic." (Nor, for that matter, does he mislead us by applying the concepts of mechanic form and mechanistic ideology to baroque cities.) But it is important to recognize that the concepts of the organic and the mechanic, and of the polarity they constitute, can be applied to historical circumstances with varying degrees of awareness, specificity, literalness, hence verifiability. That is because they are essentially figurative -- or metaphoric -- concepts. Each gains much of its persuasiveness and credibility from the meanings transferred to particular works by a root metaphor: the organism and the machine.

To illustrate: in architectural discourse the organic principle may be said to imply that the form of a building should be developed, like the growth of a plant or animal, from the inside out; the form will thus seem to be inherent in its nature -- the nature of the materials of which it is made -- and determined by its function. Thus the whole is more than the sum of its parts.¹⁸ This intuitively compelling doctrine derives its force from an analogy, a transfer of meaning, between, on the one hand, the concept of biological germination and growth, beginning with the seed, and on the other, the designing of the building in question. Ideally, therefore, a building designed in the functionalist spirit of Sullivan and Wright, will have its origin in the mind of the architect, where an imaginative conception of the character, needs, and functions of the building's prospective users is joined with the architect's

structural thinking as applied to particular materials in order to generate a form ideally suited to that specific set of requirements. In support of this doctrine, Mumford likes to invoke Sullivan: "what the people are within, the buildings express without."¹⁹

This analogy between the genesis and form of man-made structures and organisms is in my view Mumford's strongest, most persuasive application of the metaphor. He conveys its power and beauty when, for example, he endorses this appraisal of Brooklyn Bridge by Montgomery Schuyler:

It is an organism of nature. There was no question in the mind of the designer of 'good taste' or of appearance. He learned the law that struck its curves, the law that fixed the strength of the relation of its parts, and he applied the law. His work is beautiful, as the work of a ship-builder is unfailingly beautiful in the forms and outlines in which he is only studying 'what the water likes' without a thought of beauty.²⁰

The analogy between designing the bridge and the growth of an organism is telling because so many of the attributes of each process seem to be interchangeable. Still, when all is said, the engineering or architectural process and its product are only like the conception and development of a living organism. It seems odd to have to say so, but a bridge or a building is not a living organism, and there are important differences as well as similarities between the way a man-made structure and, say, an oak tree -- to cite a favorite example of Sullivan's and many other romantics -- comes into being; there is no architectural equivalent for the fact that the oak tree's form is immutably lodged in, and spontaneously, inevitably, emerges from, the acorn or, if you will, the specific genetic code or DNA, of oak trees. Communities, organizations, cities, and whole societies are even less like actual organisms than buildings, and I suggest that the greater the discrepancy between an organism and the object or experience to which Mumford applies the organic metaphor, the more evident will be the figurative, ahistorical, ideological character of the relationship in question.

The ahistorical import of the assumptions underlying Mumford's analytic mode becomes obvious, I think, when we look closely at the terms he applies to technology, especially his concepts of "the machine" and, in his later work, "the megamachine." It may seem perverse to charge Mumford, whose extensive knowledge of the history of technology is widely admired, with treating the subject ahistorically. But here I am not questioning the extent or the quality of his learning. My doubts, rather, have to do with his epistemological assumptions or, to be more specific, with his tendency to impute historical agency to disembodied abstractions -- especially the controlling organic and machine metaphors. It is one thing for a historian to emphasize the role of ideas adhered to by significant social groups, but it is quite another to regard history as driven by unmoored ideas afloat, as it were, above the surface occupied by people and events.

First, however, I want to acknowledge Mumford's illuminating use of the concept of "technics" (rather than "technology") as the umbrella category of tools and utensils that figure in all of recorded human history. The term, borrowed from Geddes, enables him to stress the relatively brief history, hence the distinctiveness, of machine technologies. This is particularly important today, when in popular discourse the word "technology" is assumed to refer almost exclusively to technologies developed in the modern era, since the widespread diffusion of implements driven by various forms of mechanized motive power.

Ever since Technics and Civilization, Mumford has insisted upon the vital importance of a host of ancient, relatively simple technologies (he sometimes refers to them as "domestic" or "democratic") -- utensil-making, basket-weaving, dyeing, tanning, brewing, potting, distilling, etc. -- and the corresponding uniqueness of modernity's characteristically large-scale (he sometimes calls them "authoritarian"), mechanistic, technological systems. Although Mumford does not make a "feminist"

point of the fact, it is noteworthy that these age-old tools and utensils tended to be used by women – or at least when compared with modern machinery, they were much less frequently restricted to use by males. Mumford characterizes these domestic technologies as "organic" in the almost literal sense that they often were designed to be extensions of the human body. Of the many historical triumphs of mechanism over organicism, the most decisive for Mumford almost certainly was that cluster of changes – the onset of modernity itself – initiated by the invention of the clock; it resulted in the supplanting of "organic time," measured by reference to cyclical processes of nature, by abstract "mechanical" or social time. The mechanical clock, as Mumford describes its advent in his deservedly admired chapter on "The Monastery and the Clock," is "the key machine of the modern industrial age."²¹

By the time of Technics and Civilization (1934), Mumford also had set up the crucial distinction between machines, a word he uses to denote "specific objects like the printing press or the power loom," and the machine, a term he would reserve

...as a shorthand reference to the entire technological complex. This will embrace the knowledge and skills and arts derived from industry or implicated in the new technics, and will include various forms of tool, instrument, apparatus and utility as well as machines proper.²²

In this 1934 work, long before he was to extend and elaborate this concept of "the machine," transforming it into the grandiose idea of "the megamachine," Mumford already exhibits his propensity to treat this technological concept as a virtually autonomous agent of history. The peoples of Western Europe had adopted their whole mode of life, he asserts in the third paragraph of Technics and Civilization, "to the pace and the capacities of the machine. How did this happen?" He then rephrases the question, to which the entire book ostensibly is his answer, in this strangely circumlocutious and tendentious question: "How in fact could the machine take possession of European society until that society had, by an inner accommodation, surrendered to the machine?"

If Mumford's attribution of agency to "the machine" -- its capacity to "take possession" of society -- were merely a rhetorical lapse, convention, or affectation, it hardly would be worth mentioning. But it exemplifies an omnipresent tendency, the nub of his approach to history. This becomes more obvious if we leap ahead to The Myth of the Machine (1966) and consider the monumental role he attributes to a newly-coined abstraction related to "the machine," an entity he variously refers to as the "archetypal machine" or "megamachine." Its invention in ancient Egypt, Mumford contends, was the true source of the modern Machine Age and of our "present over-mechanized culture."²³ Here, incidentally, he repudiates the current consensus of historians which holds that the "industrial revolution" of the eighteenth and nineteenth centuries, a complex process involving socio-economic and political as well as technical changes, gave rise to industrial capitalism, and thus represents the watershed of the modern era. According to Mumford, however, it was the ancient Egyptians who laid the groundwork for the "Machine Age" when they invented the "archetypal machine" some five thousand years ago.

This "extraordinary invention" was not a thing or artifact, it was the system the Egyptians devised for assembling, organizing, and disciplining the manpower they needed to build the great pyramids. This novel mode of organization enabled them to perform "work on a scale never attempted before." As a name for this system, "megamachine" (which Mumford translates as "Big Machine") is apt; it is a clear, understandable, familiar metaphoric extension, just as his original term "the machine" is an extension of "machine" in its literal, physical sense. But Mumford does everything he can to divest "the megamachine" of its metaphoric character. Far from being a poetic or figurative expression, this machine, he writes, was "the earliest working model for all later complex machines." He categorically denies that he is invoking a figurative conception when he refers to the Egyptian system as a

megamachine:

Now to call these collective entities machines is no idle play on words. If a machine be defined...as a combination of resistant parts, each specialized in function, operating under human control, to utilize energy and to perform work, then the great labor machine was in every aspect a genuine machine: all the more because its components, though made of human bone, nerve, and muscle, were reduced to their bare mechanical elements and rigidly standardized for the performance of their limited tasks.

This dubious argument deserves close attention because it lays bare Mumford's assumptions about historical agency. Its dubiousness stems from the fact that a system for organizing people to do work, however many attributes it may share with actual machines -- with physical objects like power looms or steam engines -- can no more be a machine than a building can be an organism. This is not to deny that his allusion to the workers as "components...made of human bone, nerve, and muscle" is a powerful trope -- at once paradoxical, hyperbolic, and ironic -- directed against any such impersonal, inhumane, totalitarian organization of people as that devised by the Egyptians. One hesitates to diminish Mumford's frightening and all-too-credible vision of humanity imprisoning itself once again in a deadly power system of its own making. Nevertheless the differences between living, sentient beings and machine components, no matter how enslaved and regimented those people may be, are not insignificant. As rhetoric, of course, the efficacy of Mumford's trope depends on our awareness of the gross disparity between people and machine parts: that is in fact what makes the idea of a repressive, atavistic megamachine so appalling. Yet Mumford also wants us to take literally the idea that the "machine" the Egyptians built out of human parts was the prototype, the actual working model, for all later complex machines. Although he reiterates this astonishing claim at several points in the two volumes, he offers little or no historical evidence in its support.

What shall we make of Mumford's curious insistence on the literal, non-figurative character of the megamachine? The answer lies, I think, in his overall rhetorical

strategy in The Myth of the Machine. After Hiroshima and the intensification of the nuclear arms race he had, as I said earlier, become increasingly alarmed about the potentially catastrophic uses of America's technological power. He no longer could summon the hope he had attached to the latest technologies in the optimistic conclusion of Technics and Civilization. At about the time the United States was getting enmeshed in Vietnam, he evidently decided to focus his monumental two volume survey of Western technology on the impending culmination of the ancient conflict between "organic" and "mechanical" technics. If, as he evidently believes, that conflict is the crux of modern history, then America's "pentagon of power" -- an updated, nuclear-armed version of the Egyptian pyramid-building system -- is its potentially cataclysmic end-product. Hence the importance he retrospectively attaches to the ancient megamachine, with its manifestly totalitarian, death-oriented character, as the precursor of the vast superpower technological systems that dominate global politics in the late twentieth-century. "To understand the point of the machine's origin and its line of descent," Mumford writes,

is to have a fresh insight into both the origins of our present over-mechanized culture and the fate and destiny of modern man... We...see...that from the outset all the blessings of mechanized production have been undermined by the process of mass destruction which the megamachine made possible.

Mumford's delineation of the metaphoric megamachine as a decisive agent of change exemplifies his commitment to an idealist conception of history very much like Emerson's. In The Golden Day (1926) Mumford had cast Emerson, whom he praised for giving "an independent reality to the world of ideas," as the hero of nineteenth-century American culture.²⁴ And then in the 1960s, after coming under the influence of Carl Jung, he imparted the power of historical agency to a free-floating idea of his own devising: an "archetypal machine composed of human parts."²⁵ (Jung held that we have access to such archetypal images in the timeless,

transcendent, shared realm of the collective unconscious.) But it is one thing retrospectively to name the system the Egyptians used to build the pyramids; it is quite another to argue, as Mumford does, that during the intervening five millenia the idea of such a system, or megamachine, had "an independent reality." Not only does he locate the megamachine in the consciousness of the pyramid-builders, but he would have us believe (without presenting any evidence to indicate how, or whether, it was transmitted from epoch to epoch, mind to mind) that that same concept subsequently was present to the minds of the inventors of all complex forms of machinery.

Mumford's idealist epistemology is the philosophic ground for his visionary organicism. A related theme in The Myth of the Machine is his polemic against the excessive emphasis that historians have imparted to technology as a determinant of human development. Mumford rejects the concept of homo faber, arguing that mankind's making of itself -- its symbol and language-making -- has been far more significant than its capacity to manipulate the external world: its tool-making. Implicit in this argument is the separation of human experience into an inner realm of thought, words, symbols, myths, and dreams, and an outer realm of making, things, bodies, technologies, materials or, in a word, physicality. As the post-structuralists have made us aware, such polarities invariably have a privileged term. There is no doubt that Mumford comes down on the side of subjectivity as the more creative, distinctive, admirable sphere of human behavior.

For Mumford the most important and attractive aspect of organicism -- considered as a world view, a source of meaning, value, and historical explanation -- is the primacy it imparts to relatedness, order, or integration in human affairs. His highest intellectual aim is to arrive at a coherent and comprehensive conception of the whole of life, one that might yield the principles needed to order relations among the parts. The problematic character of this universalized organicist viewpoint

becomes most apparent when we shift attention from its aesthetic to its social import. When the norm of "organic form" is applied to collective or social formations -- to institutions, cities, or whole societies -- it takes on implications it does not have when it is applied to the creations of gifted individuals -- to buildings, poems, paintings or other artifacts.

In Mumford's admiring account of the unity and coherence of the medieval city, for example, the idea of order takes precedence over justice, freedom, or equality. He is curiously untroubled by the hierarchical character of the feudal system, or by the mean, unchanging life of drudgery, ignorance, and enforced belief led by much of the peasantry. This complacently conservative medievalism accords with the aloof, patrician tone he adopts in addressing contemporary problems.²⁶ His characteristic prescriptions for urban reform are initiated by elites -- architects, planners, artists, intellectuals -- and effected from the top down. It almost never occurs to Mumford that the legitimate discontent and consequent mobilization of the citizenry might be a source of constructive political action. Anonymous people do not count for much in his view of society. He belongs to that tradition of secularized, highly individualistic, yet essentially religious moral philosophers like Carlyle, Emerson, and Arnold, who rely upon persuasion and exhortation, self-culture and self-transformation, rather than organized politics, as the way to effect change and resolve conflicts.

A conspicuous shortcoming of Mumford's proposals for coping with contemporary problems is the organicist's preference for holistic solutions. Speaking of the architectural standard for a satisfactory modern city, for example, he writes:

The architectural embodiment of the modern city is in fact impossible until biological, social, and personal needs have been canvassed, until the cultural and educational purposes of the city have been integrated into a balanced whole.²⁷

If that is correct, we will have a very long wait indeed for the modern architecture we want. Here, as often, Mumford seems to be saying that nothing can be changed

until everything can be changed. His Emersonian prescription for curing the ills of modern civilization, in The Conduct of Life (1951), is that "we must create a new person, who is at one with nature, and a new concept of nature which does full justice to the person."

With the insights and the methods that are now in use, such a deep organic transformation in every department of life is inconceivable except by slow piecemeal changes. Unfortunately, such changes, even if they ultimately converged on the same goal, are too partial and too slow to resolve the present world crisis. Western civilization needs something more than a drastic rectification of private capitalism and rapacious profiteering, as the socialists believe; something more than the widespread creation of responsible representative governments, cooperating in a world government, as World Federalists believe; something more than the systematic application of science to social affairs, as many psychologists and sociologists believe; something more than a re-building of faith and morals, as religious people of every creed have long believed. Each of these changes might be helpful in itself, but what is even more urgent, is that all changes should take place in an organic inter-relationship. The field for transformation is not this or that particular institution, but our whole society: that is why only a doctrine of the whole, which rests on the dynamic intervention of the human person in every stage of the process, will be capable of directing it.²⁸

Mumford was led to this desperate hope by the inner logic of his visionary organicism. Indeed, the greatest flaws in his work are attributable, finally, to the very doctrine that makes it distinctive. It gives his best writing an inspiring moral force, a principled resistance to large and oppressive systems of power, that puts to shame the timid micro-empiricism that reigns over much of our intellectual life. Yet his commitment to that essentially metaphysical doctrine also accounts for the increasingly apocalyptic tenor of his writing about technology after World War II. He then came to believe that the spirit of mechanism, embodied in a militarized megamachine, was on the verge of total victory in its age-old struggle with organicism. The situation had become so desperate, he now felt, that our only hope was a massive transformation of human consciousness. There is more than a touch of messianism about his insistence that only his own creed, "only a doctrine of the

whole," can save humanity from self-destruction. We have learned many things from this courageous writer, but perhaps the most important may be a cautionary message about the dangers of treating large abstractions as autonomous agents of history.

Endnotes

1. "The Case Against Modern Architecture," in The Lewis Mumford Reader, ed. Donald L. Miller, (New York: Pantheon Books, 1986), p. 82.
2. Ibid.
3. Rereading The Golden Day now one realizes that Mumford was more influential than has been generally recognized in shaping the canon of classic American literature that took form around the time of World War II and has now come under attack for its narrowness. Fifteen years before F. O. Matthiessen's American Renaissance (1941), often cited as the most influential single work in shaping that version of the canon, Mumford had focussed upon the same five writers -- Emerson, Thoreau, Whitman, Hawthorne, and Melville -- singled out by Matthiessen. In his Preface, to be sure, Matthiessen acknowledges that debt to Mumford, but he fails to mention Mumford's prior emphasis on one of his own major themes, namely, the "organic principle" as a decisive moral and aesthetic standard to which many nineteenth-century American artists, artisans, architects, and writers were committed.
4. Jacoby contends that the role of "public intellectual" has been rendered obsolete by the triumph of academic specialization. The Last Intellectuals: American Culture in the Age of Academe (New York: Basic Books, 1987).
5. Thomas S. W. Lewis has reviewed Mumford's uneasy relations with the world of professional scholarship in "Mumford and the Academy," Salmagundi, 49 (1980): 99-111.
6. International Encyclopedia of the Social Sciences, 2d ed., s.v. "Patrick Geddes."
7. The Myth of the Machine, Technics and Human Development (New York: Harcourt, Brace & World, 1966), pp. 16-7.
8. Mumford wrote the letter in 1926, the year after the publication of Whitehead's book. My Works and Days, A Personal Chronicle (New York: Harcourt Brace Jovanovich, 1979), p. 113. The "solution" with which he credited Whitehead was to give precedence to the biological, or "organic" properties of the environment over those of "mechanism." He said that Whitehead's book "indicates the important modification of the old physical concepts by biology...." There seems to be a close affinity between this line of thought and the idea of "organismic biology," or "organismalism" (a term coined by the zoologist W. E. Ritter in 1919), which enjoyed a considerable vogue during the 1920s. Although this doctrine is like vitalism in its insistence on a teleological concept of reality, it does not, like vitalism, posit the existence in the organism of some nonphysical but substantial entity. Organismic biology, in short, carries none of the mystical or supernatural implications of vitalism. See The Encyclopedia of Philosophy, s.v., "organismic biology."
9. Science and the Modern World (New York: Macmillan, 1925), p. 111, p. 138. For a comprehensive theory of romanticism as having at its center "the shift from conceiving the cosmos as a static mechanism to conceiving it as a dynamic organism," see Morse Peckham, "Toward a Theory of Romanticism," Publications of the Modern Language Association, 66 (1951): 5-23. The concept of "the machine" and "the organism" as two of the four crucial "root metaphors" of human thought is advanced

by Stephen C. Pepper in World Hypotheses, A Study of Evidence (Berkeley: University of California Press, 1942). The concept of "the machine" and "organism" as two of four universal "root metaphors" is advanced by Stephen C. Pepper in World Hypotheses, A Study in Evidence (Berkeley: University of California Press, 1942).

10. A version of this opposition which has many close affinities with Mumford's social views (and to which he refers in The City in History) is the nineteenth-century German sociologist Ferdinand Tonnies's famous distinction between "Gemeinschaft" and "Gesellschaft," between, roughly, community (a relatively small-scale, traditional mode of organization based on "natural will" which "should be understood as a living organism") and society (a larger-scale, bureaucratic form of organization based on "rational will" which should be understood "as a mechanical aggregate and artifact"). See Ferdinand Tonnies, Community & Society, Charles P. Loomis, ed. and tr. (East Lansing: Michigan State University Press, 1957), p. 35. There are a number of similar formulations in nineteenth-century social thought, each in essence a binary system more or less homologous with the distinction between organism and machine, or between organic and mechanic form, including Maine's concept of status and contract societies; Spencer's militant and industrial forms; Durkheim's organic and mechanical solidarity; Cooley's primary and secondary groups; Odum's folk and state; and Redfield's folk-urban continuum. For an interesting comparative analysis of these conceptions, see John C. McKinney and Charles P. Loomis, "The Application of Gemeinschaft and Gesellschaft As Related to Other Typologies," in Tonnies, Community & Society, pp. 12-29.

11. For a useful summary of Geddes's biological ideas, see Jill Conway, "Stereotypes of Fertility in a Theory of Sexual Evolution," Victorian Studies, 14 (1970): 47-62.

12. Donald A. Stauffer, ed., The Selected Poetry and Prose of Samuel Taylor Coleridge (New York: Random House, 1951), p. 432.

13. "The Case Against 'Modern Architecture'" first appeared in Architectural Record in 1962, and is reprinted in Miller, The Lewis Mumford Reader, pp. 73-83.

14. "Principles of Medieval Town Planning," in The City in History (New York: Harcourt, Brace & World, 1961), pp. 299-305.

15. "The Structure of Baroque Power" in The City in History, pp. 344-74.

16. The Pentagon of Power (New York: Harcourt Brace Jovanovich, 1970), p. 430.

17. Quoted by Donald Miller in the manuscript of his forthcoming biography of Lewis Mumford, p. 295, which he graciously allowed me to read.

18. One of the chief claims for the superiority of organic systems rests upon their allegedly "holistic" character -- the fact that the functioning of the whole organism cannot be understood as the mere sum of the functioning of the parts. No part of a bird can fly. The implication is that in an organic system the whole is everything, the parts nothing, whereas in a mechanical system the whole is nothing more than a collection of parts. But is it clear that the functioning of a complex machine is, in this sense, any less holistic? No part of an airplane can fly either. See Beckner, op. cit.

19. The Lewis Mumford Reader, p. 65.
20. The Brown Decades: A Study of the Arts in America, 1865-1895 (New York: Dover Publications, 1971), pp. 46-7.
21. Technics and Civilization (New York: Harcourt, Brace & Co., 1934), pp. 12-18.
22. Ibid., p. 12.
23. The Myth of the Machine: Technics and Human Development (New York: Harcourt, Brace & World, 1966), p. 189. The quotations on "the megamachine" that follow are drawn from pages 189-211.
24. The Golden Day: A Study of American Literature and Culture (Boston: Beacon Press, 1957), p. 49.
25. Myth of the Machine, p. 11. Donald L. Miller confirms the fact that Mumford was studying Jung in the early 1960s.
26. When applied to social systems, "organic" often takes on the import of "natural," hence an organic society is one that has grown rather than been made; the conservative implications are indicated by its use, in the work of Burke, Carlyle, Coleridge, and many others, in criticizing revolutionary programs or societies as "artificial," in opposition to the "natural," usually hierarchical and patriarchal, order of things; and this later was extended to the contrasts between primarily agricultural and primarily industrial (or mechanical) social systems. See "Organic," in Raymond Williams, Keywords, A Vocabulary of Culture and Society (New York: Oxford University Press, 1976), pp. 189-92.
27. Mumford, "The Modern City," Forms and Functions of Twentieth-Century Architecture, ed., Talbot Hamlin (New York, Columbia University Press, 1952), IV, 797.
28. The Conduct of Life (New York: Harcourt, Brace & Co., 1951), pp 223-4. Emphasis added.