# Design and the New Rhetoric: Productive Arts in the Philosophy of Culture[1]

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In a seminal article on the study of rhetoric in the Middle Ages, Richard McKeon proposed a strategy for inquiry that illuminated the development of the art in a period where traditional histories had found little of intellectual significance.[2] He argued that instead of studying rhetoric as a simple verbal discipline with a more or less constant subject matter drawn from style or the interpretation of the works of poets and orators or the law, one could study the changing conceptions of subject matter and purpose by which rhetoricians thought to distinguish and oppose their doctrines. By studying the basic philosophic differences that are implicated in changing conceptions of rhetoric, one could discover intelligible patterns in the development of the art that otherwise may appear whimsical, haphazard, arbitrary, or merely verbal. What followed was the discovery of how the doctrines and devices of rhetoric in the Middle Ages spread with little recognition to subject matters far from those ordinarily ascribed to it. McKeon summarized the patterns in three lines of intellectual development. First was the tradition of rhetoricians themselves; second was the tradition of philosophers and theologians; and third was the tradition of logicians. The article concludes with a discussion of how these lines of development were extended in the Renaissance, with implications for the changing relationship of art and science that continues to unfold in the twentieth century around the development of technology.

What would a study of rhetoric in our own period look like if rhetoric were explored by McKeon's strategy? Among rhetoricians the record of past meetings of organizations such as the Rhetoric Society of America provides evidence for how the lines of intellectual development revealed by McKeon are extended in contemporary culture. For example, we find continuing attention to the study of rhetoric as a simple verbal discipline

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with a more or less constant, traditional subject matter of style and literature. The problems of writing and speaking remain with us, and the traditional resources of rhetoric continue to inform new investigations. In addition, we find growing interest in expanding rhetorical studies to incorporate the interpretation of new kinds of literature as well as other creative works in the cultural arts, philosophy, and the sciences and technology. These studies are often innovative, though they are also easily recognized as an extension of traditional rhetorical arts. As Thomas Conley has remarked, "the present in rhetorical studies is prelude to an encouraging future."[3]

Following McKeon's strategy, however, the study of rhetoric in our period would not stop with the work of formally recognized rhetoricians and scholars of rhetoric. McKeon argued that rhetoric is an unusually clear example of a general tendency among the arts and sciences for doctrines and devices to move across disciplinary boundaries and stimulate innovation in new circumstances. Rhetoric provides this example precisely because it is universal in scope and shared among all intellectual disciplines. Furthermore, only rhetoric is traditionally characterized from antiquity by many of its leading theorists and practitioners as an art of invention and discovery. Whatever their primary focus in subject matter and purpose, all disciplines are concerned at some point with invention and the eventual disposition of inventions in a medium of communication and application. Therefore, it is only proper that whatever our concern about the problems of writing and speaking well, rhetoricians should also direct their attention to innovations in other fields and disciplines, particularly sensitive to the movement of their own doctrines and devices and the consequent innovations that have occurred as a result. The focal question is one of the central issues that concerned McKeon in his study of rhetoric in the Middle Ages. How may we profitably consider the many innovations that have occurred in fields far removed from those traditionally associated with rhetoric, but with a degree of independence from the field in which they are usually celebrated?

This is what McKeon himself pursued in his philosophical investigations of rhetoric in the twentieth century, and it formed a central theme in his contributions to the philosophy of culture. He combined philosophy and rhetoric, creating an art of philosophic inquiry directed toward all communication, whether in the tradition of rhetoricians or in that much wider community of inquiry that encompasses all of the arts and sciences. He explored innovations in a wide range of fields, using a philosophically informed understanding of the uses of rhetorical doctrines and devices.

Among these fields, however, we have good reason to focus on one area of innovation in particular. This is the area of technology, where philosophy, science, and art have joined to bring about a revolution in human culture whose full significance we are far from understanding. The problems of technology attract little theoretical or practical attention from traditional rhetoricians,who regard words as the subject matter of their art. Indeed, the development of technology remains obscure to many humanists, who struggle to find their place in technological culture yet often settle for superficial critique, without closely examining how technological innovations come to be or how they are transformed into the products that influence our lives.[4] Yet, following McKeon, we may profitably consider technology from the perspective of rhetoric and its closely related discipline in our time, design.

McKeon's speculations on rhetoric and technology are tantalizing. In "The Uses of Rhetoric in a Technological Age," he provides a new way of thinking about both rhetoric and technology, upsetting many preconceived notions about the nature of human-made products and the productive sciences in the contemporary world.[5] He suggests that the direction for exploring technology should be evident in the term itself. "The architectonic productive art in an age of 'technology' is obviously technology itself given a rhetorical transformation." He then demonstrates how the technology of rhetoric—*technologia* in the lexicon of ancient liberal arts—moved from a practical orientation in the Roman period, focused on the creation of a system of laws, to a poetic orientation in the Renaissance, focused on the creation of *belles lettres* and *beaux arts,* to a theoretic orientation in the modern period, where the productive power of rhetoric has been transformed in new ways of knowing, doing, and making. The theoretic orientation to which he refers is not simply theory pursued for its own sake or for the sake of knowledge detached from its operative force in situated inquiry. It is theory as understood in the tradition of American pragmatic philosophy and in the tradition of rhetoric: theory as it is employed in the human community in a search for knowledge and in the promotion of new action and creation.

McKeon goes on to argue that the new rhetoric should provide the pathways for bringing theory into concrete experience. "In an age of technology the diremption to be removed is the separation of theory and practice by the constitution of a technology which is theory applied, the *logos* of *techne.*" Following this line of thought, he argues that the new rhetoric of our time should once again become a universal art, reuniting things and words—*res et verba.* It should combine the resources used to explore ver-

bal rhetoric with the issues and subject matters of philosophy and the sciences, where "science" is used in the broadest sense to include the natural and social sciences as well as the productive sciences of human making.[6] "The new architectonic productive art should become a universal art, an art of producing things and arts, and not merely one of producing words and arguments . . . " The remainder of the article is an elaboration of the methods and fields of the new rhetoric, with surprising insights into the directions that rhetoric may take in understanding the issues of our time.

McKeon never discusses the concept of design in relation to the new rhetoric, but it is not difficult to explain why design has emerged in the decades since McKeon's work as a proper focus of attention for understanding some of the directions of new rhetorical thinking.[7] Design has begun to function as an architectonic productive art along the lines that McKeon projects. In essence, design offers a pathway for bringing theory—ideas about the nature of the world and how we should live our lives—into closer relationship with practical action and the creation of diverse kinds of products and experiences. Nonetheless, there are strong barriers to understanding the significance of design in the contemporary world. One of the commonplaces that remain with us as a legacy of the Renaissance is a distinction between the fine and useful arts. The fine arts were associated with the liberal arts and mathematics, usually representing a vision of a Platonic ideal. In contrast, the useful arts were regarded as servile, materialistic, and lacking the degree of thought that belongs to mathematics and the liberal and fine arts. The creation of *belles lettres* and *beaux arts* is usually celebrated as an achievement of the rhetorical tradition, under the influence of Plato, Cicero, and Aristotle. But this achievement, once significant for Western culture, seems less relevant for many contemporary problems associated with science and technology. Indeed, one could argue that the Renaissance vision of the liberal arts has decayed into a new separation of words and things that has proven nearly disastrous—in Dewey's words—for our ability to understand, let alone discuss or shape, new technologies in the twentieth century that support practical life.[8] It has tended to cut off the resources of humanism and the rhetorical tradition from discussions of the development of science and technology.

McKeon would argue, of course, that the doctrines and devices of rhetoric have quietly operated as a significant source of innovation in science and technology since the Renaissance, and he has sound evidence for this, developed as an important theme in the article we have just discussed as well as in many other writings. However, traditional rhetoricians have

been slow to recognize their resources for exploring the new directions of technology. For example, they have not considered the possibility that designers are the agents of rhetorical thinking in the new productive sciences of our time. Nor have they considered the way in which design—as the intellectual and practical art that provides discipline in the creation of the human-made world—employs rhetorical doctrines and devices in its work of shaping the products and environments that surround and persuasively influence our lives to an unprecedented degree.

One step in this direction is to sketch the framework for a rhetorical study of design, suggesting the outlines of inquiry and the rhetorical themes that are already significant among designers and those who study design. For this purpose, we may use the four *quaestio* or rhetorical questions that identify the master issues in the development of any argument, idea, art, or other subject.[9] The study would progress from issues of fact and existence, name and definition, and nature and qualification to issues of cause and action, tracing the central points of debate and the alternative perspectives that have emerged with significant consequences for theory, practice, and production.[10]

The issue of fact or existence—expressed in the question "is it?"—may be answered by a brief history of design. The origins of design are easily traced to the ancient and prehistoric world, but for most writers design first emerged as a distinct activity with the Industrial Revolution, when the conception and planning of products were firmly distinguished from the means of machine production and manufacturing. The invention of machines for serial and mass production meant that the same person who made objects by craft techniques in the past no longer performed the function of design. Craft production continues to this day, but it is a relatively minor and often expensive activity, even in countries that are at a relatively early stage of economic development. Ironically, craft survives in a significant form within the practices of engineering design, computer programming, and other branches of design such as graphic and industrial design, despite efforts to reduce the activity of designing to a predictive science.[11]

If design emerged as a distinct, recognizable activity only with the Industrial Revolution, it emerged as a distinct discipline only in the late nineteenth and early twentieth centuries. For many people, the beginnings of the discipline of design are associated with the Bauhaus, because it was Walter Gropius who formed the idea of a "modern architectonic art" that would be all-embracing in scope, concerned with "evolving all of the goods

and buildings specifically designed for industrial production."[12] However, the discipline and professions of design were in formation not only at the Bauhaus but in many other locations, including the Carnegie Institute of Technology in the United States, where the first degree-granting program in industrial design in the world was established in 1934. Perhaps the most important point for our discussion is that design, like rhetoric, was practiced as a craft and profession before it became a subject for theoretical speculation. Design emerged as a distinct discipline or art out of the practices of tradespeople and a variety of professionals in other fields. Mass communication and mass production led to the creation of the professions of graphic design and industrial design. This subsequently led to a proliferation of other design professions, each now established with professional societies and organizations, and the proliferation continues to this day as the application of design thinking expands in innovative directions. The case of engineering design follows essentially the same pattern but begins at least a century earlier.[13]

The issue of name or definition—expressed in the question "what is it?"—is answered by an initial characterization of design that fixes it as a subject for further investigation. In the case of design this has not been a provocative issue, and the significance should not pass unnoticed among rhetoricians. There is surprising agreement on the name "design" as the proper term for a vast body of work in the contemporary world. Indeed, the term continues to expand in its legitimate usage, extending beyond graphics and industrial objects to embrace the conception and planning of activities and services as well as environments and systems. Design is the term commonly used today to describe the invention, planning, and realization of both tangible and intangible products, including all of the digital products that now exist alongside traditional analog products. The term extends in its application to the planning of software, information and knowledge systems, and to the physical hardware systems that we usually describe as primary examples of "technology," following the restricted meaning of "technology" that one usually finds in the twentieth century.

In contrast, the issue of nature or qualification—expressed in the question "of what kind is it?" or "how is it qualified?"—has been an issue of intense discussion and controversy throughout the twentieth century among designers and those who study design. Debate around this issue focuses not on an initial commonplace definition of the term—which is simply agreement on a name—but on more precise definitions that seek to characterize the identity of design and explain its similarities and differ-

ences among other disciplines. It focuses on the identity of design as a discipline—a body of specific practices, methods, and ways of thinking—and as a body of products.

This is obviously the most complex issue in understanding design, and it has formed the backbone of the design community, connecting design practice and design studies—history, criticism, empirical research, and theory—in many ways. The increasing sophistication and vigor of the debate now attract scholars from other fields who have begun to recognize the cultural significance of design and its potential for framing new problems for inquiry, which could have not only theoretical importance but practical impact on how we lead our lives. The reason for this is not difficult to discover. As the exploration of design deepens, its connection to diverse bodies of knowledge grows more apparent and complex. The protracted debate in the early and middle decades of the twentieth century about whether design is a fine art or a science has given way to more sophisticated discussion about how design integrates knowledge and insight from many other disciplines—the fine arts, the humanities, the social and behavioral sciences, and engineering and the natural sciences—in order to accomplish its work. This has led to greater coherence in understanding the discipline of design and to its establishment as a field of research. Indeed, there is now discussion concerning whether design is emerging as a new liberal art of technological culture, manifested in many forms of professional practice but also providing a broad intellectual perspective on the human-made world that all men and women may use in action or reflection. Perhaps this is what McKeon meant when he spoke of the need in our time for new integrative arts that overcome the fragmentation of knowledge gained in the specializations of science and the humanities.

Whether design is a new liberal art in formation, the problem we face is how a rhetorical study of design may help to clarify the nature of design in the contemporary world and contribute to its continued formation along humanistic lines. This may also help to turn the idea that design is an emerging liberal art into a concrete reality so that designers and all men and women may participate with clearer purpose in the creation of the human-made world. Arguably, this could be one of the great Ciceronian projects of our time, in accord with the new Ciceronianism that Thomas Conley observes in the work of philosophers as diverse as McKeon, Toulmin, Perelman, and Habermas.[14] Certainly it would be an echo of the influence of Ciceronian rhetoric on the development of Roman architecture in the work of Vitruvius. The task is to bring the pluralism of human-

istic values and understanding to bear in planning our cultural environment through all of the products of science, politics, and art that human beings are capable of making. This seems to be the goal that McKeon proposed when he outlined the new rhetoric as a productive art: "it opens up possible methods of directing and relating knowledge, action, and production, by instituting an architectonic productive art of improving and increasing both the production of utilities and goods (*utilia* and *honesta*) and the use and enjoyment (*uti* and *frui*) of the products."[15]

The rhetorical uses of definition offer a good beginning point for clarifying the nature of design. For rhetoricians, definitions serve strategic and tactical purposes in inquiry. They do not settle matters once and for all, as many people seem to believe they should. Instead, they allow an investigator or a group of investigators to clarify the direction of their work and move ahead with inquiry in a particular thematic direction. Rhetoricians recognize many kinds of definition, ranging from commonplace definitions of ordinary usage to descriptive and formal definitions. Commonplace definitions are adequate for settling the issue of name, but descriptive and formal definitions serve to identify a direction for thematic investigation of the nature of a subject. Descriptive definitions, for example, tend to identify a single primary cause of a subject and point toward how that cause may be explored in greater depth and detail, allowing an individual to create connections among matters that are otherwise not easily connected. When designer Paul Rand says, for example, "Design is the creative principle of all art," he identifies individual creativity as the most important cause of design. In similar fashion, when cognitive psychologist Herbert Simon says, "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones," he identifies cognitive processes of decision making as the key to understanding design. There are many descriptive definitions of design, and they are as varied as the insights of human beings and as varied as the causes that may account for design.

Formal definitions are somewhat different. They tend to identify several causes and bring them together in a single whole, suggesting relationships that may be explored through further inquiry. Functional integration is the primary principle of such a definition, rather than the separate causes considered in isolation. There are fewer formal definitions of design than descriptive definitions, but formal definitions play an important role. They serve to establish the boundaries of a field and relate many otherwise separate lines of inquiry in a common enterprise. One formal definition that

may serve this purpose is the following: "Design is the human power of conceiving, planning, and making products that serve human beings in the accomplishment of any individual or collective purpose."[16] Whether this is an immediately compelling definition—formal definitions are seldom as dramatic or vivid as a good descriptive definition—it does bring together the variety of themes and causes that are explored in the study and practice of design. If we wish to consider Aristotle's four causes for a comparison with his definition of rhetoric, the formal definition of design identifies: (1) the creative capacity of individual designers as an efficient cause; (2) the sequence of goals around which the methods of design thinking and practice have taken shape as a final cause; (3) the outcome of the design process in products that serve human beings as a formal cause; and (4) the subject matter of design as found in any of the activities and purposes of human beings as a material cause.[17] The lack of further specification in the material cause is significant, because design, like rhetoric, may be applied with regard to any subject. Design has no fixed subject matter, which explains why it continues to evolve in a surprising array of new applications and extensions. In essence, the definition suggests that design is an art of invention and disposition, whose scope is universal, in the sense that it may be applied to the creation of any human-made product. This makes of design an art of forethought, as traditional rhetoricians perhaps regard their discipline as an art of forethought in verbal communication.

At this point we may begin to ask whether design is a modern form of rhetoric—or whether rhetoric is an ancient form of design. Although we tend to think of the products of design as artifacts—graphics and industrial objects—there is nothing in our formal definition that would forbid us to consider traditional verbal rhetoric as a species of design. This inversion may seem strange and unfamiliar, yet it accords with our understanding of how information is shaped in persuasive argumentation and how, in contemporary life, it often emerges in new products of technology. If rhetoric provides systematic forethought in all of the distinct forms of making in words, why should it not be considered an art of design?[18] Before addressing this issue further, however, it is wise to continue our sketch of the framework for a rhetorical study of design. Perhaps as we consider the use of rhetorical doctrines and devices in the emerging art of design we will come to a better understanding of the relationship between rhetoric and design.

One direction for further rhetorical investigation is easy to imagine. It involves the study of verbal communication in the design process. This

is an innovative, though easily predicted, extension of traditional rhetoric. We see evidence of the beginnings of this work in a variety of recent papers, articles, and doctoral dissertations.[19] The importance of such work should be apparent, since designers are deeply concerned with persuasion and negotiation in all of the matters that they seek to advance with clients and the general public. The problem of verbal argument in design—including the supporting use of images, diagrams, and prototypes—is significant today precisely because designers seek a middle course between the analytic and statistical arguments of engineers, marketing experts, and social scientists and appeals to the higher authority of intuition that were often made in the early days of design and continue among some designers today, represented in the phrase "trust me."

Following McKeon's strategy, however, we should also study the ideas and methods that have shaped the discipline of design over the past century and that will continue to shape it in the next century. Here, in the growing body of design literature and in the working discussions and practices of professional designers, we find the rhetorical doctrines and devices that would otherwise be neglected in a traditional history of rhetoric considered merely as a verbal discipline. In pursuing this matter, however, we should be cautious in applying verbal language as a model for understanding the practices and products of design, as a traditional rhetorician is perhaps tempted to do. If we mean by language only words, then the effort will yield little more than a superficial understanding of the nature of products or of design thinking. But if we recognize language as symbols in a variety of modes of expression, then we may have found a way of gaining access to some of the most significant parts of design.

John Dewey provides the bridge that we need. He writes, "Where written language and literacy abound, the conception of language is likely to be framed upon their model. The intrinsic connection of language with community of action is then forgotten. Language is then supposed to be simply a means of expressing or communicating 'thoughts'—a means of conveying ideas or meanings that are complete in themselves apart from communal operational force."[20] In contrast, he suggests an approach in which language has a broader meaning:

In this further discussion, language is taken in its widest sense, a sense wider than oral and written speech. It includes the latter. But it includes also not only gestures but rites, ceremonies, monuments and the products of industrial and fine arts. A tool or machine, for example, is not simply a simple or complex physical object having its own physical prop-

erties and effects, but is also a mode of language. For it says something, to those who understand it, about operations of use and their consequences. To the members of a primitive community a loom operated by steam or electricity says nothing. It is composed in a foreign language, and so with most of the mechanical devices of modern civilization. In the present cultural setting, these objects are so intimately bound up with interests, occupations and purposes that they have an eloquent voice.[21]

We need not explore the implications of Dewey's ideas about language for the practice of traditional rhetoric, except to observe that in Dewey's approach, words and things are not as strongly divided as they have been in other approaches to rhetoric over the past hundred years or more. More to our present purpose is the implication of these ideas for understanding the nature of products in design thinking, for this is a key issue that McKeon addresses in his paper on architectonic productive arts, and it is the issue that is likely to be the primary obstacle for traditional rhetoricians in understanding the importance of design.

It is a commonly held view that most of the products that surround us in our daily lives are ephemeral in nature, trivial in their significance, and lacking in substantial intellectual content or value. While there is surely some truth in this, the same could also be said for most of the words that surround us in various media and in our daily conversations. We are culturally prepared to see through the ephemeral aspect of words and give serious attention to verbal communication, but we ignore the serious study of other human-made products, except the most refined examples of the fine arts. This attitude has led many people to reduce design to a superficial, almost mindless, manifestation of underlying social and economic forces in consumer culture.[22] Indeed, we have so little grasp of the nature of products that we lack a commonly understood vocabulary of terms to describe them—and we believe that products come to be in some simple practical application of theoretical principles drawn from the sciences. Even among engineers and computer scientists, there is sometimes a surprising degree of misunderstanding about how technological ideas are transformed into true products—what we may call "whole products," to distinguish the fully realized product from the many products that are only partially realized. Our universities and government research organizations are comfortable with the relationship between basic and applied research, but they are ill prepared to recognize the intellectual gulf that exists between applied research and the development of successful products, as judged by whatever criteria we may employ. A new technology does not lead automatically to

the creation of successful products. This step depends on the expertise of design and "making," where knowledge from many fields must be integrated in the product development process. Our universities are comfortable with basic research, and many institutions tolerate applied research. But only a handful of universities have begun to recognize production or "making" as a domain of significant problems and expertise that also require investigation.

Products have persistent consequences in the behavior of human beings, whether we consider a product's style or its deeper synthesis of technological reasoning. This is why the establishment of criteria for successful products is one of the central "wicked problems" of design thinking today.[23] It is essentially a political problem of competing values and priorities that designers must learn to navigate with integrity. The typical view of design as a styling of the appearance of products is a serious misconception of the actual work of the designer. It is comparable to the popular view of rhetoric as the mere styling of verbal expression. For both arts, the deeper work lies in the invention and disposition of form and content.

In approaching design from a rhetorical perspective, our hypothesis should be that all products—digital and analog, tangible and intangible—are vivid arguments about how we should lead our lives.[24] The arguments provide alternatives for the short-term tasks and activities of everyday living, but they also have long-term implications that are subtler and less easily understood.[25] Products embody cultural values and knowledge drawn from many fields of learning, and products express values and knowledge in a complex debate conducted not in words but in nonverbal language. Of course, we are referring to the classic products of design, found in graphic communication and industrial objects. But the hypothesis also applies to the newer, more complex products of the digital medium. The new digital or electronic medium, whose rhetorical forms are now under creation in the leading design schools and in industry, represents a blending of modes of communication, a synthesis of images, words, and artifacts, and a blending of actions, environments, and systems of use that are both physical and cultural. If we recognize, as McKeon seems to suggest, that products also include the works of science and politics—the construction of scientific theories and the organization of behavior in institutions—then some form of design thinking touches all aspects of contemporary culture, creating a vast terrain for debate about how we should lead our lives.

This idea becomes concrete when we consider the features of products that make them persuasive and influential. This, too, is an area where

many of the doctrines and devices of rhetoric have quietly spread with innovative consequences for teaching, research, and theory. To illustrate, we may briefly consider how the classical themes of logos, pathos, and ethos have emerged in design theory to focus attention on features of products and aspects of design practice. The specific rhetorical terms are not common among those who practice design, but they have begun to receive explicit attention among some design theorists—and, certainly, the doctrines and devices that these terms represent are more widely understood and explored by professional designers than traditional rhetoricians may suspect.[26]

Logos for the rhetorician is the intelligent, rational argument of a speech or a discourse. For the designer, logos is technological reasoning or the intelligent structure of the subject of their design. If there ever was a time when designers disguised their work by describing it in terms of style and aesthetic form alone, that time is past. Form and content are explored in close relationship, and designers are required to gain a surprisingly high level of understanding of subject matter, drawing on the natural sciences and engineering as well as the social sciences. For example, engineers are sometimes surprised by the extent of an experienced designer's understanding of mechanical principles. Where designers do not have mastery of a subject, they have become adept in collaboration with engineers, computer scientists, or content experts. Success in resolving the problem of logos, or technological reasoning, means that a product is useful in performance. It is capable of doing its work.

Pathos for the rhetorician is the strand of argument that appeals to the feelings and social circumstances of the audience. It is quite similar for the designer, who seeks to incorporate features that appeal to specific groups of individuals. However, pathos is also captured by the designer in the concept of "affordance," which has come to mean the suitability or "fit" of a product to the intended user or community of use, whether this involves physical, cognitive, emotional, or cultural features and adjustments. Affordance is how a material—whether a natural material or the refined material of a product—is made suitable to human use. From a technical perspective, a machine may indeed be capable of performing a certain mechanical function; but unless we can operate the machine—and wish to operate it because it is culturally acceptable—nothing can be done. A useful analogy with traditional rhetoric may lie in the transformation of the three-part logical syllogism into an enthymeme or, as Cicero himself suggests, into a five-part syllogism. In either case, the transformation takes

place because the speaker seeks to make the reasoning accessible to an audience. Similarly, doors exist in buildings in order to give people access to the architectural structure. Success in solving the problem of pathos, or affordance, means that a product is usable by a human being.

Finally, ethos for the rhetorician is the implied character of the speaker, leading to a special relationship with members of the intended audience. For the designer, ethos is often characterized as the "voice" of a product, which means the implied character or personality of the manufacturer as it is represented in a product and as it creates a relationship of "identification" with those who use a product. "Branding" or "brand name" is another term associated with ethos for the designer, but branding refers to voice as it is sustained across a range of products from the same manufacturer—and, thus, it is often an "inartificial" proof of the quality of a product. Aesthetics is part of the concern in shaping "voice," but only a part. Formal aesthetics appeals to a relatively small number of people, and the range of aesthetic styles in design is exceptionally wide, with no agreed-upon standard of quality. Rather, aesthetics is perhaps best viewed as an expression of the voice of the designer or the manufacturer. The appeal of aesthetics lies first in the kind of identification we feel with the voice of the product. Products that are "beautiful" appeal only to a small number of people, whose tastes and preferences are shaped by cultural circumstances. When aesthetic quality becomes so compelling that it is the sole focus of attention, the product is often regarded as a work of fine art—which is how such products have entered museums. That this happens at all in useful products—and it does to a surprising degree in the work of the best designers—is perhaps a sign of the human capacity for the appreciation of aesthetic experience that is unalloyed with practical demands.[27] Success in solving the problem of ethos, or voice, means that a human being may identify with the product and that the product is desirable.[28]

If a product is persuasive in the debate about how we should lead our lives, it is so because a designer has achieved a powerful and compelling balance of what is perceived to be useful, usable, and desirable. The concept of balance is strong among many designers, who sometimes describe it as the "designer's stance." Of course, we may quickly recognize the affinity between the designer's stance and what Wayne Booth describes as the "rhetorical stance."[29] Furthermore, the typical corruptions of the designer's stance parallel the corruptions of the rhetorical stance that Booth describes. Excessive emphasis on technological reasoning often betrays the dominance of engineering or computer science in the product develop-

ment process. Excessive emphasis on appealing to the consumer often betrays the dominance of marketing experts or, increasingly in product development, social and behavioral scientists. And excessive emphasis on style and product voice often betrays the dominance of those designers who regard themselves as expressive fine artists. There is little need to cite examples because weak products are as ubiquitous as poor writing.

What is more significant is the issue of what the appropriate balance should be in a particular product or in products in general. This is one of the most complex problems in design, and it is a problem precisely because of the pluralism of competing visions and philosophies of design that have existed since the earliest days of design practice. Designers hold a wide range of philosophical beliefs about the nature of the world and the place of human beings within it, and their beliefs are often clearly evident in the features of the products that they create. This reflects the significance of the idea that design combines logos and techne. Indeed, this is our central claim about the development of rhetorical themes in design: products are arguments about how we should lead our lives. Designers are engaged in a humanizing of technology that goes beyond the work of engineers and computer scientists, and the concepts and devices of rhetoric have provided many of the instrumentalities needed for this work. The intentions of designers and their clients are exceptionally diverse, accounting in part for the wide array of products that surround us in our daily lives. In turn, the expectations of human beings are also exceptionally diverse, accounting for another part of the array of products in contemporary life. Design has arisen to provide the mediating middle of our culture in this debate, much as verbal rhetoric provides the mediating middle among competing ideas expressed in verbal discourse.

Rhetorical and philosophical studies of the pluralism of design thinking would be a significant contribution to further development of design and to its understanding among people outside the field.[30] The pluralism of philosophies of design is one reason that the nature of design as a discipline has remained ambiguous throughout the twentieth century. Nonetheless, there has been a gradual convergence of design thinking around the designer's responsibility to the human beings who use their products—to what we sometimes call the "community of use" in order to emphasize the humanism that is missing in terms such as "user" and "consumer." There are, of course, sharply different ideas about what these responsibilities are and how they may be best fulfilled. But the focus on human beings again suggests how rhetorical themes have entered design in theory and practice.

The nature of design is partly revealed in the qualities of products. But it is also revealed in the processes of design thinking that lead to the creation of products. There is little agreement among practicing designers or design educators about what constitutes the precise pattern of the design process. The pattern is usually described in terms of procedural steps, but there is little agreement on the number or what they are. Indeed, this is an area of intense discussion and research in the design community, represented in a long literature. Practice is highly idiosyncratic and typically influenced in subtle ways by the philosophic perspective of the designer. However, the different procedures of designing seem to converge in a set of fundamental arts of design thinking. The arts bear a close relationship to the methods that McKeon outlined as central to the new rhetoric.

First, designers are fundamentally concerned with the conception or invention of new products, and their discussions have yielded a rich variety of common and proper places that they employ in generating possible innovations.[31] Second, designers are concerned with judgment, which means selecting among possible inventions or product concepts those that are potentially viable as constructs in particular circumstances and under given conditions. The problem of selection and judgment is properly a preliminary form of decision making, concerned with the interpretation of possibilities and the factors that bear on "realistic" possibilities. Third, designers are concerned with how a product concept is developed and tested. Designers employ many methods and techniques that deserve close attention, but this is where the central themes of design thinking receive their full exploration in concrete prototypes that express the useful, usable, and desirable. In the language of traditional rhetoric, this is the area of arrangement and disposition, where a specific product possibility is explored in concrete development, much as a speech undergoes development. There are, as one may expect, competing ideas about what constitutes the best or proper method of decision making, and rhetoricians may be able to make a contribution in understanding this matter since they are particularly skilled with argumentation under conditions of uncertainty and ambiguity, where possibility and probability are intimately connected.[32] Fourth, designers are concerned with evaluating the objective worth of products. The criteria for evaluating products—and determining whether they should be carried forward in production and distribution—come from many sources. They come from the personal values of the designer, the interests of the manufacturer and client, the needs and desires of individual communities of use, and society at large. This aspect of design thinking is obviously grounded

in the translative issue of rhetoric, since we must ask who is the proper judge of the value or worth of a product as it is being developed and after it has been produced. Design historian Adrian Forty has shown that designers are seldom the final judges in product development.[33] Nonetheless, the economic and ethical issues surrounding product development are a matter of ongoing concern among designers, who must ultimately decide whether they will participate in the development of a specific product.[34]

The four arts of design have many parallels with the traditional divisions of rhetoric, but they also indicate how design thinking has introduced some refinements that are suited to the new circumstances of persuasive communication. Cicero recognized a distinction between invention and judgment, and designers have found a similar need in the complex circumstances of developing a product concept. They have also found a need for distinguishing arrangement from evaluation. There is, indeed, a form of evaluation that is an aspect of the process of developing a product prototype. Designers develop prototypes in an iterative process of construction and testing, where the testing provides tactical evaluation. However, there is a deeper form of evaluation, strategic evaluation, that assesses the objective worth of a product. This aspect of evaluation has emerged in design as a concrete problem in management and, equally significant, as a problem for those who must ultimately decide whether to use a product.

There is, of course, a fifth art of design, concerned with expression or style. We have already referred to this aspect of design in other contexts, but what is worth noting here is that expression for the designer is not simply the final visual expression of a product. Visualization is an artful consideration at each stage of the four primary arts of design thinking. Sketches, diagrams, and preliminary prototypes are all conceived with persuasive intent, and a rhetorical study of this aspect of design reveals how expression and delivery—as well as memory—are woven together in design practice. Issues of expression are distributed across the four primary arts of design thinking, for arguments at each stage of conception, planning and realization must be presented in a compelling manner. This should remind us that the arts of design are not simply procedural steps in the design process. They form a sequence of considerations, but the considerations are integral and sometimes simultaneous in practice.

In the final stage of a rhetorical study of design, we should turn to the issue of cause or action. This issue—sometimes expressed in the question "why is it?"—suggests the need for philosophic discussion of the purposes of design in culture and a philosophical examination of the principles

that guide design. But rhetoricians following Cicero have interpreted the translative issue in terms of the individual or group that judges the validity, value, or significance of an action—expressed in the question "who shall judge?" or "where shall the action be brought?" In either form—philosophical or rhetorical—the issue is complex in the new rhetoric and in the discipline of design.

We have already observed the simplest and most obvious relevance of the translative issue in design when discussing the criteria for judging the value of a product. Many individuals and groups are involved in judging the worth of a product in various stages of production and distribution. However, the issue of cause or action plays another role in the philosophy of culture, as McKeon understood with considerable insight:

> We make subject-matters to fit the examination and resolution of problems, and the solution of problems brings to our attention further consequent problems, which frequently require the setting up and examination of new fields. Rhetoric has replaced metaphysics as an architectonic art, in the past, when the organization and application of the arts and sciences was based, not on supposed natures of things or perceived forms of thought, but on recognition of the consequences of what men say and do.[35]

The issue of cause or action in the philosophy of culture is based on the problems that individuals and communities seek to address. In classical rhetoric, following Aristotle, the problems addressed by rhetoric are identified as forensic, deliberative, and epideictic. They are presented in the *Rhetoric* in terms of the judgments that audiences are called upon to make, and they provide the quasi-subject matters that characterize rhetoric as a universal art. In the new rhetoric described by McKeon, the problems we address often have wider philosophical significance, are located in new spaces and places, and have unexpected consequences for inquiry as well as action. Individuals, communities of experts, and the general public are still called upon to make judgments of the validity and significance of a "cause," but their judgments effectively establish and constitute new subject matters, new disciplines, and new fields of inquiry. As McKeon points out, this is evident in social action, where, for example, the civil rights movement employed "demonstrations" in order to establish the validity of its cause. However, it is also evident in the creation of new disciplines and fields of inquiry—which often disorder and cause us to reorder academic disciplines and professional practice.

The sequence of fundamental problems that have shaped design in the twentieth century demonstrates a coherent progression of practical in-

quiry into the human-made world. The rhetorician may recognize in the features of this progression an echo of the unfolding of rhetoric in our time. McKeon identified four fields of the new rhetoric in the philosophy of culture. He did so in the manner of a philosopher, suggesting the spans and arches in succinct descriptions that sometimes leave a casual reader puzzled by where the ideas may lead. However, the discipline of design provides a concrete example that is illuminated by rhetorical study and, in turn, may illuminate the new rhetoric.

Early in the twentieth century, the problems of design were identified in two great areas of collective enterprise. The first area focused on "symbols and images." Work in this area gave rise to the allied professions of graphic design, using words and images for effective communication. The evolution of the term "graphic design" into "visual communication" and, most recently, "communication design" indicates the field that emerged. It was a field of demonstration or display, presenting expressions of cultural discourse that served diverse purposes in practical life, science, and art. The second area focused on "things." Work in this area gave rise to industrial design and new developments of engineering design, where the problems of conceiving and fabricating the physical artifacts of everyday life have led to a field of construction, broadly conceived. It was a field of interpreting and judging the physical world in the context of human culture, assessing the factual basis for constructing viable products. Work in both of these areas continues to yield a flood of good and bad products that affect all aspects of cultural life around the world.

Within the last two decades, however, two new problem areas have emerged with revolutionary importance for design thinking and professional practice. In addition to the first and second areas we now find a third area that focuses on "action." Work in this area has led to the concept of interaction design as a new way to characterize the work of the designer. Though prompted by the development of digital technology, this area of design promises to cause a rethinking of all of the professions of design, the processes of product development in industry, and the role of design in cultural life. It shifts attention away from the product as a "thing" and focuses, instead, on the product as a locus of action or activity, where the human being is no longer regarded as a passive receiver of messages or an external entity caught in the workings of a product. In fact, when attention shifts to action, the designer is also concerned with the design of processes, services, and other structured activities, whether these activities are for practical action, art and entertainment, or education. The central issues in this

area of design are temporal sequence and dynamic connection, which bear a close relationship to what McKeon refers to as the problem of deliberation, where the human being must consider the intelligible consequences or results of action. It is no surprise that this area has emphasized "strategic planning," "information design," "human-centered design," "participatory design," and "evaluation" as central concepts. They are all expressions of a new concern for experience and action in design thinking, where the human ability to make meaningful connections among all of the features of cultural life is the central resource.

The fourth area is closely related to action, but it focuses on the "environments and systems" within which actions take place. This area is properly described as the area of "thought," since it is fundamentally concerned with the organizing idea or principles that operate behind environments and systems. Of course, systems thinking is nothing new today. Systems have played an important role in engineering design at least from the nineteenth century. What has changed is what designers mean by a system. The focus is no longer on material systems—systems of "things"—but on human systems, where there is an integration of information, physical artifacts, and interactions in environments of living, working, playing, and learning. However, designers also recognize that human beings experience a system only in their particular interactions and personal pathways through the system. By definition, a system is the totality of all that is contained, has been contained, and may yet be contained within it. We can never experience this totality directly. In the designer's effort to create systems or environments—and create them in such a way that human beings can navigate their complexity—they also create symbols or representations that attempt to express the idea or thought that is the organizing principle. To this end, they employ a "logo" or a diagram or a mathematical formula or some other form of symbolization, seeking to express the unifying concept of a system. The idea or thought that organizes a system or environment is the focus of design attention. Furthermore, the idea is not a given fact. It is a thesis, formed in the processes of communication among all of those who have a stake in the outcome. For this reason, designers who work in the fourth field of design often regard themselves as facilitators of organizational process. They organize conversations and debates about the values of a community and how those values may be implemented with productive results. Indeed, one may argue that they are participating in the creation of a new form of dialectic, shaped by rhetorical means but directed toward general questions of value and principle.

The four orders of design—manifested in symbols and images, physical artifacts, actions and activities, and environments or systems—represent new fields of cultural study as well as professional practice. They illustrate how the issue of cause and action leads us to dissolve the boundaries of old fields and disciplines and establish new ones that address current and emerging problems of cultural life. Rhetoricians may play a role in this process by clarifying the intellectual transformation that lies at its core. They may also be led to action, either participating directly in the practical exploration of design or educating new generations of men and women who are more sensitive to the marks and signs of innovation in design thinking and in the shape of emerging technology.

Let us conclude by returning to an earlier question, "Is design a new form of rhetoric in a technological age?" A rhetorical study of design suggests many ways in which this may be the case. However, we should be cautious in suggesting a simple identity. While there are grounds for seeing in design a surprising expansion of rhetoric in new directions and applications, a sophisticated rhetorician will also recognize the role of other arts and disciplines in shaping design thinking. Indeed, a philosophically informed study of the rhetorical dimensions of design would consider the role of grammar, logic, and dialectic—as well as various sciences—in shaping design as a field of practice and theoretical inquiry. Alternative arts and sciences have also received explicit attention in design studies, and their themes and devices have influenced design research and practice. From the broadest rhetorical perspective, design is a theme in the philosophy of culture, open to new variations in theory and practice. The pluralism that is inherent in the ecology of culture will continue. Nonetheless, the themes and devices of rhetoric have given greater coherence to the discipline of design, and further rhetorical studies of design will advance the discipline. Properly conceived, they may also contribute to our understanding of the philosophy of technology. The philosophy of technology is a recent addition to the domain of philosophy, and its inquiries are often shaped around explorations of the material and cultural conditions of technology.[36] Rhetorical studies of design could help to reorient some of this work toward a new understanding of the role of human agency in shaping technological development.

While it is unwise to believe that we can reduce design to rhetoric in the pluralism of culture, we may also reflect on the significance of design for our understanding of rhetoric. McKeon has argued that rhetoric should once again become a universal art in order to help us address new prob-

lems and circumstances in culture. This implies, of course, that rhetoric sometimes decays into a specialization, as it has in different historical periods, losing its significance as a liberal art. The prospect of rhetoric that we envision and that we believe is unfolding today will require changes in our way of thinking about theory, practice, and production. Perhaps consideration of design will help us to relate words and things in a new way, offering insight into the new universal rhetoric of our time.

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## Notes

1. This article is based on a paper presented at the thirtieth anniversary meeting of the Rhetoric Society of America, "Rhetoric, the Polis, and the Global Village," held in June 1998. The ideas were also presented at the first Gordon Research Conference to focus on design, "Theoretical Foundations of Product Design and Manufacturability," also held in June 1998.

2. Richard McKeon, "Rhetoric in the Middle Ages," in *Rhetoric: Essays in Invention and Discovery,* 121–66.

3. Thomas M. Conley, *Rhetoric in the European Tradition,* 304.

4. A notable exception is Richard A. Lanham, *The Electronic Word: Democracy, Technology, and the Arts.*

5. McKeon, "The Uses of Rhetoric in a Technological Age: Architectonic Productive Arts," in *Rhetoric: Essays in Invention and Discovery,* 1–24.

6. Both McKeon and Herbert A. Simon have argued, on different grounds, that a productive science or science of the artificial should have a significant place in our culture. See Simon, *The Sciences of the Artificial.*

7. Buchanan, "Rhetoric, Humanism, and Design," in *Discovering Design: Explorations in Design Studies,* 23–66.

8. John Dewey, "Introduction: The Problems of Men and the Present State of Philosophy," in *Philosophy of Education,* 18. Also see "By Nature and by Art."

9. For a discussion of the four scientific questions of Aristotle and the four rhetorical questions, see McKeon, "The Methods of Rhetoric and Philosophy: Invention and Judgment," in *Rhetoric: Essays in Invention and Discovery,* 56–65.

10. For a valuable discussion of Cicero's use of the four questions, see Michael J. Buckley, S. J., *Motion and Motion's God,* 89–156.

11. See Malcolm McCullough, *Abstracting Craft: The Practiced Digital Hand.*

12. Walter Gropius, "My Conception of the Bauhaus Idea," quoted in Buchanan, "Rhetoric, Humanism, and Design," 35.

13. See George Bugiarello and Dean B. Doner, eds., *The History and Philosophy of Technology.*

14. Conley, *Rhetoric in the European Tradition,* 285–304.

15. McKeon, "The Uses of Rhetoric in a Technological Age," 11.

16. Buchanan, "Design Research and the New Learning," in *Researching Design: Designing Research.*

17. Aristotle's definition of rhetoric similarly identifies efficient, final, and formal causes, but treats the material cause in the phrase "with regard to any subject." In Aristotle's analysis, style is simply the material cause of a speech rather than the subject matter or material cause of the art of rhetoric itself.

18. For further discussion of this idea in the context of the ancient world, see Buchanan, "Rhetoric, Humanism, and Design," 31. Another variation of this theme occurs in David S. Kaufer and Brian S. Butler, *Rhetoric and the Arts of Design.*

19. E.g., David Fleming, "Design Talk: Constructing the Object in Studio Conversation," *Design Issues,* vol. 14 (summer 1998), 41–62.

20. Dewey, *Logic: The Theory of Inquiry,* 48.

21. Dewey, *Logic,* 46.
22. For a history of design in the context of mass consumption, see Jonathan M. Woodham, *Twentieth-Century Design.*
23. Buchanan, "Wicked Problems in Design Thinking," in *The Idea of Design,* 3–20. Also see Buchanan, "Branzi's Dilemma: Design in Contemporary Culture," *Design Issues,* vol. 14, no. 1., 3–20.
24. See Buchanan, "Declaration by Design: Rhetoric, Argument, and Demonstration in Design Practice," in *Design Discourse: History, Theory, Criticism,* 91–110. Also see Buchanan, "Wicked Problems."
25. E.g., Albert Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry.*
26. See Buchanan, "Declaration by Design."
27. Kant describes such a state as "disinterested interest." Cf. John Dewey, *Art As Experience,* 35–67.
28. The terms "useful," "usable," and "desirable" are employed in Elizabeth B.-N. Sanders, "Converging Perspectives: Product Development Research for the 1990s," *Design Management Journal* (fall 1992), 49–54.
29. Wayne C. Booth, "The Rhetorical Stance," in *Now Don't Try to Reason with Me,* 25–33.
30. Buchanan, "Rhetoric, Humanism, and Design."
31. See Buchanan, "Wicked Problems."
32. See Carolyn R. Miller, "The Rhetoric of Decision Science, or Herbert A. Simon Says," in *The Rhetorical Turn: Invention and Persuasion in the Conduct of Inquiry,* 162–84.
33. Adrian Forty, *Objects of Desire: Design and Society from Wedgwood to IBM.*
34. For example, see the section on "Values and Responsibilities" in Buchanan and Margolin, eds., *Discovering Design: Explorations in Design Studies.*
35. McKeon, "The Uses of Rhetoric," 17–18.
36. See Carl Mitcham, *Thinking Through Technology: The Path Between Engineering and Philosophy.*