To Be of Service

This is Dot Zero number one.

It is the start of what we hope will be a continuing intellectual excursion into the visual world around us. In this publication the serious will find stimulation; the dedicated ... encouragement. To those bored with the cliches of visual communication Dot Zero provides a new Point of Departure.

We invite you to explore Dot Zero, to read and react to the thought and imagery that inhabit its pages. And, share with us the sense of pride and exhilaration we have felt in undertaking to sponsor it.

As sponsors, Finch, Pruyne and Company, Glens Falls, New York, believes its involvement in Dot Zero is a productive way of restating our traditional commitment of service to you and your profession.

Finch, Pruyne has had a long time to establish meaningful traditions. We have been in business for more than one hundred years. Performing in excess of the expected has become an important part of our way of doing business. We have learned to place a great deal of stock in pride of craftsmanship, honest value, and in service.

This is why we are sponsoring Dot Zero:

To be of service, to indicate an awareness of our own responsibilities, to express our concern with the fulfillment of visual communication and design ... and, to demonstrate the facility of our papers and the printed page.

We would hope that you will come to look upon Dot Zero as a fruitful source of inspiration, and a continuing reminder of our capabilities and our willingness to serve you.

Lyman A. Beeman
President
Finch, Pruyne and Company
Finding Dot Zero

When I first was thinking of a name for a contemporary magazine of design, there came to my mind Dotzero, a town on the Colorado River, where the Rio Grande railroad joins the Royal Gorge Route. From this point a survey was made of the Colorado River in 1885. As the initial point, it appears on the record as "0" (dot zero). Hence the name.

Zero, the figure "0" in the Arabic notation for numbers, meaning naught, is the origin or point of departure in reckoning. It is the point of nullity that would symbolize the unbiased point of view, devoid of influence and coloring, which an informative and impartial magazine assumes in the selection and presentation of its editorial material. Furthermore, O is to the eye and to the ear a memorable and expressive mark suited to stand as symbol for the topics of design theory and practice.

In the nullity of the constant 0, which is less than any assignable magnitude or quantity, lies the analogy with the magazine Dot Zero, which plans to assume an unattached attitude by starting from naught and freeing itself from the impediments of taking sides.

It is dot zero O hour from which the planned movement of the magazine will start.
Editorial Statement

Transformation of our world is accelerating so rapidly that qualitative change has become a qualitative difference. Areas and disciplines that yesterday seemed unrelated are today discovered to be interwoven and interdependent at a more meaningful level. Matters no longer join up by pressing solidly against one another, but by the pull they exert against one another.

It no longer surprises us that a polished steel surface at one million magnifications looks like a satellite photograph of earth, or that a man, rather than an angel, is floating peacefully around the earth at orbital speed. We have swallowed ideas and images that our grandparents would have choked on; we are no longer in the condition of the aborigines who were so amazed reading flat pictures that they couldn’t recognize a photograph even of their own neighbors. We have come so far beyond John Fiske and H.G. Wells that we can almost forget the idea that anything man can even think of, he will one day be able to create.

But if our old ways of thinking, seeing, communicating, have become obsolete, our new ways can become obsolete even more rapidly. Before the paint is dry on the protest poster, the issue has shifted—to much has our rate of communication changed. With frequent and multiple exposures at this rate, any position rapidly becomes a paradox of itself; it is no accident that the advertising profession has accepted paradox itself as one method of communication. Adaptable as we are, however, the pace is dizzying.

It is nearly impossible to adjust our thinking fast enough to make good use of all our new potential. It is small wonder that many of our new attitudes lack wholeness, grace, and adequate recognition of the proper human use of human beings. No problems are any longer simple problems, and it is in the recognition of this fact that DOT ZERO is addressed. Good design is no longer a matter of good taste and intelligence alone. Better cities are not made by better intentions, or better political administrations alone. Better solutions today, in communication as in other areas, require deeper probing, broader understanding, and more thorough integration of the growing mass of pertinent facts. The functions of communication, in particular, are beginning to need a more highly articulated grasp of the design problem; men engaged in these functions need a matrix of understanding of design to all its applications.

DOT ZERO is aimed at meeting this need. It is an interdisciplinary quarterly covering a network of design topics on an international scale. It will deal with the theories and practices of visual communication from varied points of reference, breaking down constantly what used to be thought of as barriers, and are now seen to be points of contact. Wherever possible, we will ask members of our discipline to discuss the problems of another, from their own point of view. We shall work, within each issue, toward a correlated system of articles, each of which sheds light on the others. Each issue will embody a central theme, around which thinkers and writers, as well as eminent designers, artists, architects, photographers, typographers, printers, teachers, and businessmen will ply their variously shaped orbits.

On these articles, we shall feel free to editorialize, separately and interlaced, always maintaining the distinction between the contributor’s thinking and editorial comment. There is nothing here intended to be final or definitive; we are a point of departure. DOT ZERO.

R.M.
At a recent Delos conference the delegates met to consider the "state in human settlement." One basic consideration was that in the next forty or fifty years there will be more buildings existing in the world than in the previous 8,000 years. At the present rate of building, each year sees more space enclosed than the previous forty or fifty years. Whet eludes the understanding of the architect and planner is that these rates of change and growth are even greater in other areas of human activity. While they worry about a population "explosion," electricity has im- plicated, or contributed to the development of a village.

One thing is clear to the builders and town planners. Enormous increase in the speed and volume of building is an approach to the problems of design. A jet crew has to use different resources of perception from a pedestrian. The very speed that gives the architectural engineer an increase in the range of perceptual options makes possible the recognition of patterns that were previously inaccessible or invisible. The high-speed perception of the jet age is only a small step from the slow, continuous scanning of the average pedestrian. At 12,000 feet the earth is still like representations; at 30,000 feet it is like a concrete solid. As the visual component is lowered, the visual component is raised. So is the desire for design. Design emerges as supreme. As change becomes more immediate, there is no way to avoid the sensoric facilitation of our world. And like the jet plane, the city is an instrument designed to solve the problem of visibility, not by the unaided human senses. While the visual component of the system globally, Earlier extensions or technologies were triggered by the limited scope of the limited sensory input, the sensoric extension has been reversed in a rush by the expansion of the capacity of the architectural nervous system. With such electric cacity we move swiftly from holistic awareness to the world into a world of pattern recognition. The learning process can move higher levels, higher levels, to the high order of data to the plane of discovery. Instead of perception, the brain moves to the level of the environment and of experience, to a world of patterns and to the recognition of the patterns that are built into the environment. Thus is pattern and design not found in highly visual or highly literate cultures. Individual cities build the visual into the viola- tion because the fragmentation and analysis of the processes subject to modification are managed by visual means. It is the visual power to isolate and assess aspects of information (more obscure than the other senses) that is indispensable to the technology, particularly our own. It shares its membership from the University's departments of anthropology, architecture, and the area of communication, engineering, English, mathematics, political science, psychology, and philosophy. To the degree in which a culture is to define to function the order in which a culture must establish its reference points. When the visual apprehension of the world declines, as McLuhan describes it, then tactile and visual sensibilities and responses begin to take over. What has brought about this decline of the visual, says McLuhan, is the increase in speed. In the high-speed speaking from jet engines and electronic communications, visual means of apprehending the world simply don't apply. They are too slow to be effective, as the jet pilot's own eyes are too slow to do on: by the time he has seen a potential

Decline of the Visual
Marshall McLuhan

McLuhan holds a Ph.D. in English literature from Cambridge, and a professorship at St. Catherine's College, Cambridge. He has written a number of highly influential books on the nature of communication and the evolution of the visual mind. His most famous work is "The Medium Is the Message," which explores the impact of different media on society. McLuhan's ideas have been influential in the development of modern communication theory and have been applied to a wide range of fields, including education, psychology, and sociology. He is known for his concept of the "global village," which suggests that advances in technology are leading to a world in which people are increasingly interconnected and interdependent. McLuhan's work has been celebrated for its insights into the nature of communication and its relationship to human experience.
Computer Graphics: Extending the Visual Media

Maurice L. Constant

Mr. Constant is twice a graduate of the University of Toronto: once in engineering, and again, after the war, in science. He was, for ten years, a member of the National Film Board of Canada, acting as a writer, director, and producer of documentary films. During this time, he set up the Science Films Unit, which developed equipment and techniques for time-lapse and high-speed photography. Since then he has operated as a consultant and an independent producer of films for education, in the fields of science, agriculture, anthropology, and international affairs. In 1964 he developed an interest in exhibition design, and became involved with five of the major pavilions for Expo '67, the Montreal world's fair. In January, 1965, he was appointed Assistant Professor of design with the Faculty of Engineering at the University of Waterloo. His current activities include teaching and research in computer theory, history and philosophy of science, and new projection techniques and teaching methods with enveloping image environments.

Computer graphics, a technique by which the computer generates images—still or moving, on paper, film or tape—has now passed through the research stage and entered the period of development. In consequence, the subject of computer-generated images has now become a matter of direct and immediate concern to the designer and film maker. In effect, one of the most powerful tools ever offered to the creative imagination is asking for direction from the user. What would you like me to do for you? What form would you like me to take?

The sad fact is that up to the present, designers and film makers are hardly aware of the existence of this tool, much less its personal relevance, and where some interest has existed, too often the esoteric language and habits of mind of the computer scientist have discouraged further investigation.

Nevertheless, some design-oriented minds, industrial designers and architects, have begun to explore the use of computer animation to evaluate structures and sequences. The architect or exhibition designer has been intrigued by the possibility of seeing on film an accurate model of the structure he has dreamed up. He can walk around it or through it, examine vistas, spatial relationships, and evaluate the effect of sequential experiences.

In general, it is not a matter of inventing a technology, but rather of taking existing technology and putting it together in a computer graphics system directed specifically at the needs of the designer and film maker. Hitchhiking much of the relevant computer technology has concerned itself with the problems of the engineer, and the need to plot information in the form of a graph. Typical of this concern is the development of high contrast film techniques. However, let us consider the more sophisticated requirements of the film maker: these will include most of the concerns of the designer. Now we must broaden our interest in computer graphics beyond points and lines to somewhat more sophisticated requirements: shape, color, shading, tone, image quality, movement within the frame and from frame to frame (shot to shot).

All this implies, too, an interest in manipulating these elements in a meaningful way, that is, according to the conventions of the film medium, and, as well, that the hardware involved be convenient, economical and, in general, more effective than existing film-making procedures.

What do we wish to achieve? In general, to stretch the film maker's powers to manipulate shapes and colors in space; to help him do the kinds of things...
he has been doing better, less laborious, more economically and with greater accuracy. In many a shop and in many a workshop, the desire for speed and accuracy has led to the use of machines which are capable of constructing the image of which they are capable without even the possibility of giving to the human eye the slightest idea of the nature of the machine. In many a laboratory, the desire for speed and accuracy has led to the use of machines which are capable of constructing the image of which they are capable without even the possibility of giving to the human eye the slightest idea of the nature of the machine.

We must be prepared, too, (a most exciting prospect) for the emergence of new techniques and for the exploration of new possibilities of the computer - of whose possibilities the film maker is not yet an aware part. It is quite possible that the continued extension of the film-maker's powers in combination with new display and projection devices and ideas, such as multiple screen and total image environment, will produce not just a difference of degree but of kind - in effect, a new medium. In physics, for example, it is intriguing to contemplate the effect of teaching the fundamentals of motion or frames of reference by means of computer animation projected on the inner surface of a forty-foot sphere.

Consequently, then, if we wish to direct the development of computer graphics technology towards the needs of the designer, what we do in terms of software and capabilities.

At the present, from the point of view of designer and film makers, there are two fundamentally different techniques for obtaining computer-generated images. Both, of course, are significant advances over what was possible at the point, it is sufficient to say that in one case you feed the instructions into the computer, and in the other case you feed the form of punch-cards or tapes, then see the graphic output on a cathode ray tube, on a film, or the face of a cathode ray tube. In the first case, the user can interact directly with a light pen he draws lines and shapes on what looks like the face of a television set. It is a true "live" direct display, which holds the greatest promise for the designer, because it gives an immediate and intuitive insight, and creative dexterity. Such a system requires a knowledge of the computer's capabilities and economic feasibility in mind) to a time-shared large-scale computer system. Let us summarize our requirements:

Display console
We would like to see the computer scientist to the delight of the designer, the display console as the point of input and output capability linked by co-axial cables. The display console should contain a large area of visual information, be capable of sustaining a pictorial display and should be connected to the computer by display with a light pen and/or keyboard to determine what the user wants to input. Of particular interest, the computer, this continuous feedback is vital - an easy - on-the-fly display is of great importance and will allow for on-the-fly changes in the design.

Color and contrast of the image should be capable of being adjusted interactively and in real-time, as well as the overall contrast of the image. The user needs to be able to see what he is doing while he is doing it.

Multiple screen
It is possible to think in terms of several screens or views of the same image (or data) on a computer and to be able to interactively control which view the user is looking at.

Audio and Music
We would also like to see a full-fledged audio/musical system integrated with the visual display. This would allow the user to interact with the system by both visual and auditory means, allowing for a more intuitive and engaging experience.

From the filmmaker's point of view, the adjectives (parameters of the function) would include description of the function, on the screen. On the blackboard, described earlier, would exemplify the window-on-space approach, combining a description of the functional and visual aspects of the screen. This capability is indispensable when dealing with complex and highly interactive environments. It is possible that a moving picture image on almost the entire surface of the screen, but with computer-generated images we can project them on such a screen. Further, by developing a computer-based tool with a wide range of controllable states we could control the world projection, in an intuitive, interactive way, of the world on a computer-generated screen, for example, a complete range of realistic effects typical in high-speed and high-quality photography. It means we could move the screen into a world in which we have complete control of time and space. We can have time and we can have time. We can have the world look the way we want it to look, and the world around us, by far.

Conclusion
With the advent of computer-generated images, it is not only possible to demonstrate the feasibility of various techniques, but also to bring about a revolution in the way we think about and perceive the world around us.

In summary, the development of a truly interactive computer-generated image environment is essential for the advancement of the arts. It is not enough to simply create images on a computer; the images must be interactively controlled by the user. By doing so, we can create a new medium that allows for a more intuitive and engaging experience, both visually and auditorily. This new medium has the potential to revolutionize the way we think about and perceive the world around us.
Variations on the Face
Bruno Munari

Bruno Munari is a well-known Milanese designer and graphic artist who has twice been awarded the Compasso d'Oro for excellence in his field. He is known for his researches in visual communication and typography, and for various exhibitions of his work in Europe and the United States. His recognition in this country will be confirmed by a one-man show of his work scheduled to open on September 23, at the Howard Wise Gallery, 20 West 57th Street.

It is interesting to note that we can accept these faces as we would accept variations on a musical theme: a response that would have been nearly impossible 20 years ago. Perhaps the acceptance of dissonance is more functional than it seems... would we be preparing ourselves psychologically (if rather left-handedly) for the acceptance of the quasi-human, the non-human, and the anti-human, if (when?) we finally meet it.
The Psychology of Visual Communication

Martin Krampen

The communication process

sender-encoder ➔ message ➔ channel ➔ decoder-receiver

1. Shannon's communication model.
2. Looking at a tree through a sheet of glass.

Martin Krampen's background encompasses several countries and the study of psychology, philosophy, theology, painting, design, and visual communication. He has a Ph.D. in communication arts from Michigan State University. He has had a wide variety of research experience here and abroad, and taught and performed as a number of American and European design schools and institutes of technology, and has been a practicing graphic designer with more than one award in his credit. He is at present teaching a graduate course in Creative Synthesis at the University of Waterloo in Ontario, Canada.

Dr. Krampen examines the psychology of visual communication by means of a telegraphic model. Adopting Shannon's communication analysis, Krampen finds common ground between visual and non-verbal communication in the use of surrogates, which act as all transmitters of significance.

In non-verbal situations, the surrogate is not a series of words but a configuration of images. The designer's job, according to Krampen, is to perceive and predict the message communicated by a given configuration, and to create new configurations effective in communicating messages, choosing appropriate channels and codes.

What is communication? How do people go about sharing their ideas with others? What is this process by which the images conveyed by one brain can be made to arise in other brains beyond a separating gulf of space?

One way of describing the communication process may be to adopt the model of the communication engineer. Claude Shannon, of the Bell Telephone Laboratories, proposed a model of the communication process (1948) which can he adapted to our needs. It consists of four basic elements: the encoder, the message, the transmission channel, and the decoder-receiver.

When a person wants to communicate, he becomes a source (who chooses a message from a set of possible messages) and an encoder (who puts the messages in an appropriate code, or a visual). The message is composed of the ideas or images he wants to transmit, encoded in a suitable form. The form is the sensory equipment of the receiver (auditory in visual, or both) through which the coded message rushes the way. The person at the terminal point of the transmission process becomes a decoder who interprets the ideas in his own terms. In order to assure the medium of other people's minds, we have to produce a message suitable for the sensory channel of the receiver, in a code accessible to him (decoders). Painters, photographers, designers, architects and engineers encode their images and ideas in drawings, prints, models and other forms suitable for the visual communication channel.

While visual communication is obviously different from verbal communication, there are aspects in which both are alike. Both convey second-hand experience. The receiver of the communication is not himself aware of the ideas or objects he is seeking. He is being made aware of ideas or objects experienced by another person, the sender. Verbal and pictorial messages arise from vehicles for this kind of indirect perception. Both present us with substitu- tes for direct experience.

Gibson (1954) has called these substitutes surrogates. He defines a surrogate as "a stimulus produced by another individual which is relatively specific to some object, place, or event not at present affecting the same organs of the perceiving individual." An important feature of this definition is that it accentuates the artificial character of the surrogate. It also states that there must be a one to one relationship between the surrogate and its referent, whether the referent be an object, an event, or an abstract idea. What kinds of properties must be surrogate-like with the thing it stands for? Can a surrogate be wholly different in kind?

There are two kinds of correspondence between surrogates and their referent objects. First, surrogates may be arbitrarily paired with an object, and the correspondence is valid by convention among a group of people. For example, the letters T, R, E, E, are, for English speaking people, a surrogate for the tree object. This type of surrogate is called conventional. Second, the surrogate may correspond to an object by projection. For example, if we look at a tree through a sheet of glass, we can see the silhouette of the tree. On the glass and use it as a surrogate for the object tree. In this correspondence rests upon the fact that a recognizable outline of a tree offers a visual stimulus similar to the pattern reflected by the tree itself. Since the patterns perceived are similar, they can be interpreted as pertaining to the same thing. This type of surrogate is called non-conventional, or iconic.

Mixed surrogates combine the properties of both conventional and optical relationships. They are spa- tial to their referent objects partly by virtue of agree- ment and partly by virtue of optical recognizability. Photographs, Chinese characters, traffic signs and certain other conventionalized representations share this category.

What does this difference between conventional and non-conventional surrogates imply for purposes of communication? Has pictorial communication any advantages over verbal communication? Just as in so far as it is genuinely pictorial, the receiver needs little learning to identify its relevant correctness. If the surrogate is mixed, he will need somewhat more, but still not so much as is required for the decoding of conventional surrogates, which, in order to be useful, must be learned by both the sender and the receiver, as language is learned, from human teachers. Whate- ver learning process plays a role in visual communica- tion, it seems to go far back in the life of the individual. One would probably be correct in assum- ing that inborn physiological mechanisms are involved, as well as experience of the environment. It should be noted that both conventional and optical surrogates can be relatively specific or relatively un- specific with respect to their referents. Both language and pictures may be ambiguous, and the resulting second-hand experience of the receiver will then be ambiguous also. Pictures are said to have more or less fidelity: words may have more than one meaning, consists affect meanings of both verbal and graphic surrogates, as we shall see again in this discussion.

The perception of outline drawings

What process makes us take a line on paper as a surrogate for the edge of an object? By definition, an edge is the abrupt end of an object's surface at a cer- tain distance from the observer's eye. Edges of ob- jects in space and silhouettes on outlines on paper have one important feature in common; where they finish, a more or less abrupt change in luminosity takes place. Each time our eye is confronted with a sufficiently sharp break in luminosity, we tend to see the edge of a surface. This mechanism of percep- tion is the reason why silhouettes and outline draw-
ings can be used as surrogates for the spatial arrangement of objects. Our normal experience of visible perceptive accounts for the effectiveness of line as an indicator of distance in an optical surrogacy. Whenever we see object shapes, we see them because they are adjoined and whenever we see edges, we automatically interpret them as object edges. We take it for granted that edges that they belong to object boundaries only to one surface in one direction at a time. If one of two adjoining regions has a recognizable (positive) shape, the shape of the other is lost (negative). But it is possible that a contour becomes a surrogate for either of two edges. When two adjoining regions both have a recognizable shape the edge may belong to either shape, and give rise to so-called reverberated figures. Also, edges seem to have only a limited ability to reverberate, within which they determine how we perceive the direction into which a surface appears to be turned. The ability of edges to take on the role of influence in reverberation, two edges opposite in sign will force the observer to suddenly re

11 Volume surrogates and depth cues
11 We have seen how outline drawings can work as surrogates for surfaces and depth cues in space, photographs (and other pictures) function as surrogates for solid voluminous objects and scenes. What are the optic features of solid objects which can also be produced by the depiction of a flat surface of a shaded picture?
11 Most surfaces of actual objects and scenes have a texture more or less evenly distributed. When we stand in front of a plowed field we see a texture of earth crumb, coarse in the foreground (where the details of the earth crumb are short) and becoming finer as the distance increases. Thus, as a house with abrupt changes in luminosity trigger the perception of edges. Texture gradients trigger the perception of receding surfaces. Textures provide us with information on what is far away and what is close, and about the relative size of the objects. These gradients can be produced with great fidelity by pictorial surrogates, especially by photographs.
11 Since we are surrounded by textured and shaded surfaces such as stone walls, varnished models, painted skies, etc., we are surrounded by potential pictures. A selection from all the depicted surfaces produced by nature could theoretically furnish us with surrogates for any conceivable object or scene we might want to portray. A photographer may seek out a cloud formation which seems to represent architecture in a human body. The same operation is also at work when we look at the fantastic Rothko's reds and blues at some of abstract art's paintings. The effect of these pictures is produced less by the activity of the creator-encoder than by the intention and selective attention of the viewer-receiver.
11 Again, actual objects in our environment are individu
11 ally oriented, with respect to the things used. In an analogous computer model of real processes (e.g., the production process in a factory) is simulated by the manipulation of voltages corresponding to properties or relationships in the model. The quantity represented in an analogous computer system of surfaces with variations in the real world. Digital computers, on the other hand, are essentially counting devices, where the variables, instead of being continuous, can be broken down into discrete amounts. It has been proposed to call the coding of messages by conventional surrogates "digital coding," while nonconventional coding could be called "analogue coding."
12 For either type of surrogates the visual word is not the only constant in the communication. Nonconventional coding produces a model of reality that changes. For instance, different levels of encoding skills will result in surrogates of different quality. In the case of different media in different media, the user has to determine whether or not he is the decoder. Likewise, the user's knowledge about the subject matter and the sender, his attitudes, and the social factors affecting him, will tend to improve or diminish the effect of any surrogates chosen or used in a message. To prepare the designer's job is to predict the message communication to a given society and culture, and with a greater knowledge of this percep
tive involved, to select those types of representations which will communicate more effectively.
12 Toward a theory of visual communication
12 A theory of visual communication should be able to define the basic types of coding involved in producing visual messages. For each type of coding, the various coding techniques should be specified. The perceptual function
ting of particular subclasses of surrogates should be explored as to advantages and disadvantages, and the reasons for them. Finally, the resulting list of surrogates should be systematically related to all the other variables in the communication process.
12 Conventional, non-conventional, and mixed surrogates are the major subclasses of surrogates. Each subclass can be identified by dates of coding procedures. Conventional coding occurs in visual communication when we use typographic pro
cedures. Mixed surrogates, partly conventional and partly non-conventional, in nature, are produced by hand-graphic procedures.
12 Coding by setting up a conventional or non-conventional correspondence between surrogates and referent is a similar to two different methods of coding in computer science. In digital computers the input is coded in discrete units at regular intervals. The letters of a word, the words of a sentence, are regularly spaced digits. In analog computers models of real processes (e.g., the production process in a factory) are simulated by the manipulation of voltages corresponding to properties or relationships in the model. The quantity represented in an analogous computer system of surfaces with variations in the real world. Digital computers, on the other hand, are essentially counting devices, where the variables, instead of being continuous, can be broken down into discrete amounts.
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Printing as an Art Form

Eugene Feldman

I was thirteen when I started printing, it seemed like a good way to make money. With one font of type, a mirror to read it with, and a Kelcey hand press, I set up shop as a job printer in the attic of my home, under the name of Falcon Press. My slogan was "ADVER-TISE OR THE SHERIFF WILL." The next year, when I was fourteen, I thought what I needed was a little class, so I changed it to PRINTING IS AN ART AT FALCON PRESS. What I meant by art, then, was that I could print better than the local barber, who was the village printer in his spare time. Throughout those two years and the next three, I printed dance tickets, stationery, raffle books, and feed bag tops. By the end of my last year in high school, I had bought two power presses, and had earned enough money to go to art school for two years. This is what I earned in high school: that you have to do much better, you have to make the effort; and that wherever art is, it is within you, and not in the classroom. After that I enlisted in the army, and for three years I worked with a topographic battalion, mapping invasion areas, and learning offset from the large painting unit attached to our company. After the war, I moved to Philadelphia, bought a small job shop, and converted the majority of my work from letterpress to offset. Since then I have worked commercially with a wide variety of experimental processes. It just never occurred to me that I should make a choice between starving in a garret so that I could create beauty or living a humdrum life in the suburbs because all I could make was money. Business was my gateway to art and art is part of my business. It would be, of course, true, that one gets paid more, but nobody will try to be creative if there is no money in it. If that is their only motive, they won't succeed.

The third part in the trinity of my work, as integral to its commerce and creativity, is teaching. Now, I am a teacher, but I know that I cannot teach the art in printing. I do not try. What I do want to do is to give the student the knowledge he will need: how the machines work, the way to use a hand press, a power press, an offset press, and how to make a plate. I want to teach him what I have learned in my shop, that a commercial job must be done perfectly and with pride, and that in order to do it the printer must have a regard for, an understanding of, his equipment and its capabilities. The first book that I printed, back in 1957, really came out of teaching. I had a Brazilian friend who was here to study. His interest in printing, and our friendship, led me to try to teach him what I knew about graphics. The result was a book, "Street Signs," in Portuguese. Since then, I have printed four other books, the most recent one being the photographic study of the New York skyline from the New Jersey shore. Certainly, it is true that my books are not artistic successes and commercial failures. Being in the business of printing, I could not afford such Pyrrhic victories. On the other hand, they are not on the best seller lists, either. However, each has been successful enough to finance the next. Each has, in addition (though not intended for that purpose), served as a form of advertising for the Falcon Press and, I think, as a kind of special pleading for the art of printing. I think, too, the books illustrate correctly what I have been trying to say: that graphics, commerce, and instruction are not separate in printing, but indivisible. Man can make art with a machine: offset press and hand press alike can be his brushes.
Questions of Legibility

Bron Zachrisson

Zachrisson is the Director of The Graphic Institute, Stockholm, and a leading authority on the subject of typographic comprehension. It is in a rare and valuable experience for any trade to have its most basic and fundamental assumptions examined, as Dr. Zachrisson has done for printing. He has put the question of legibility to the test of parallel experiments. While his results are sometimes tentative, they are also sometimes startling as they demolish some venerable controversies.

The readability of a text has to do with how easy, difficult, interesting, or accessible its contents are to the reader. When typographic and other visual aspects are concerned, one speaks of legibility. Here the size, shape, contrast of the letters, the setting, justification, leading, and so forth, influence the reading rate, comprehension, eye-movements and other forms of behavior used as criteria for the measurement of legibility.

In several pioneer studies, Jeavon (1879) found that the eye moves in jumps (saccadic movements). Because these extremely swift movements, the eye would rest for a few tenths of a second (fixation), during which time the perceptive act (which we experience as continuous) would take place. With this discovery, the recording of eye movements became possible. We are now able to observe these by means of photography, television, and electronics devices. The kind and number of such movements are an important criterion of legibility.

Among the early discoveries of importance were (1) that the upper half of a line of type was more legible, and therefore more legible than the lower half; (2) that whole words are grasp as quickly as individual letters; (3) that some words are read at greater speed than nonsense material; (4) that words could be perceived by indirect vision when single letters could not; and (5) that words with a characteristic form are read at a distance more easily than words of a more even appearance. Even the meaningfulness of a word or symbol, its configuration or gestalt strength, plays an important part in legibility.

There are two main schools of thought with regard to the measuring of legibility. One studies the way the human machine reacts. This school uses the click rate as a criterion of legibility. The harder the text, the slower the legibility, the more you blink. The second, and more frequently used, method of measuring legibility is the rate, or speed, of reading. In addition to these two methods, comprehension has been used as a criterion, and the eye-movement recordings mentioned above are also valuable. For the purpose of studying the perception of single units of text, several techniques have been used. The problem here is not concerned with reading proper, or the reading of running text, but with the recognition and perception of a letter, a word or two, or a symbol. Instead of using the term legibility for the quality measured here, we have coined the expression expressibility. With the aid of changed illumination, distance, focal variation, indirect vision, short exposure, and divided vision, the perceptual efficiency of various shapes, colors, and sizes of letters and words can be compared.

Although there are many descriptions and operational definitions of legibility, there is no commonly accepted theory. Several persons have suggested some of the factors for the construction of a comprehensive legibility theory, but the one only that seems likely to result in the formulation of an acceptable theory is one suggested by Poulson (1958). He advocates the use of the rate of comprehension (score for comprehension divided by time for reading) as a criterion in legibility experiments.

Whenever some legibility problems may be tackled by studies of behavior, performance in terms of speed, comprehension, etc., other more elusive aspects must be investigated with the aid of attitude measurements: aesthetic appeal, familiarity with type faces, and conspicuity of type here and layout. Subjects involved in this kind of experiments are asked for their preferences, so elicited by methods such as scaling and ranking. Among these studies, Dyk (1938) found that some type faces groups were considered expressive of luxury, others of strength, and others of precision; Burt (1955) investigated the congenerality value of different book faces for various kinds of literature; and Whisson (1960) made interesting comparisons between the reactions of experts and layman to typographic quality.

During the past fifteen years, we have made some thirty experiments in legibility and form perception. Ten of the series reported in 1956 dealt with legibility and conspicuity. We used with such subjective criteria as preferences and opinions on conspicuity and ease of reading, and two were set up to test the reader's familiarity with type faces and letter forms.

In every case, experiments were set up with appropriate controls, and the results subjected to statistical analysis.

Familiarity

Among typographic designers there seems to exist a tacit understanding that a particular text needs a particular, complex type face. This would imply that the general reader is susceptible to these nuances and well acquainted with graphic details. However, we have found that even composition artists are not so familiar with (or conscious of all) type faces and letter forms.

As a background for our later experiments, we conducted two simple recognition and reproduction tests. In one, a hundred adults were asked to identify generally, by means of sample pages, the type face used in the book they had been reading, and also the type face used in a quiz they had taken immediately before the experiment. The male results were a little better than the female ones, but in general neither differed much from what would have emerged by pure chance.

The second experiment tested what might seem obvious and superficial as well: our knowledge of how ordinary printed letters really look. The subjects were sixty men from two publishing and printing houses, and a hundred college students, male and female. The assignment in the reproduction test was to draw (without demand on perfection) the lower case letter s, t, g, and r, in a single print style. Further, a recognition test was given, in which these letters were presented in several incorrect versions and one correct one. We had found these letters to be more frequently misinterpreted than the others.

There were significant differences between the trade representatives and the students. However, both groups had quite low scores: in the reproduction test the averages were well below 50 per cent, and in the recognition test, barely above it. These results may seem somewhat disheartening to the typographic designer. We are forced to consider that fact (that is, interest, and the intention to learn) is important to learning. Our incidental learning, although highly repetitive, leaves surprisingly weak traces. However, a preference test, in which the same hundred students were used, showed that these laymen ranked the elements of a book, in order of im-
tance, as follows: typeface, paper, text page, binding, illustrations, cover, title page. This corresponds closely with the results obtained from experts! In another subsequent experiment, a similar close correspondence between the evaluations of experts and laymen was found. In both cases, our lay samples showed an appreciation of typographic and graphic design at a whole. This may indicate that typographic and layout are more expressive than the typeface itself, which is far from a new idea.

Legibility and discernibility. In this area we chose for objective study the factors of typeface, type size, and typographic arrangement. For each factor, we selected pairs of alternatives which we found, by making a poll among publishers, to be of particular interest.

Among typefaces we used a roman face and a sans serif for comparison. Two legibility tests were made on children with the ages of about eight years and about eleven years. Oral and silent reading were used, and comprehension and error control were made. Representative, equal-sized samples of both faces were used. The results showed good discernment between reading skill groups: but there was no sig- nificant difference in legibility between roman and sans serif. Experiments with single words were also made, and with these, three of measuring devices we again found no significant differences in legibility. However, using a small sample of 28 male and female college students, we had some highly significant results with the ocular dominance test. Binocular rivalry, or ocular dominance, is a well-known pheno- menon. If, for instance, a stereoscopic device such as the hippocast, to regard one object with one eye and a different one with the other, and involuntary perceptual change takes place. The subject may see only one image during an interval, then suddenly he will perceive the competing stimulus. (At times, the images will blend.) With a dual timing device and a stereoscope, we can test what we have described as binocular rivalry as a discernment of words by this method. It seemed of interest to use not only words of a neutral nature (the ones were used were different words) but also of emotive words. All were equalized as to letter size, contrast value, and so on, and, of course, were reversed for a second run with each subject, so as to avoid any results coming from inherent ocular domi- nance. The roman sample showed a highly significant predominance. The relation needed no statistical finery: averages were 7.1 in 1 of the industrial applications of typography.

We had not come up with the idea of using binocular rivalry as a discernibility criterion until the very last moment, and then we had used adults, where chil- dren had been used for the earlier runs. We felt we had to try a sample of children with this device. These results also gave a highly significant predominance for roman, but the ratio was lower, 3:1.

Type size
Several documented investigations in the relative legibility of type size have been made. These show that under normal conditions (of line width, type size, leading, etc.) the most frequently used sizes (9 to 12 points) are practically of the same legibility. Our prob- lem concerned type sizes for children, particularly 8- to 11-year-olds. We had a suspicion that the scale of type sizes advocated by several experts was based on opinion rather than observation. Although our own opinion tests gave similar results (small children pre- ferred larger type to start with), our objective results and silent reading experiments showed a different picture. Eight-year-olds were able to read 10, 14, and 16 point Garamond with the same efficiency, measured in errors per reading time. Eleven-year-olds read B. Garamond at practically the same rate. The measure was reading rate, comprehension being controlled. The younger children were given three to four years of reading instruction. (It may be necessary, in this connection, to assume that larger sizes of letters, both for writing and for reading, are re- quired at the very start of their instruction.)

Typographic
Most people would probably say that a text is more readable, as well as legible, if it does not run on and on without interruption. Divisions into logical sections should aid comprehension, as measured, for in- stance, by immediate retention of essential content. In our experiment we had 179 college students as subjects. Two-page four articles of different char- acter were used. Both were presented set aside as well as divided into logical paragraphs or sections. Two different types of comprehension checks were used as measures. The results indicated that the nature of the contents was a decisive factor. One of the texts was dry, narrative, historical. The other was descriptive and centered around a colorful individual. In the latter case, the division of the text gave compara- tively less effect than the former. Interestingly dif- ferent materials benefit more from being divided than easy, interesting material. (When re-reading Kant's Critique of Pure Reason recently, I remembered this experiment. Kant's text is very difficult. One doubt if it would be more accessible if the text page were jammed up with divisions, headings, etc.)

Our second experiment with typographic arrange- ment concerned the problem of whether the right- hand margin in a column of text must be straight for good legibility. The experiment, which cannot be described in detail here, gave these results: others;

The latest proficient readers differ from middle and most proficient readers by longer reading time, more fixation point movements, lesser eye movements (backward glances to insufficiently perceived words previously read).

No general differences were shown between those who read texts with an even right margin and those whose text read with an uneven right margin. The outcomes, on the whole, show that uneven right margin lengths do not decrease the legibility of the text. We can also make a few comments in this context:

Cognitive congruence
Cognitive congruence implies a correspondence between content and visual form. The words allusive or meaningful can be used, but usually the con- cept of congruence, which seems to carry less to an aesthetic evaluation.

Early printing had many customs and traditions that have continued to the present day. Some of the prin- ciples involved are practical and stylistic. In many ways, the problems of typography in the 19th century were similar to those of today. In the 19th century, the tendency was to find individual points in a typographic solution for individual assign- ments. The problem of emphasis in the means of expression and expression promotion continues this tendency; habit and tradi- tion, naturally, retarded it.

We chose to experiment in this area with compari- sons between the judgments of experts and non- experts (laymen). There being no fixed scale for what is too or not congeneric type, typ, we felt it would be interesting to see if the belief (which every sound typographer has) in the possibility of designing a message in a way commensurate with its char- acter hold ground. We also used an experiment as used test material six series of typographic designs. Each series consisted of four solutions of a particular assignment. The four solutions were varied in only two respects: symmetry/asym- metric and roman/calligraphic. The subjects were con- structed by a leading designer. The items in the series were: (1) invitation card to a modern art exhibition; (2) invitation to a wedding; (3) magazine ad for perfume; (4) little page for a book on fine typography; (5) title page for a book of lyrical verses; (6) magazine ad for an oil store.

A group of 36 experts ranked each series according to the congruency value of the four solutions. There was a very good correspondence in these judgments. We were then able to test the congruency value of a random selection of these. The results were not those expected. These were the judgments of experts at the School of Education, Stockholm University (male), 72 students at the Graphic Institute (typography-conscious), and 96 history students at the University (art-conscious generally); 204 in all.

Our first surprise was that these three groups reacted in practically the same way. We therefore treated the subjects, in analyzing the results, as a homogenous sample. Our second surprise was that there was a very good correspondence between the judgments (preferences) of the experts and the nonexperts. We feel that this strengthens the opinion that typographic design has strong congruency potential. This was borne out by a closer analysis of the results.

Conclusions
There are several points in the field of typography which research scholars and craftsmen have reason to exchange views. It is important that the profes- sional typographer takes the opportunities offered to present his practical problems to the general typographer, the psychologist, the educator, and (why not?) the so- cial scientist. Some of these may be matters of practical work, experiment, judged by analogy, or analyzed and stated in a more lucid way then by combining the user's ability. In this context, the attitude of a researcher is often a highly adaptive approach to solving difficult problems. Typographers have seldom felt that the methods of the modern typographer are less valid than the methods of the social scientist. Psychologists, on the other hand, have often not taken the opportunity of applying the practice of typography, the type face, their historical development, categorization, etc., to solve other problems.

The mass medium of printing in our time deserves increasing attention. It appears to be holding the printing of the cultural basis for our society. The Gutenberg Galaxy is a fascinating example of comprehensive interpretation which ob- viously has been influenced by the powerful increase in printed information. The latter problem is often obscured by documents and bibliographies. Muss (1963) treats the question in an article, The Raging Tide of Books, in which it is mentioned that American libraries have doubled their collections every sixteen years.

Our experiments, which we hope to continue, have been undertaken with much curiosity and enthusiasm. The importance of legibility and reading is extremely complicated. We are convinced that it is the designer's task to be a research worker who will continue to make the in- portant contributions by studying the contributions, as well as more time-honored usages, to scientific analysis.
Alternatives to Architecture

Arthur Drexler

Arthur Drexler is a native New Yorker, and attended the High School of Music and Art, and Cooper Union. During World War II he served with the United States Army Corps of Engineers from 1941 to 1946. Since 1948, he has been a free-lance writer, and now Director of the Department of Architecture and Design at the Museum of Modern Art. During this time he has also lectured at New York University’s Institute of Fine Arts, Yale University, Harvard University, Pratt Institute, Massachusetts Institute of Technology, and other institutions, and at the International Design Conference in Aspen, 1962.

Mr. Drexler is known for more than a dozen years of stimulating exhibits at the Museum, including such diverse shows as the Japanese House, Tom Tugboat, Textiles U.S.A., Three Sculptures by Buckminster Fuller, Design for Sport, and 20th Century Engineering. He is best known for his publications in the field of architecture and design, and for a number of private projects commissioned by various commercial and governmental offices.

In this article, Mr. Drexler discusses the development of his personal—and highly individual—attitude toward architecture. With little remaining landscape being rapidly “developed,” with ugly and expensive construction, Mr. Drexler’s view enters a unique area of elegance and economy. He is interested in using and saving the land itself. Perhaps such “contour” architects may reclaim our deteriorating landscape as contour planning reclaims our ruled farms.

The interview takes place in the Saint-Sulpice room at the Cloisters. Kindly guards have sent the public home. The subject, seated in a window on the wall well, is rehearsing his thoughts about architecture but not so intently that he fails to notice the arrival of a guest.

A: You had no trouble finding the way?
B: Hardly any; I am, after all, your other self, and we have been here before.

A: You don’t mind my request? I mean, it is odd to insist on being interviewed.
B: The practice is not unknown, but since you have already given out your opinions I wonder what it is you wish to be asked.

A: I want you to question my logic, and perhaps my motives. Not so long ago architecture seemed to me a matter of alternatives, like the other arts. One could choose from the library of Great Works. The achieve-ments of the masters — and especially the masters of our own time — were not less noble for being imperfect. Necessarily imperfect: the more conversant the artist, the more coherent the system of thought that generates or justifies that art, the more perfect the gap between the work and the idea toward which it aspires. In this respect masterpieces offend more than mediocrities: the mediocre work tells us nothing while the masterpiece reveals the existence of its ideal model. But by this act it renders itself superficial: no glass, no required, no steel frame, can make true to a real artist Empty that ideal pylon. Miss herself has helped me to im-press. At first I was content with such approximations as his masterpieces afford. But the ideal, like ice, makes hungry where it is most satisfied, and so I began to distrust in my own mind the idea of structure as a solution, and transparency as a pool to be without substance, and reflections identical with the source — this architecture, as you might expect, seemed perfectly satisfying, and so I found that I no
longer had need of masterpieces in the pure style.

B: So much for purrncy.

A: So much for the ideal. However, I should undérstand that contemplation of an architecture entirely in the mind intersects with remaining alive, and besides, a certain nostalgia for the things of this world…

B: We are less than perfect. And so I resign myself to live again in the world of contingencies, accidents, approximations – and also the world of judgments, such as good, very good, best of all, however difficult, it may be to attribute stable meaning to these notions.

B: Still, this would allow you to believe that there are alternatives to “save the appearances,” as the theologians say.

A: So I thought; but it was too late. I no longer relished the appearances. The most marvelous invocations of Le Corbusier, the most subtle intonations of Frank Lloyd Wright, had come to seem… I hesitated to say it – artistic. How I loathed it, how I loathed it, whether cold or rather the consultations and discussions that ensued.

B: You protest too much. First of all, the responses you describe – artistically, if I may say so – have been elaborated all through history notwithstanding the diversity of the art. It is always possible to abandon art in favor of theology or science, but this involves misconceptions about the nature of all these.

Moreover, a digestive for a certain kind of form may be conditioned by the style of behavior associated with the deities of that form, a stripe one may think reprehensible. But what difference does it make? Since you have agreed to live in this world you will have to accept artists and patrons along with the arts. And one gets used to making choices. It is not done disquietly according to convenience and taste.

A: It is true that life is complicated and things are seldom what they seem. But you have given to the Episcopalian view an unassailable interpretation, even for an aesthete, or especially for an aesthete, contamination is a dangerous point. If one does not know how to define evil one should at least begin by acknowledging its potential. If an object is made for an evil purpose, it is hardly possible to destroy it without beginning to enjoy the evil.

B: That might be true for the guillotine or the electric chair, but few useful objects are so unequivocal. If the use to which an object is put is not determined in advance, you would have to admit that a jet bomber becomes beautiful when it is used to deliver peace. I don’t see what is to be gained by confusing aesthetics with the consequences of anti-social behavior.

A: Sophisticated opinion would, having been persuaded that a careful separation of form from function allows us to enjoy the form without taking responsibility for the function. And yet the same opinion accepts the idea that beauty inversely results when form and function, so far from being separated, are one – or at least so finely attuned as to make a harmonic chord. That is what most people suppose, and like them I have often found immense pleasure in form inseparable from its purpose. Partly for this reason it was a relief to turn from architecture to engineering – from the conscious artifice to the apparently beautiful. I mean indebted, not fortunate; the New York skyline soon after the Long Island Expressway at fifty miles an hour is to me not beautiful, it is merely a striking image of disorder, like a photograph of cancer cells in all their splendiferous, accumulated charm. Of course, exist, but one should avoid the accident that kills. Dams and highways and bridges often seem beautiful, more beautiful by virtue of a kind of harmless negligence, which is not quite the same as accident. We assume the engineers were thinking about practical problems, and their solutions are taken as proof that the mind unaided can discover, and maintain, the exact affinities between forms and functions. And yet the forms of dams, highways and bridges are conditioned by choices subjectively judged and subjectively made, although engineers like to ennable the shapes they prefer by pretending that they themselves did not make them; necessarily, it did, as mathematics can be made to dominate. But even the choice of a simple dimension is tied to subjective preferences. If you ask an architect to adjust a particular balance between size and strength – for example, to strengthen a concrete shaft without thickening its section – you discover quickly enough what latitude necessary tolerances, and how ambiguous are the techniques of both structure and calculation. No, it is not a perfect correspondence between form and function – imagined or real – that makes much work by engineers so beautiful, but rather a grandeur inherent in the problems they solve. Some problems are truly fundamental and therefore worth solving. A beautiful dam is beautiful not only because of the way it is built, but for what it is – for the grandeur of its purpose, which is to manage the earth.

B: Formlines engineers! What architecture would not like to build in the grand scale? A building five miles long.

A: Neither is it the site alone of such constructions that makes them so exhilarating. A building five miles long would be a mere long buildings; better, perhaps, than ten short ones, but not inherently better. Long or short it would still be a building, and its beauty is not to be separated from the functions that call it into being. And these functions include, first of all, precisely the function of being a building.

B: You seem to be saying that buildings are inherently unsatisfactory because they are buildings…

A: Exactly. Architecture is still thought to be a matter of buildings, when it ought to be something else. And replacing small buildings with big ones is perhaps temporarily useful, but only because it leads to the building of buildings on themselves is changing. We now think of buildings as useful objects, as objects which take up more or less valuable space while performing some service, usually economic. When their usefulness is outlived there is no reason to preserve them, all the preservation societies to the contrary, because such artifacts were never really meant to be more than a means to an end.

Levi House, for example, is a good point. But it is not architecture in the older sense – that is, an end in itself, to which one adapts other things. This change is not a condition to be declared: specific effects are perhaps desirable, but that buildings are still regarded as ends in themselves by the indifferent, or by these architects, including the good ones, who know they are fighting a losing battle, does not preclude this change from accelerating. In this matter industrial designers and technicians are perhaps more candid than architects. They know that technology began by multiplying useful objects beyond reason, and that it will continue by diminishing those objects – by withdrawing or subsuming them, to speak. The designer’s problem is the design of the process that makes the objects, at least as much as it is the design of the objects themselves. If buildings are subject to the logic of technology – and even those architects who now cultivate forms in contradiction to that logic must still cope with it – objects must ultimately yield to the same process of reduction: what Buckminster Fuller saw in terms of technological disembowelment? To look at this purely in the case of communications.

Try to imagine the future of architecture. What will we build on the moon? On Mars? High rise or low rise? Regularly arranged in rows or scattered in a random disorder? Massive sculptural forms and carvings, or the empty space which the windows consume in use – eaten, perhaps. If it all seems hopelessly beside the point, is that only because it will be done on the moon? Or to the moon? Why is it less foolish now, on earth?

All of our buildings are designed as large useful objects. Each year we put up thousands of warehouses and factories, for example, that have no business existing as objects at all. They are services, means to an end. Architects want the telephone company to connect its cables, and the electronics to conceal their wiring, and we have all long ago got over the naive notion that exposed plumbing was somehow “honest.” But factories and warehouses are in the same category; why are they not condemned? Why should we pretend that they can or should be in the realm of Architecture as an Art, even in itself, when we have already seen that they are nothing but appropriately designed as useful objects if that means allowing them in their place, along with pipes and wires. From this point of view the preservation societies are no wiser than the people they contend with. When Con Ed wants to demolish the Lunchbox, they are not just escaping the appropriate response is not to chase them away, or, failing that, persuade them to put up a “beautiful” power station. It is in order to insist that whatever is required be invisible, not beautiful.

The disappearance of a few thousand utilitarian structures would not be deplored, but is itself a hardly constitutional a program for architects. We are no longer to think of buildings as objects but we are the thing we think of them – I mean those you have not already buried in the ground?

A: Imagine that in some remote future the earth has been enveloped by a dozen concentric layers of habitable space. Architecture would have become the task of finessing the world. Significant architectural spaces, then buildings, would occur as isolated nodes in a continuous fabric. The architecture would be an ecological with a special capacity for revealing and articulating the nature of a place, not for making things. This might be literally so, because more of us will be thought of as existing in opposition to the earth; so much building will be built on land; land or building, but not both. “Buildings” would not destroy their sites; on the contrary, the sites would be the building to be made artificial land. And these layers of artificial land; these man-made strata, would yield forms difficult to imagine escape from contemporary engineering. The mathematics of topology, with all its wonderful and mystifying transformations, might become at least as relevant to the architect as the discipline of more familiar
geometry. There is also the accumulated example of those agricultural societies which for centuries have
carved up the earth to make terraced plantations. The
Ragas, in Luzon, have terraced some 800 square
miles, and their achievement is at least as spectacular
as those examples drawn from modern technology
such as the Bingham copper mine in Utah.
In 1965 I was much preoccupied with these ideas,
because the Museum of Modern Art was in the midst
of planning its new galleries. It seemed to me that
násbol the city nor the Museum needed yet another
left structure, with or without glass walls, and that
might be possible, even on the most awkward and
limiting site, to produce at least a persuasion — in
this case a kind of multilevel garden. If one imagined
the Museum's existing sculpture garden with two
floors of gallery space below it, the amount of unin-
terrupted gallery space achieved on two levels ac-
ceeded what could be built on three levels in smaller
wings. Moreover, it seemed to me that the chief
problem for all museums is not how to exhibit works
of art but rather how to cope with great numbers of
visitors. So I imagined that part of the total garden
area could be more useful throughout the year if it
were indoors, arranged as a promenade some 300
feet long, protected by a glass barrel vault through
which one could see the other garden on the roof
above. Like a forum or a stoa, the indoor promenade
garden would have accommodated large sculpture,
sculptures, and a place to sit and talk with one's
friends; I thought of it as a kind of park landscaped
by galleries. Apart from the glass vault and the adjoining
structures, all that one would have seen of a "build-
ing" was the rim of a concrete tray encircling the roof
garden. In a sense there was no building at all, or at
least there was as little as possible. The idea of archi-
tecture as artificial land seemed to emerge with some
clarity, although its form was heavily conditioned by
the existence of other buildings to which, of course,
it had to relate.
In 1960 the Chase Manhattan Bank was considering
an exhibition pavilion at the New York World's Fair.
The exhibition was to have consisted of rare coins
from the bank's Money Museum. Nothing in this
program seemed to me to require another exercise in
architectural noise-making, and the possibility of
building artificial land was not hampered by existing
structures. So I began by imagining that there were
four styles available to me, including ground level,
and that all I had to do was cut holes into them so
that I could see through to the bottom. The holes
were of different sizes — 100 feet in diameter for the largest;
50 feet for the smallest — and I imagined that the ap-
propriate design discipline would be to subject each
structure to the abstract, man-made equivalent of a
g geological upheaval; that is, they were made to slide
away, so that the holes no longer lined up. This inter-
stice between ground level and the next layer ac-
accommodated a large garden and ample sheltered
space for the exhibition. Below were the two re-
maining strata, given over to pools and fountains
from which rest and cool air would rise through the
blooming trees and scent gardens above. The only
visible elements of construction, apart from the per-
imeter wall, were the solid parapets; and these I
imagined as metaphor for the polished ledges of
rock one might see in the desert — low, glazed, perhaps
like celadon or sang-de-boeuf porcelain. And looking
down on these gardens and pools, I thought, one
would believe that the place was inspired by the
earth itself; that it had always been there, and that it
had been revealed rather than built.
Neither of these proposals ever got off the ground —
or into it — for reasons having little to do with architecture. Between them I succeeded in transforming my paper into a longer essay. Few years to a different chapter of history, there is also a long line of thought that has considered architecture as a matter of manipulating the site rather than proliferating large-scale objects. Sant’Elia’s most interesting idea was not to have evolved translation into architecture of machine age frenzy, but rather his observation that buildings could (and did) extend into the ground on which they only appear to stand, and that the idea of “ground” is quite often the roof of a concealed building. From Wright’s and Le Corbusier’s explorations of the implications of architecture at engineering scale, though only Wright in certain projects came close to abandoning the buildings as a facade. I suppose the version unspoken statement of this idea is Bruno Taut’s “fantasia” on “Alpine Architecture,” wherein Switzerland is carved and polished into a sculpture more satisfying than nature provided. In the United States Paolo Soleri’s studies for a city in the maze have approached the intensity of Taut’s inspiration, but although both men have explored the uses of the earth, neither of them has quite wished to relinquish the individual buildings as the unique, or at least more obvious, manifestation of architectural intelligence. What seems to me remarkable is that this final step has been tentatively taken in reality almost before it had been clarified in theory — but perhaps that is the way important developments always occur. I am thinking not only of those underground structures produced and guarded by the military, and bomb shelters by iconoclasts (which serve only to color the idea with disagreeable overtones), but more truly of the hundreds of buildings protested by practical architects for practical purposes. For example, the Centro Storico, which I first encountered in 1982 and now in construction, is conceived as the architectural expression of an existing park. As the highest part of the site the “building” can be entered from the park, that is one of these landscape terraces with exterior stairs descending to gardens below. The community has wisely refused to replace a park with a building, instead, they are improving their public by rendering sections of it habitable. How new, how original, the change will remain to be seen, but photographs of the model make the architect’s intentions apparent.

Max Abramovitz’s 1963 project for the University of California at Berkeley’s Djerassi Corporation, called Panther Hollow Center, is designed to fill a mile-long ravine with a single, continuous structure for offices, community, and research laboratories. It would also incorporate transportation facilities. Parts of this structure would rise above the ravine to appear as conventional buildings. But by far the most interesting sections are those which merge most completely with adjacent ground. The entire structure is the interior cluster-like gardens, and certain other details of composition, are perhaps unnecessary; the point that kind of building the architect is here trying to overcome, but these very defects help us to understand what might be done with architecture regarded as the improvement of the earth. The idea is drawn even more poignantly by Bernard Zehrfuss’s recent underground annex to the Unesco headquarters in Paris. The architect is to be congratulated for his tenacity, but one cannot help observing that he has denied himself precisely the advantages of the solution he has chosen; surely those courts could have been made to yield a more beguiling landscape.

One other problem deserves thoughtful consideration: the Hillside de la Roca Terraza in Casco by Jorge Romero Gutierrez, begun in 1939, and now standing unfinished because money gave out, this project is in my opinion the most significant architectural enterprise attempted in this hemisphere since World War II. That is a grand statement, and I admit that I am moved to make it partly because one of our far-angelled diplomats has described it to Washington as an example of Latin American extravagance hardly worth our interest, much less financial support. The mountain that divides Casco was selected by the architect, who also functioned as entrepreneur, as a good site for a shopping center, among it is equally accessible from all parts of the city by a main highway. His “building” is simply an extension of that highway, the road being wrapped around the mountain in a double spiral which revolves at the top. Progress photographs show the mountain fast being carved into broad terraces exactly as Bruno Taut suggested for certain mountain sites in Switzerland. In the second phase one sees various levels of the road in simultaneous construction; the last photograph shows the almost complete structure as it stands now. Had it been finished, visitors would have driven up the road to park alongside one of the small stores lining the way. A détour at the top would have housed an exhibition hall; hotel facilities and additional parking were to be in adjacent structures hooked onto the spirit. Planning would have varied the contours of the piazzas, replacing the Bailey Street to the mountain from which it derives. Whether or not this astounding transformation would have produced a perfectly functional shopping center is perhaps beside the point: what is important is the architect’s effort to take one of the most destructive elements of modern environment — the highway — and place it at the service of the landscape, so that its own act, so to speak, reveals what there is of architecture implicit in the features of the earth. The idea behind the building of the “buildings” the United States will spend sixty-six billion dollars defining clear lines and landforms alike with highways planned by people to whom this possibility has never occurred. Gutermuth’s experience is cheap, and ought to be completed; and there are more than enough opportunities for experimentation in the United States. Consider the famous Carpenter Bridge approach in California: beautiful concrete and steel ribbons weaving through air, and destroying the community they might have enhanced; they might have become the community; imagine the cliffside freeway building immediately to the right of the highway, in the construction photograph, replaced by a continuation of the road itself in the manner Gutermuth has suggested.

Enough. I know quite well such things are not prac-
tical, in the way that an investment of millions to test a new bomber is practical, because nothing is.

But such experiments may yet prove practical, or at least respectable, when economic pressures become great enough. You might have cited Bertrand Goldberg’s 1965 study for the Airlifted Hospital Center in Boston, whereby six hospitals would combine in one centrally located complex. Goldberg proposed to fill the entire site with four or five underground levels given to every hospital function but one, the patients’ bedrooms, which he places on fourlander towers. He concludes that it is tedious to make incinicators, kitchens, laboratories, laundry, and a hundred other service spaces into Great Architectures; it is also irremediably expensive. That fact is reason enough for building loft space under ground,

and if raison prevails we may yet see an intelligent application of these ideas introduced to a city already overcrowded with artistic manifestations.

A: Yes,厂em almost enthusiastic about ideas I had thought you would say. Or, at least question ser-
ously. Surely you have reservations? You think it is all too much removed from the realities of life, includ-
ing the lives of architects. Or, that it postpones the possibility of more modest solutions to urban prob-
lems by suggesting something impossible to achieve in the foreseeable future? Whatever I describe all the friends there come, at a certain point, the nervous glance that suggests fear — fear that I have become impatient to a point about this sub-
ject. Why not say so?

B: Oh, come now — the possibilities you raise are not all that original. It is best not to shout, of course, and one has no choice but to go on seeing out decent achievement in the old-fashioned form of architecture. Conventional excellence is not so commonplace that one can afford to ignore it, much less denigrate it. Your real problems, I suggest, need not involve paro-
noia. You should resolve your own vague apprehen-
sions of moral or ethical content in an architecture such as you describe: and come to terms with the past. Why, after all, are we discussing this in The Cloisters, of all places?

A: Because, for me, in this peculiar and beautiful ref-
cut conflicts are held in abeyance. The weaknesses of the past is reassessed with skill and love; inventions of the present are disposed with such discretion that the result is a welcome solace. It is from here that the bravo new world seems rather hori-
zon, but merely bare.

B: And in the eclectic forms you find the courage to accept a quixote you would otherwise disdain. How strange that one needs to have the world arranged in a certain way before one feels free to withdraw from it.
Greetings

These greetings from one human being to another may be considered as corroborating evidence for McLuhan’s thesis about our changing modes of awareness. While they are visual, they are not

designed as a letter would be. In most cases they depend for their effectiveness on a common background of understanding between the sender and

the receiver. A subtle but pervasive vocabulary of awareness is used.

In most cases, these are not part of any program; they are not didactic. They have none of the philosophical diaphanous of the Bashaus or the Dada

posters, drawings, and exercises. There is nothing of

the manifest about these absurdities and reminiscences, except a very general admission to enjoy absurdity for what it is. “It may not be as

serious as you think.” Within this attitude there is room for all sorts of structural, typographic, historical, cultural, and visual jokes.

All of the greetings have been selected from a collection which is now being exhibited at the

Museum of Modern Art.
Book Review: Vasarely
Douglas MacGay


To many in this country, Victor Vasarely is an artist who made the grade when they were not looking. Thirteen years ago he was represented in a group show at the Guggenheim Museum called Young European Painters. That spring he turned 55. Since 1943 his work has appeared here in at least fourteen group exhibitions and seven one-man shows; but the public’s “responsive eye” did not seem to register or retain his image until the exhibition of that name was presented at the Museum of Modern Art. Suddenly people realized that he had been around for quite a while, that he is now older rather than younger, and that he is a seasoned expert in what has become the latest thing. They did not recognize that the personality so recently assumed to be familiar is, in fact, a deliberate stranger.

This book, which is so much more than a book, makes the distinction clear. Self-conducted on other subjects, Vasarely comes out with unqualified content when he is up against a ferment theme. He does not change the currents of faddism and fadism. In these circles he sees art valued as a list price, often exaggeries exaggerated by jargonization. Not only art in art but seduction and the exciting character of relations between artists and art aficionados, make art a fashionable sport. Most of all is he blunted at the effect on artists. The titles “artist” is, he says, gratifying, futile, covering only applause and thirst. Must we have recourse to anonymity in order to rediscover the honor of our craft?

But there is nothing anonymous about his book. It entitles and makes his name need not be shown; it offers an original icon of abstract art’s career from the inside. He is not outside, with an intention and fact, in the artist’s personal expression of his choice. The book is itself a special kind of exhibition; it is perhaps the most lucid presentation of Vasarely’s work and point of view that has ever been devised.

Because he has been developing a lot of attention to the record of his lifework to date. A note in this volume announces the preparation of a full-length 250 mm. film in color, on the artist’s entire plastic work, concerned with his plastic articulation, his commentaries and sound effects. If the present book is no means covers Vasarely’s entire Plastic work, it does handily re-produce nearly 200 examples and includes substantial sections on the artist over the years, its layout is also his, its range is mainly restricted to about 1900 in an edition of “The abstract” came not only in 1974, he explains.

And, to recur to Moisés Jeréz point out so that, when the book was being designed, pictures were grouped not by titles but by types, text being fitted into spaces left. As the texts that are illustrated in the dia- visuals, not the pictures. Vasarely’s point is made. While these are not types, the fonts are simple, unadorned and legible. Once a white legibility yields to demonstra- tion, a reference to phoney effects of tracing paper is printed on a translucent sheet, but on the whole the books of reading matter do their job without being cute or getting in the picture’s way. As an alternative to the unembellished novelty in the make-up elsewhere, the typography becomes almost Japanese, in its fluidity, about the middle, to enclose page sequences which reproduce holographic and typographic notes from the artist’s film.

The venture in general is a little reminiscent of the films that starred Charlie Chaplin, were produced by

Chaplin, directed by Charlie Chaplin, written by Charlie Chaplin. Like Charlie’s, Vasarely’s gifts and attitudes suit his medium. Not only the star of this year, he has produced, directed and written a never seen in the form of a book. Its remarkable outcome is that it seems like a picture-book than a brilliant inventive exhibition.

Its success in this unexpected guise is due to Vasarely’s skill in implementing his conviction that an abstract work of high order may be acceptable to such presentation without loss, in effect, his works are designed as reproductions. A reason was given in his 1939 Manifesto. Without reproaching the principle of frame, he wrote, we choose that of multiplicity, as being more generous and more human. For him- self, he does not think of the instant singleness of a work as a unique condition. It is only a potential thing. What other artists have believed was an end is for him a start. The multiplicity, he says, is no longer the concentration of all the images into a final object, but the creation of a point of departures-prototypes, having specific qualities, perfectible in the progressive number. He has worked out a prototypi- cal scheme by which a given design event may be scaled up or down to fit a variety of possible settings without damaging its first formal integrity. In the pres- ent application a common situation is widely altered. The dynamic content does not so much make a con- venitional book as it makes this book an environment.

To accomplish this, Vasarely has had to come to terms with aesthetics. He gives no indication that the reliance, alliance, or any way in which he has managed his vocation. There can be no question that the combination is responsible for the forthright visual and manipulative character of the book. The idea is impeccable from the technical production, and the idea is demanding. Excursus from the editor’s description convey the extent. For the execution of this book we have drawn on a great range of technical resources, including offset, silk screen, typographic, mat, glazed and passant papers and transparent backings; loose sheets and folded sheets — in order to remain faithful to the models of flip-flops, use of the screen has been invested as much as possible. A great number of pages have accordingly been executed by one printing in black and two or three printings in different grays. The reproductions in color have required up to eight successive passages on the machine.

This spalls money, and by ordinary standards the book has a high price tag. Yet costs must have left little. If any margins on profit. It is as if the artist had insisted on the finest technical facilities obtainable, and then had pleaded for the most accessible sales charge. A copy offers a lot for the money, but the money is a lot for the people he wants to reach. Writing in 1959 of abstract art’s in the respective contexts of capitalism and socialism, he laments the failure contradiction that it should be tolerated here and banished there. He had just said that the most living forms of constructive abstraction (archi- tectonic, integration, informative arts that can be way disseminated, and arts of synthesis) have a markedly social tendency. But only a few years later, in connection with the publication of this book, he surprises the reader with a contraction of his own. It is saved for the bottom of the last printed page. There one learns that the already costly publication is not only available in a luxury edition, but that the artist has provided a bonus for those who can afford it. He has created twelve different modular paintings, which he has signed and numbered, and which have been executed in seventeen copies each.

Perhaps because it is so up-to-date, this discrepancy between thought and act seems the most notable in the book. A quiddling scribbling of the text, which re- flects passing (and sometimes enduring) considera- tions made in notes over many years, would doubtless reveal others. Vasarely himself, for all his leaning to- wards this consistency, does not equate conviction of existentialist, flesh, blood, and a sometimes in- determinate susceptibility of mind, quality in his other- wise rather mechanistic view of personality in history. Sixteen years into this he wrote this note: No matter how great the investigator’s intellectual honesty, the schiz- ophrenic or paranoid inclinations capriciously blended in him will carry him away in spite of his vigilance. Never embarrassing his reader by knowing in a confession, his notes often humbly retrieve the feelings he feels his art to reflect.

Vasarely constantly, hopefully, and often candidly, rel- ates his own techniques. This elaborate and urgent summary of his contributions is the midway state- ment of a man figure in a cultural trend that is neither new nor old. Perhaps the span so far will be regarded as a beginning. To that, Vasarely has addressed an illumination and conclusion.

The range of his own development reveals not only change but also the offensive engagements which make his work cohesive as a body. This book docu- ments exhibitions, and includes both an exhaustive biography and a useful bibliography up to 1964. The latter lists the Yellow Mandala — though not by this familiar name — and prompts curiosity as to why its pertinent text was left out of the book. Mirac, but perhaps of future interest, the bibliography omits refer- ences to the Vasarely essays that were privately published in the painting books of the Yugos- slav artists (Petro) and Krivac. Vasarely, his family, and his publisher have produced a supplement bound in a beautiful book. Maybe it is too beautiful for its pur- pose. It is a pageant, a pageant of excellence which may provide a must beautiful series, nothing but beautiful books.

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The concluding data is his.

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