At the Edge of Meaning
Aaron Marcus

ypographic/calligrap ic symbols of visibl la guage are abstract vessels for man's conceptions about spac -time. The perception of their visual form has evolved over millenia, fluctuating in its recognition of their manifold nature as pictographs, ideographs, physical marks on a surface, t o-dimensional and three-dimensional entities. Today the introduction of electronic communication and computers has created strong forces to reshape letterforms. At the boundaries of accepted usage, at the edge of meaning—whether it be in research la oratories, in art and design scho ls, or in professi nal studios—new conceptions about the role of these familiar forms are emerging. On the one hand, there is a struggle to create new forms; on the other, there is a return to a better understanding and re-interpretation of older approaches. The question is: where are we now in our understanding of the process of change?

As a graphic design student, I was once told by an instructor that typography at its best is "invisible." In such a state it permits the reader's eye to pierce effortlessly to the core of (verbal) meaning. Although many professionals regard this invisibility as a desirable objective, it is always literally unattainable. The net[2] of typography is anything but invisible. In fact, some designers of visible language compositions (e.g., designers of alphabets or designers of magazine and boo pages) regar it as xtremely important to ake the re der co stantly aware of the me ium of typography. Their intention are similar to those of many recent avant-garde artis s. Researc in many disciplin s illumi ates th conscious or unconscious a areness that the reader has of visible language; it is the nearly infinite set of distinctly different possibilities for formulating visible language statements that continually delights and informs both the graphic designer and the reader.

After recognizing, then accepting the visible nature of the medium, it is possible to be simultaneously respectful yet dissatisfied ith the accomplishments of a relatively small number of symbols (especially in the case of non-ideog aphic languages such as the alphabets of the western languages) n a rela iv ly confined visual fo mat. Such a

judgment is arrived at after an exam nation of the variety of forms which have at one time or another fou d use and the full range of visual mar ing systems that scientists and artists have experimentally evolved since earlie t times. Excep for aberrant periods of radical change, the most successful forms of visible language took advantage of the technical capabilities of the day. Consider a fairly recent example: once Gutenberg's novel methods of typography chieved widespread accepta ce, the number of distinct alphabetical symbols dropped from approximately three hun red in his books to the more workable number of five dozen in the nineteenth century book.[3]

In the twentieth century the increasing use of video, computer gr phics, a d holography[4] requires a new perspective with respect to the implications of these me ia for graphic desi n and visible language in general. The term "graphic design," like "c ncrete p etry"[5] or "vi ible language may have several broad areas of meaning. Of particular importance in this discussion is informational (as opposed to persuasiv) communication through typography, photography, and illustration. This implies a greater uantity of long texts with complicated logical structures.

At the beginning of the profession of graphic design as a self-aware discipline in the twentieth cent ry there were percept ve critics like El Lissitzky[6] who anticipated the deve opments taking p ace in vision and in visual communication. Lissitzky foresaw "optical" as opposed to "acoustical" liter ture, i.e., typog aphic forms that more completely took advantage of their visual nature, that xplored a full two-dimensional space rather than the more limited linear form of conventional typographic arrangement. Others have since repeated or enlarged Lissitzky's point.

The basic dictum of the early polemical writings of this century as well as the subsequent achievements in the theory of graphic design an concret poetry is th t typography is becoming richer two- imensionally and is more intricately and inextricably bound to non-typographic elements such as photographs and illustrations. There has been a tendency, however, to understand this in terms of large, simple messages, i.e., the overall composition of book pages, newspapers, posters, or signage. The alteration of the heart of the text—the narrative, linear typographic statement of ideas—has been more resilient to change. Yet, even here, here are developments, if not in ubiquitous pocketbooks, t en in magazines and in some t xtbooks.

Typography, and with it visible language systems in general, appears to be moving toward a fragmented approach to composition. This is a natural and appropriate response to the innovation in message carriers: video, computer graphics, and holography. The essence of these new media is the incredibly rapid distribution of particles of light, not particles of ink (with the latter's attendant industrial-age companions of paper, presses, etc.). This dancing stream of light connotes the movement towards a quickly changing and complex diorama of symbols (Figure 1).

The term diagram well describes just such an array of symbols.[7] It is intended as a general term to denote an arrangement of alphanumeric symbols, points, lines, planes, colors, and other aspects (e.g., texture) which utilize a two- or three-dimensional space. The concept evokes images of charts, maps, models, schemata, and similar visual structures. Normally the intention of a diagram, as with conventional text forms, is to convey a specific body of information. The meaning of a diagram can be a very precise formulation upon which there is an objectively complete consensus, or it can be ambivalent, parallel to the variability of normal visible language texts.

In well-designed diagrams there is a symbiotic relationship of the alphanumeric symbols to the non-typographic elements, one which allows a completely visual approach to reading. These other elements may be photographic, illustrational, or pictographic. Additional parameters into which meaning may be injected are, among others, movement of symbols (or visual elements) across and into the visual field, layering of information in actual or implied depth (literal or phenomenal transparency or translucency), color, multiple entry and exit, and figure-field relationships.[8] It is this set of diagrammatic qualities which the new media offer for visible language.

Of special importance is the rapid display and efficient movement of symbols in a three-dimensional field. With video, computer graphics, and holography it becomes increasingly easy to portray simulated or literal three-dimensional spaces. In recent computer graphics publications there frequently appear images of multi-colored environments that are generated by the computer; they exist nowhere but in the computer. At the National Aeronautics and Administration headquarters in Houston, for example, it is possible to see and to manipulate a fairly realistic, but simulated, portrayal of a space-shuttle pilot's view of the descent to earth. These same headquarters house the Mission Control Center with its complicated arrangement of wall-sized display screens and video/computer graphics terminals.

The question that comes to mind is this: in what way can visible language systems appropriately match the potential for visual communication which these media afford? Is communication to be reduced solely to photographic images with voice-over? This is unlikely. The nature of a typography in a three-dimensional space becomes a matter of greater potential and concern.

During the millenia of written symbols, it has rarely occurred to anyone (until recently) to wonder what the back of a letter or symbol looks like.[9] The question is normally unanswerable, because two-dimensional statements, whether comic strips or elegant prose texts, conceptually have only a front face. Another typographic composition on the reverse side of a book page is also a front face. What happens between these faces is, in traditional terms, meaningless. Similarly, a letter printed backwards is easily flipped to a right-reading letter and is not understood as the rear-view of the backward letter.

In a computer graphics display, the answer to the question "what does a visible language composition look like from the back" may be the conventional answer that it looks like the rear of a video CRT display. However, recognizing the possibilities of video/computer graphics/holography images, the rear-view of a typographic composition may afford a prospect into new areas of a visible language space which were previously unobserved (Figure 2). This is the equivalent, in terms of visible language, of moving from a Renaissance single perspective view of typographic space to a multi-perspective view in which each direction reveals new insight into the total meaning of the work. The view of three-dimensional typographic space from the rear, for example, may <u>not</u> simply be its mirror inversion.[10]

The new media reflect modern mankind's greater mobility in space. The reading room has enlarged to environmental proportions as one travels literally by car and jet or phenomenally by electronic media to distant locations. One spends an ever greater proportion of time absorbing information from compositions in urban spaces while reading signs, posters, maps, etc. This form of reading, while it may now appear trivial, can serve as a model for multi-dimensional diagrammatic reading. As such it greatly changes notions about the traditional typographic connotations of legibility, comprehension, density, scale, readibility, etc. (Figure 3). Insofar as the new media appear to have replaced the "book" as a source of communication, the glass screen has replaced the printed paper page. There has been a tendency, however, to overlook the full implications of that change. The screen

of visible languages is being shattered, but the pieces have not necessarily been re-asse bled into a merely two-dimensional mosaic or constellation. Well-structured m lti-dimen ional diagrams of the con ents of vast quantities of information are the appropriate, efficient, and necessary visi le language form for the "post-mod rn" reader.

Who is the reader? It is the reader who would be overwhelmed by the amount of informa ion available in any area of thought or decision making. This task of ext acting signific nt conte t from an ever increa ing supply of information is gradually affecting all persons in their professional and private lives. Many dis iplines have combined forces to help solve the communications problems inherent in the increased flow of information. To cite one example: William Ewald, a communications consultant, review d the most adva ced au io-visual and computer-related display systems before developing a project to equip regional policy makers with the necessary visual displays to enable them to make relatively well-informed decisions about matters affecting large areas with potentially millions of inhabitants. The heart of his proposal is a "situation room" for decision making in which people meet to debate issues and to review relevant information. This predicament is a paradigm for most decision making in the real world. Here are the very circumstanc s deman ing a diagrammatic, environmental approach to visible language display.[11]

Figure I
Babel, computer-assisted poem-drawing, 1972

Using a phototypesetting machine connected to a digital computer, this image seeks to explore new possibilities for expression and to focus attention on the manifold nature of symbolic statement: as gesture of movement and material, as pictogram, as ideogram, as phonogram, as two- or three-dimensional object. Conceptual cross references are the turnpike at night, the starry sky, ritual charts, and typography dreaming. (Adapted from Marcus, Soft Where, Inc., p. 7.)

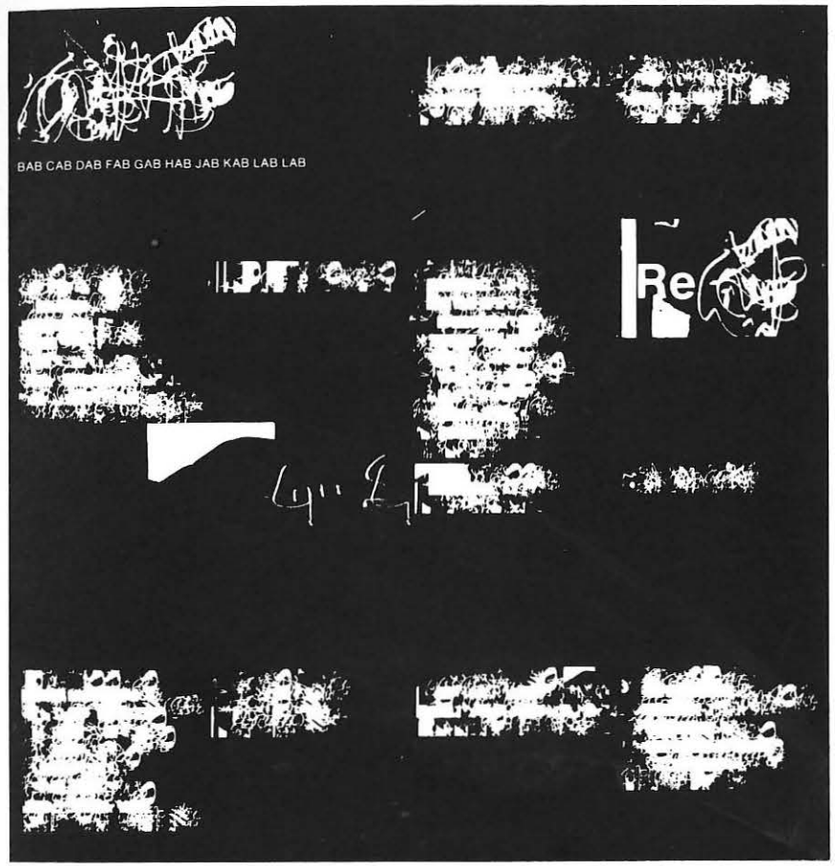
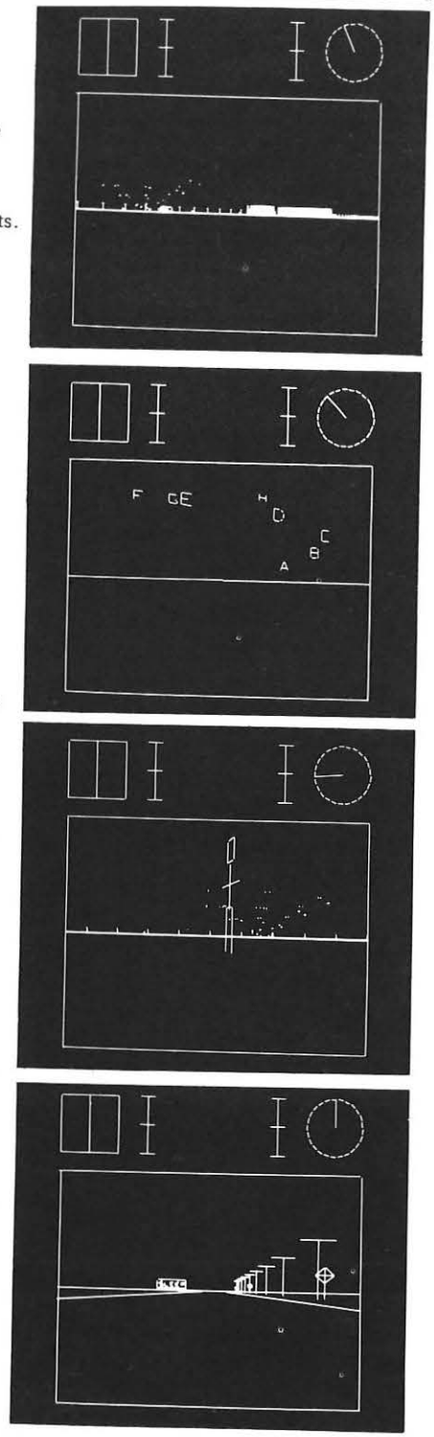


Figure 2
Cybernetic Landscape I, computer-assisted poem-drawing environment, 1971-3

The landscapes pictured here were created on an interactive computer graphics cathode ray tube display device. These landscapes in a simulated space provide a palpable spatial experience of abstract visual forms and conventional verbal and typographic elements. The symbols are transformed into glowing filaments of light. The viewer/reader/participant is no longer bound to the flat surfaces of the incised, written, or printed sheet. By using the interactive equipment, the viewer may look at and wander through this aesthetically composed visible language space at will.

The illustrations show various views of Cybernetic Landscape I. The small diagram at the top indicates location of the viewer on the groundplane (dot in the square) and direction of view along the groundplane (line in the circle). Bars indicate the height above the groundplane and a vertical viewing angle. Visual elements are to be found throughout the space, for instance, a kinetic object which is a whirlwind of letterforms rotating silently with a pulsating, varying rhythm independent of the viewer's position or movement. There is also a "person" who moves randomly along the groundplane. This creature is both a mirror of the viewer and an indicator that other viewers, other human beings, could be connected to this space, could "enter" it and could "meet" the present viewer "inside" this electronically created environment.

By means of this computer-assisted display, new relationships, new meanings, emerge that depend upon the position, movement, and viewing direction of the viewer/reader/participant. As objects of light, the elements in the space convey a distinct and forceful presence combining the mystery of dreams, the awesomeness of the night sky and the wonder of the modern man-made urban environment seen at night. Instead of the strict topology of the stele, codex, and later book forms, the linking of elements can be more rich and complex; yet it is achieved through visually simple elements: points, lines, and planes. These visual components of familiar forms have been transmuted into light and space. The reader travels through the text as context. (Adapted with permission from Marcus, Soft Where, Inc., pp. 12-14.)



In the presence of the new media, the diagram in its many historical and cultural forms becomes especially important for visible language. An awareness of diagrammatic typographic structures, especially environmental forms, guides one in recognizing the potential for visible language as it develops. It is this horizon of symbol forms, this "edge of meaning" which the present issue of Visible Language seeks to explore, and in doing so this special issue must depart at times from the mainstream of the journal's concerns.

Why not look at real signs, I thought. Why not in fact record on tape this most popular of cultures, this gigantic folk poem, this epic of a million store owners defining themselves?

Price/Katz

The subject of diagrammatic visible language is a difficult one to investigate because the awareness of diagrams as a distinct subject of study has made but quiet progress. Through the ranks of the appropriate academic and professional disciplines there has been a modicum of success in becoming aware of diagrammatic visible language and in developing a critical apparatus of concepts, terminology, and structure. Consequently, there is no widely used meta-language for discussing diagrams although the various approaches through semiotic and semiologie offer significant achievements.[12] Educational curricula rarely reflect this field of study, and it emerges only sporadically as a subject of inquiry in journals of psychology, semiotic, art history, and visible language. One must have more to look at than the beautiful but inevitably limited selection called Diagrams published recently by the editors of the magazine Graphis[13] or the analysis of Bertin in Semiologie Graphique.[14] As good as these two important references are, they are only a beginning. With time professional magazines and journals will present material in enough depth and with a coherent examination of the subject.

Basic design sufficiently isolates factors of visual perception so that they can be easily observed, analyzed, played with, controlled, learned, transposed, and applied.

Friedman

For the present this special issue has gathered materials from diverse sources as prolegomena to this emerging field of study. The selection of contributions is by no means definitive. The purpose of the issue is to develop an awareness of the subject and to suggest areas of future inquiry. There is a mixture of conventional discursive texts counterpointed by short visual formulations of experimenters whose work has a specific didactic value in the context of this issue. The illustrative materials may be viewed as visual footnotes to the larger discussions within the issue. The structure of the issue itself has a diagrammatic quality. Because of the propadeutic status of the study of two- and three-dimensional diagram languages the components of this issue may appear to relate to each other tangentially in a complex whole. Consequently, a few remarks upon their relation to the themes of the issue are in order.

It is a symbolically potent fact that expression seeks a transformational grammar. It is the task of art to transform.

Kenedy

The three broad areas of the issue are the following:

1
The new media offer potential for more diagrammatic use of visible language in situations more complex and prolonged than poster-like or rapid reading situations. What is the nature of this amalgam of forms?

2
Of special interest is the three-dimensional typographic composition as a diagram in the environment and a diagram of the environment. How can such forms be described and evaluated?

3
The discussion of diagrams requires meta-languages. Such an emphasis will encourage the entry of the subject of diagrams into the educational sphere and into graphic design and related professional disciplines. What is the nature of such a discussion?

Franke argues that linear discursive text formulations are not as informationally efficient as other possible arrangements of text and suggests considering two specific diagram types as models for future typography. In a sense he is discussing a direct future descendent of straightforward text settings (i.e., for the most part unornamented, prosaic modes). Howe's composition provides a visual fillip to Franke's proposals; it may be contrasted with the work of Ockerse which follows. Ockerse's projects are also

compositions based on an underlying grid, but the structure is much freer and corresponds to the flickering order of video, an order over time, as much as space. Knowlton and Harmon's article re-enters the discussion of video and computer graphics to indicate the potential inherent in these media. By adding informational content in an innovative, controlled measure to all elements of the marking/writing system, they achieve a new order of meaning. Finally, Kostelanetz shows the importance of giving attention to all symbols in a diagrammatic literature. This concrete poetic work harks back to the world of statistical tables and conventional numerically-oriented diagrams, but it alludes to other levels of meaning hidden among the ubiquitous and pedestrian numerals.

The results (of Documentracings) are much like impressions left within us by the fragmented signals from our environment.

Ockerse

In the second section of the issue Price and Katz adumbrate the concept of a three-dimensional diagram environment by regarding the urban environment as a gigantic diagram. They present an experimental reading of the graphics of the urban street. Others have examined individual elements of such graphics; they attempt a holistic view. Cumming's work includes an implicit reference to their approach by literally diagramming typography in the environment, and Sky's article formulates another mode of appreciating the function of environmental graphics. Finlay's sculptural concrete poem pictured in this issue offers a simple, eloquent typographical diagram-object, one that takes information from the environment (the position of the sun) to create a complete statement.

Interesting and artistic effects often result when the familiar dots of half-tone screening are replaced by deliberately more complete patterns or structures.

Knowlton/Harmon

The final contributions relate to education and the need for a meta-language for discourse about diagrammatic configurations. Baudin argues that an enlarged scope of "writing" must be introduced into the curriculum. It is in academia and the professions that a regularized diagrammatic writing is most likely to emerge due to the necessities of communication in these areas. Friedman's students' projects present, in a sense, a writing lesson for such an expanded vision of writing. While couched in specific terms, the value of their project is more universal. Finally, Kennedy's article demonstrates the use of a meta-language criticism which, in its mixture of art and language, is similar to criticism of visual works among the post-avant-garde critics. This approach is used to pierce the meaning of diagrammatic works of Marcel Duchamp. These works

Writing is the only way we know to prepare and to organize any complex human activity.

Baudin

contain specific ideas utilizing titles and verbal play. In Duchamp's oeuvre there is a conceptual word/image dialectic constantly at work whose sophistication can serve as a model for future writers of diagrammatic visible language.

This issue's sequence of musings about the direction of visible language must at this stage be kaleidoscopic and oblique. To peer at the horizon and to determine the form of approaching objects, implies first being satisfied with broad outlines. Half a century ago Lissitzky, observing similar changes in communication, proposed the following analogies to contrast visible language systems (the movement of thought) with transportation systems (the movement of people). These are shown below in an adaptation of Lissitzky's table of analogies:

Inventions in the field of thought communication	Inventions in the field of physical communication
symbolization	upright walking
writing	wheel
Gutenberg's letterpress	animal drawn vehicle
?	automobile
?	airplane

It is now possible to fill in the question marks above by opposing phototypography to the automobile and computer graphics (video/holography) to travel in the jet age. This issue of Visible Language addresses itself to resolving, if hesitantly, the normative forms of visible language in the era of electronic communication.

t o r a i s e

l a n g u a g e' s

t e m p e r a t u r e

w e n o t o n l y

r e m o v e s y n t a x;

w e g i v e e a c h

l e t t e r

u n d i v i d e d

a t t e n t i o n,

s e t t i n g i t i n

u n i q u e f a c e

a n d s i z e;

t o r e a d

b e c o m e s ...

t h e v e r b

t o s i n g.

John Cage, 1967-1972[17]

Notes

This introductory article and the contents of this issue are the result of an invitation by Merald Wrolstad, the editor of Visible Language, to assemble a special issue devoted to the theme, "At the Edge of Meaning." The author wishes to acknowledge with thanks his patience and valuable criticism during the creation of this issue.

1
Sophie Lissitzky-Kuppers, El Lissitzky. Greenwich: New York Graphic Society, 1968, p. 355.

2
The use of the word "net" parallels Ivins' use of the term "nets" or "networks" in his perceptive description of illustration reproduction systems for printed matter (or visual languages) and their effects on the transmission of knowledge. An example: "The nude was the particular fish for which the net of engraving had originally been devised" (page 179). William M. Ivins, Jr., Prints and Visual Communication. Cambridge: MIT Press, 1968.

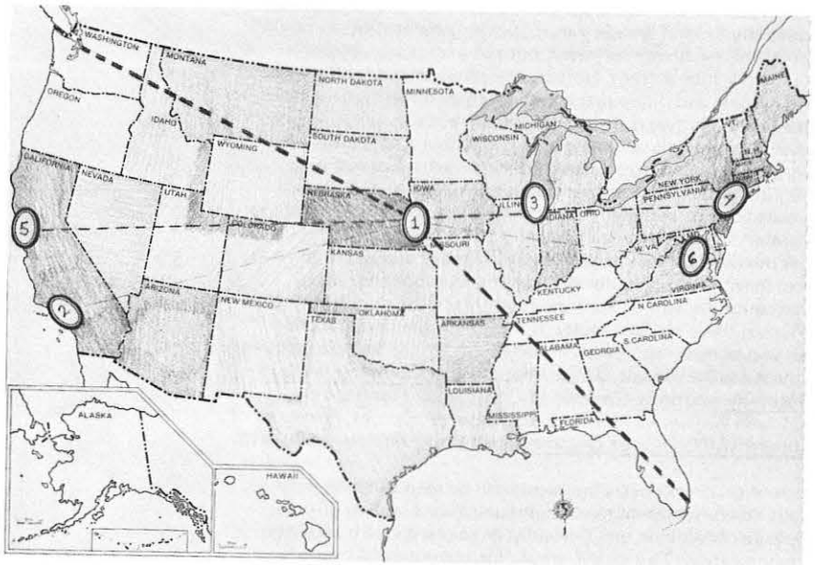
3
As is sometimes pointed out, Gutenberg's achievement is more a typographic/visible language system than a printing system, since his press merely adapted the well-known winemakers' technology. For a display of the alphabetical characters used in Gutenberg's books, consult the illustration shown in Emil Ruder, Typography. Teufen, Switzerland: Arthur Niggli, 1957, p. 25.

4
These terms are meant in a general sense. The video medium includes all forms of public broadcast as well as closed circuit, cable, facsimile, and Picturephone variants. Computer graphics implies any kind of imagery mediated or generated by computer control and most appropriately, but not exclusively, displayed on cathode ray tube screens. Holography refers to the recent methods for obtaining and displaying complete three-dimensional images from essentially two-dimensional display surfaces (usually using lasers). These media are being intertwined in complex ways in laboratories for research related to mass media. For example, computer-generated holograms have been constructed of non-existent objects, and methods of three-dimensional and computer-generated video are being investigated. For the sake of simplicity, these media should all be seen as variations of computer graphics, since, inevitably, computer control of these forms for mass communication will be appropriate. It is not the aim of this issue to discuss these media directly, but rather some implications of their widespread use. For an introduction to the technical aspects of these media, consult: James Martin, Future Developments in Telecommunications, Englewood Cliffs, N. J.: Prentice-Hall, 1971; and William M. Newman and Robert F. Sproul, Principles of Interactive Computer Graphics. New York: McGraw-Hill, 1973.

5
Much of concrete poetry's polemic can be seen to relate most clearly to conventional rapid communications such as posters, newspaper headlines, etc. Certainly its raison d'etre is aesthetic communication. This article argues for the potential changes conceivable for more prosaic, linear forms of text. Although images from the author's own work in concrete or visual poetry and from other works throughout these pages illuminate the issue, it has been the author's intention to rely upon sources other than concrete poetry as well as to emphasize the basis in and relevance for informational as opposed to aesthetic communication. The exact meaning of these last two terms (where informational= semantic) is discussed at length in Abraham Moles, Information Theory and Aesthetic Perception. Urbana: University of Illinois Press, 1968, pp. 129 ff.

Figure 3
An X on America, documentation showing alternatives for a conceptual environment poem-drawing, 1972

The work may be summarized as follows: A conference call was established on 7 November 1972, Election Day, at approximately 12:00 CST, connecting five cities in the United States: New York, Washington, San Francisco, Los Angeles, and Omaha. The end points of the call were public telephones located in downtown sections of the city. The call involved several people who had picked up the phones simply because each heard a nearby pay phone ringing. As the conference call was in progress, a monumental X three thousand miles wide was being created electronically. The work is a natural outgrowth of a desire to compose media of mass communication in the way in which one might use charcoal to create a drawing or pen and ink to write a poem. The environmental scale of the piece affects its content; its form in space and time has become dematerialized. (Adapted with permission from Marcus, Soft Where, Inc., pp. 15, 23.)



6
Lissitzky's pertinent remarks are found in the definitive monograph by Sophie Lissitzky-Kuppers, op. cit., pp. 355-359.

7
The Oxford English Dictionary includes the following among its definitions of diagram: "a set of lines, marks, or tracing which represent symbolically the course or results of any action or process, or the variations which characterize it." The complete definition omits any explicit reference to typographic elements; however, examination of two primary compendia of diagrams reveals that a significant number of conventional diagrams rely upon strategic use of alphanumeric elements to convey the diagram's meaning. See Jacques Bertin, Semiologie Graphique. Paris: Gauthier-Villars and Mouton, 1967; and Walter Herdeg (ed.), Graphis: Diagrams. Zurich: The Graphis Press, 1974. Other metaphors for this new set of symbol relationships have been used by various theoreticians, practitioners, and critics of visible language? in particular, the terms "constellation" and "mosaic" are often used. These terms are of some use in alluding to two important aspects of diagrammatic visible language: varied two-dimensional reading movements and the necessity for the reader to fill in visually the symbol arrangement in order to achieve a gestalt. However, to extract other implications from such terms, requires further guidance. Constellations and mosaics have, literally, a limited set of essential visual configurations: they are a set of point (or small plane) elements of a relatively simple topological, geometric, and visual order. (Another limitation, their two-dimensional character, is discussed separately in Footnote 10.) Consequently the alternate, more abstract term "diagram" is proposed. It is one that refers to a wealth of already existent forms which may be examined as paradigmatic. The actual examples of constellations and mosaics, on the other hand, would quickly exhaust themselves in displaying distinctive paradigms.

8
For a description of these parameters and a discussion of their use in typographic compositions, see Aaron Marcus, "An Introduction to the Visual Syntax of Concrete Poetry." Visible Language, VIII, 4, 1974, pp. 333-360.

9
One answer to this question was proposed in a recent article in which volumetric letters were designed. These were often simple volumes with high symmetry of the letters about the vertical axis. (See Herman Damen, "Excerpt: Towards a Three-Dimensional Pouitry." Visible Language, VIII, 4, 1974, pp. 361-368.) Another more intriguing reply to the question is suggested in a typographic sculptural piece of 1969 by the concrete poet-graphic designer Tom Ockerse. The back of a volumetric letter A is stated to be the letter Z. The piece is appropriately entitled A-Z. Part of its significance as a concrete poetic work is the spacial resolution to the previously unusual question about the nature of spacial texts. Ockerse's proposal suggests more of the unexpected relationships and sources of meaning which a three-dimensional diagrammatic typography would permit. See Tom Ockerse, T.O.P. Providence: Tom Ockerse Editions, 1970, unpaged.

10
This discussion points up another limitation of the metaphors constellation or mosaic beyond those discussed in Footnote 7. These images are essentially two-dimensional. The three-dimensional configuration of stars in a constellation is ignored in terms of its perceived image. Both forms of images, constellations and mosaics, make no sense, or are meaningless, when viewed from any viewpoint other than a previously fixed one. This is another example of a Rennaissance-like, absolutist view of order rather than a multi-perspective, relativistic view.

11
See William R. Ewald, Jr. Information, Perception and Regional Policy, Report prepared for the National Science Foundation. Washington: U.S. Government Printing Office, 1975.

12
The subject of diagrams as a special field of study offers the prospect of unusual and fortuitous confluences of the concerns and questions of pasigraphy (universal writing systems), art history, anthropology, and semiotic/semiologie. As yet there is no primary scholarly locus for such investigations. It is a curious quirk of intellectual history that the semiotic meta-languages which attempt to diagram linguistic structure were never focused upon diagrams themselves, the visual correlates of verbal meta-languages. It is quite likely that such a diagram-oriented meta-language would itself make use of diagrams.

13
See Walter Herdeg, op. cit.

14
See Jacques Bertin, op.cit.

15
Sophie Lissitzky-Kuppers, op. cit., p. 357.

16
John Cage. M: Writings 1967-72. Middleton: Wesleyan University Press, 1973, p. 107.

Visible Language, XI 2 (Spring 1977). © 1977, Visible Language, c/o The Cleveland Museum of Art, Cleveland, Ohio USA 44106. Author's address: Bezalel Academy of Art and Design, 10 Shmuel Hanagid St., Jerusalem, Israel.

Figure 4
Untitled, press-on lettering and ink on graph paper, 8½x11", 1971-2.