In the seminar we will be working with a non-linear typography called ‘MuTypography’. This text has been typeset in the first version of our MuTypography InDesign script. I have kept the text exactly as the script rendered it, including the strange word breaks. We will be working on improving these details, and in each new part of the reader I will use a current version of the script. Johannes Gutenberg invented printing in Europe in Mainz in the 1450s. Gutenberg was an inventor and a hardware designer, not a scribe and not a graphic artist. His innovation was the adaptation and combination of many separate technologies. He made big moves like developing a new metal alloy, and inventing the Handgießinstrument for making letters, and smaller moves like modifying the wooden agricultural screw-press.

The starting point for our seminar is the idea that his printing press was such a radical tool — a machine for making books! — that Gutenberg knew he needed to soften the shock of it.

He did this by being faithful to many of the graphic practices of the scribes, who had been copying books by hand for centuries. As we saw at the Gutenberg Museum, in the vitrine where a printed bible is shown next to a hand-made bible, the first printed books were graphically very conservative. Gutenberg could not have known then what profound consequences his decision to set type in long lines, like the lines written by the scribes, would have in the future.

How have the and
lines development reading?
influenced of writing

The hand- the origin in the
written manuscript another weaving
line of has its machine, loom.

> As the metaphor of the text indicates, the straight lines of the ruled manuscript, which guided the writer's hand in weaving the letter-line, can be traced back to the parallel warp-threads of the loom. The threads were straight because they were *taut*. Leila Avrin describes how Hebrew scribes in the medieval Near East created ruled lines on parchment through the use of a frame, called a *masara*, on which parallel cords were strung tight as on a miniature loom. The frame was placed under the sheet to be ruled. All the scribe had to do was to press down the parchment with his finger on to the cord beneath it, whereupon the thread would show up as a crease on the surface which he could then use to guide his writing (Avrin 1991: 115).

Tim Ingold, 'Lines' (2007)

And before were other
printing, technologies
there of writing.

> We should keep in mind the vigorous, if not violent, activity involved in making a mark upon such a physical surface as an animal's skin. One must break it, rough it up, 'wound' it in some way with a sharply pointed instrument. Erasure involved roughing up the physical surface even more: medieval scribes, trying to erase parchment, had to use pumice stones and other scrapers. In other words, writing was always hard physical labour, very hard as well on the surface on which it was being done . . .

Mary Carruthers, 'The Craft of Thought: Meditation, Rhetoric, and the Making of Images, 400–1200' (1998)

The gradual writing contributed conventions primacy
improvement tools and to the of writing of the
of materials graphic and the line.

> Changes occurred in the function and place of writing within the social order in the centuries following the decline of the Roman Empire. The activity of writing shifted emphasis – from the carving of monumental inscriptions, writing of classical poetry, and recording of legal and historical texts – to the copying of religious and classical texts within the

province of religious communities. These transformations had been preceded by certain technical changes: vellum replaced papyrus as a material support for writing and the codex (sheets bound into books) replaced the scroll. The monumental capitals which had been produced for and in stone inscriptions were replaced by graphic forms originating from the use of the pen, rather than the chisel, stylus or brush. Finally, the division of elements within the text came to be visually marked so that titles, beginnings, endings, and commentaries came to be organized spatially and indicated by distinctions of size and design to a far more complex and nuanced degree than was practical within monumental inscriptions.



Johanna Drucker, 'The Alphabetic Labyrinth' (1995)

The line, and the graphic appearance of text, began to influence the construction and interpretation of its content. The idea of a narrative — a story 'line', with a specific sequence of elements — became more important.

Of course, narrative has to do with the temporal sequence of events, and thus in all narrative there is some kind of story line. As the result of a sequence of events, the situation at the end is subsequent to what it was at the beginning. Nevertheless, memory, as it guides the oral poet, often has little to do with strict linear presentation of events in temporal sequence. The poet will get caught up with the description of the hero's shield and completely lose the narrative track. In our typographic and electronic culture, we find ourselves today delighted by exact correspondence between the linear order of elements in discourse and the referential order, the chronological order in the world to which the discourse refers. We like sequence in verbal reports to parallel exactly what we experience or can arrange to experience. When today narrative abandons or distorts this parallelism, as in Robbe-Grillet's *Marienbad* or Julio Cortázar's *Rayuela,* the effect is clearly self-conscious: one is aware of the absence of the normally expected parallelism.

Walter J. Ong, 'Orality and Literacy, The Technologising of the Word' (1982)

Something was lost in this process. Linear presentation of text produces a particular kind of writing and thinking. Other, non-linear, ways

of thinking
are
obscured.

> Writing thus tends toward the constriction of images, toward a stricter linearization of symbols. For classical as well as modern thinking, the alphabet is more than just a means of committing to memory the progressive acquisitions of the human mind; it is a tool whereby a mental symbol can be noted in both word and gesture by a single process. Such unification of the process of expression entails the subordination of graphism to spoken language. It avoids the wastefulness of symbols that is still characteristic of Chinese writing, and it parallels the process adopted by technics over the course of its development.
>
> However, it also entails an impoverishment of the means of nonrational expression. If we take the view that the course humankind has followed thus far is wholly favorable to our future—if, in other words, we have complete confidence in settled agriculture and all its consequences—then we should not view the loss of multidimensional symbolic thought otherwise than we do the improvement achieved in the running ability of Equidae consequent upon the reduction of the number of their digits to one. But if, conversely, we tend to believe that human potentiality would be more fully realized if we achieved a balanced contact with the whole of reality, then we may ask ourselves whether the adoption of a regimented form of writing that opened the way to the unrestrained development of technical utilitarianism was not a step well short of the optimum.

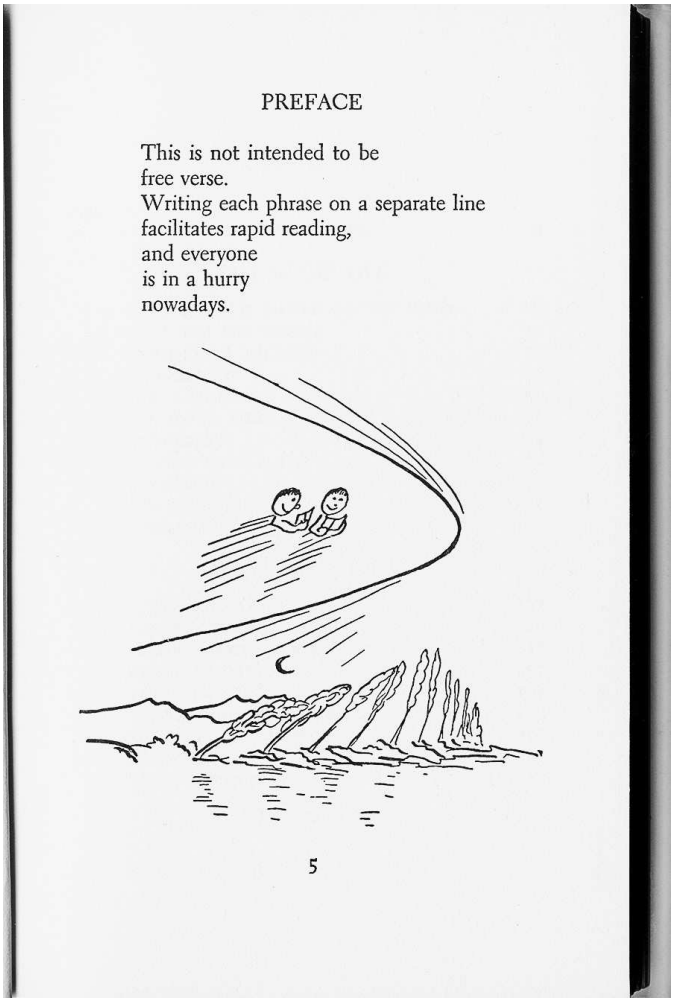
André Leroi-Gourhan, 'Gesture and Speech' (1964)

In the 1940s and 1950s — 500 years after

Gutenberg's invention — the line began to be questioned. This 1942 book, by the

mathematician Lillian Lieber, rejected arbitrary line- breaks in sentences. Each

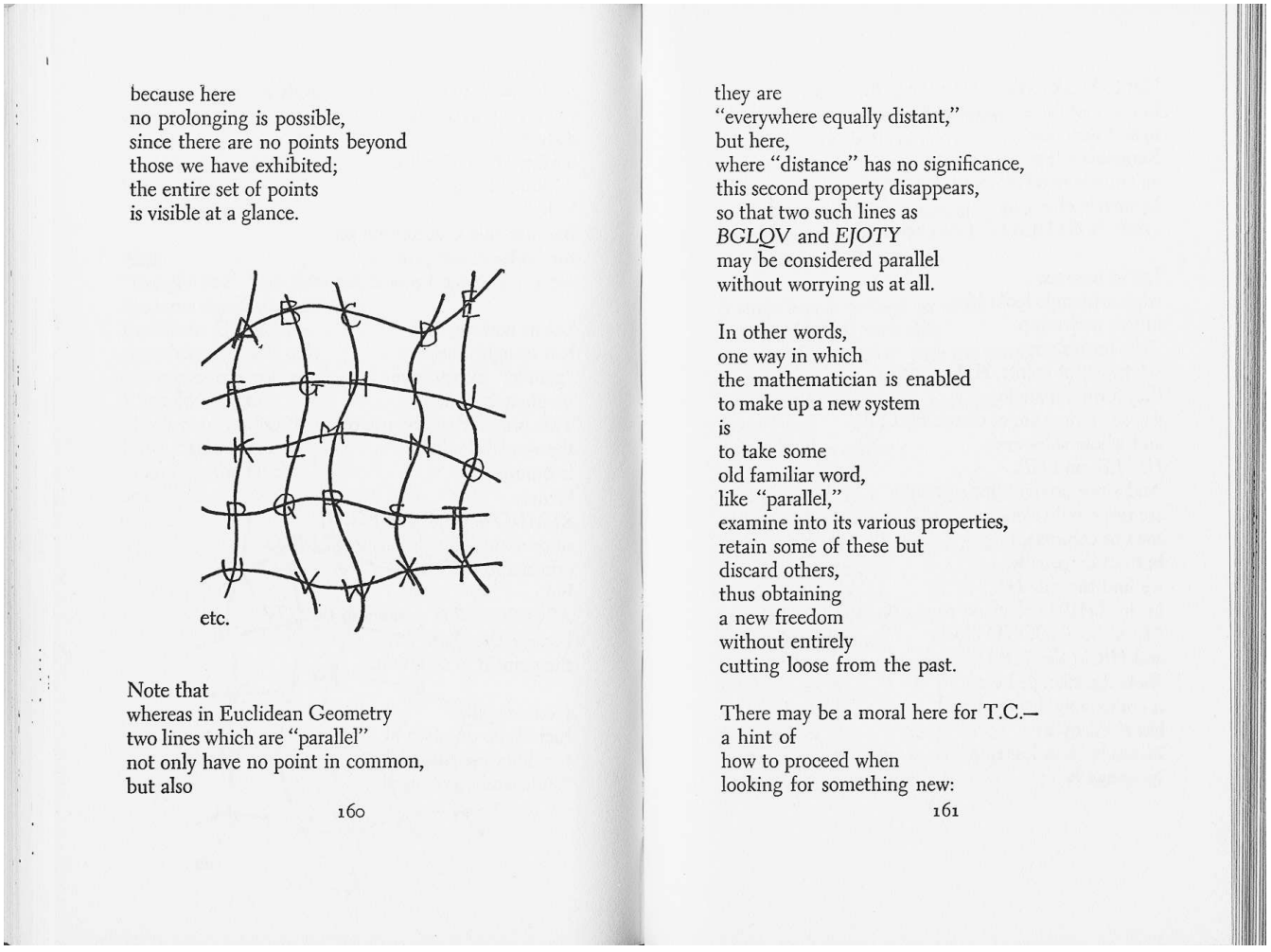
meaningful element of a sentence has its own line.



PREFACE

This is not intended to be
free verse.
Writing each phrase on a separate line
facilitates rapid reading,
and everyone
is in a hurry
nowadays.

5



because here
no prolonging is possible,
since there are no points beyond
those we have exhibited;
the entire set of points
is visible at a glance.

etc.

Note that
whereas in Euclidean Geometry
two lines which are "parallel"
not only have no point in common,
but also

160

they are
"everywhere equally distant,"
but here,
where "distance" has no significance,
this second property disappears,
so that two such lines as
BGLQV and *EJOTY*
may be considered parallel
without worrying us at all.

In other words,
one way in which
the mathematician is enabled
to make up a new system
is
to take some
old familiar word,
like "parallel,"
examine into its various properties,
retain some of these but
discard others,
thus obtaining
a new freedom
without entirely
cutting loose from the past.

There may be a moral here for T.C.—
a hint of
how to proceed when
looking for something new:

161

Lillian Lieber, 'The Education of T. C. MITS' (1942)

Psychologists became interested in the possibility that alternative typographies might enable readers to read faster, or comprehend text better. This academic text reports a scientific experiment in which three different typographies were comparatively tested. What is described here as 'square span' is the direct predecessor of MuTypography.



Journal of Applied Psychology

VOL. 35, NO. 4 AUGUST, 1951

Reading Speed and Comprehension as a Function of Typography

Alvin J. North and L. B. Jenkins

Southern Methodist University

Recently a student of journalism, R. B. Andrews (1), proposed a style of typography called "square span" in which the material is arranged in double-line blocks, as in the following:

This is of the style of
an example square span presentation

According to Andrews, square span should aid reading speed and comprehension by effectively utilizing both the horizontal and vertical visual span and by grouping the words into thought units. In Andrews' study 12 subjects were tested. Six of these were timed on each of five pages of square span text. A week later they were timed on the same five pages in standard form. The other six subjects were timed over the same materials, but in the reverse order. Of the 60 pairs of timings, 32 were in favor of square span, 24 in favor of standard form, and 4 indifferent. Although indicative, these results are not conclusive, and further research is required.

Some unpublished preliminary work by the junior author seems relevant. When material in square span form was tachistoscopically presented, perception was found to depend more on the familiarity and unity of the thought content than on the sheer amount of material. Perhaps, then, the main advantage, if any, of square span lies in the grouping of words into thought units.

In general, the typographical arrangement of material may provide cues for the appropriate organization of the thought content. In addition to square span, a second style of typography utilizing this principle was devised and was called "spaced unit."

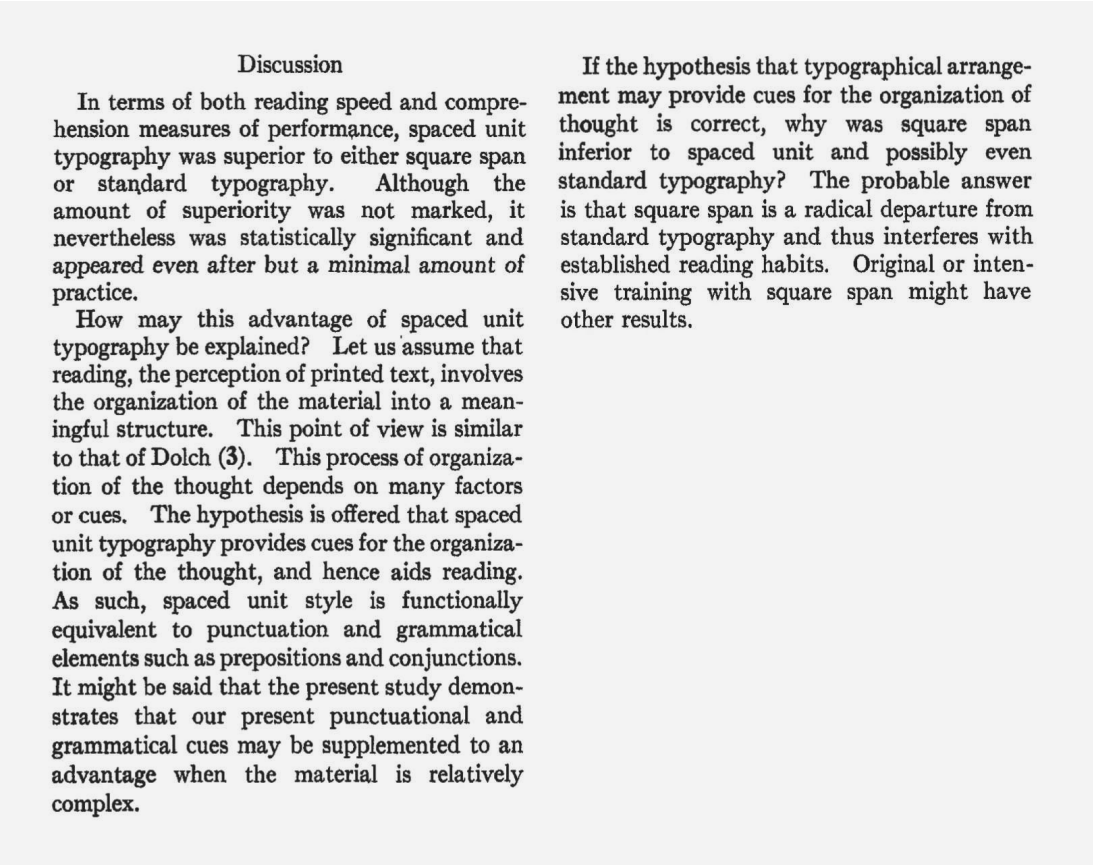
This is an example of the spaced unit style
of presentation

Note that the spaced unit style is like the square span style in grouping the words according to thought units, but more closely approximates standard typography in its unilinear arrangement.

The purpose of the present study, then, was to compare square span, spaced unit, and standard typography in terms of reading speed and comprehension. A secondary purpose was to determine the influence of two limited degrees of practice with a specified style of typography.

The experiment found that readers actually read slower and understood less when reading text in square span.

What scientists the
explains thought unfamiliar
this? that it format.
The must be



Discussion

In terms of both reading speed and comprehension measures of performance, spaced unit typography was superior to either square span or standard typography. Although the amount of superiority was not marked, it nevertheless was statistically significant and appeared even after but a minimal amount of practice.

How may this advantage of spaced unit typography be explained? Let us assume that reading, the perception of printed text, involves the organization of the material into a meaningful structure. This point of view is similar to that of Dolch (3). This process of organization of the thought depends on many factors or cues. The hypothesis is offered that spaced unit typography provides cues for the organization of the thought, and hence aids reading. As such, spaced unit style is functionally equivalent to punctuation and grammatical elements such as prepositions and conjunctions. It might be said that the present study demonstrates that our present punctuational and grammatical cues may be supplemented to an advantage when the material is relatively complex.

If the hypothesis that typographical arrangement may provide cues for the organization of thought is correct, why was square span inferior to spaced unit and possibly even standard typography? The probable answer is that square span is a radical departure from standard typography and thus interferes with established reading habits. Original or intensive training with square span might have other results.

Alvin J. North and L. B. Jenkins, ‘Reading Speed and Comprehension as a Function of Typography’ (1951)

In our first sessions we discovered that it's not easy to automate the placement of meaning units.

With script version 0.4 we have the facility to manually place our meaning units.

Now is a good time to learn more about Wayne Reed Porter, the inventor of MuTypography.

The following is biographical material Porter sent to me, in response to some questions.



I received a BS in psychology from Arizona State University in 1954 and a commission as a 2nd Lt. in the US Air Force.

I was called to active duty in July 1954 and reported to Nells Air Force base



a 5,000+ man fighter-gunnery training base in Nevada.

There I served successively as a food service officer, *then* Base Education Officer (where I developed and successfully launched a four-teacher basic reading program for those airmen who were only semiliterate and hence, ineligible for promotion my first experience with the teaching of reading),

then, at my request, was sent to the USAF Air Intelligence School in Texas, *then* upon returning to Nellis AFB, I served successively as the Base Security Officer, *then* as the Base Laundry Officer, and *finally* as the Wing Intelligence Officer. It was a greatly varied and extremely valuable two years of experience and growth.

In 1956, after fulfilling my two-year obligation to the military, my wife, two children and I moved to Salt Lake City



where I started doing graduate work in philosophy and psychology, plus coursework in physics and math, at the University of Utah (at the same time working as a night bellman



at the Hotel Utah).

In 1959, I enrolled in a reading improvement course taught by Evelyn Neilsen Wood, a reading consultant in a local school district, who taught one course at the UofU.



In the course she exhibited a profound ignorance of the perceptual and cognitive processes involved in reading. (She believed the claims

of some people that they could read an entire page at a glance.)

At that time she called her method "the subjective reading method" because it was up to each individual to develop their own approaches

always using skimming and scanning, along with inclusive reading when necessary. By the end of the course, it became clear to me that the primary obstacle to efficient reading

is the perceptually illogical way we present text to readers Gutenberg's gift of the linear typography (which was the best idea at the time).

But we are still displaying text to readers as one-dimensional word strings to creatures that have two-dimensional viewing systems

that are almost as high as they are wide. If we are to achieve "inclusive reading" (that is, where every word is seen and understood) when reading linear text,

we must make overlapping fixations along each line and must, at the same time, blind ourselves to the lines above and the lines below the line we are traversing.

In *The Mu Primer* Postface, written 40 or 50 years ago, I include an excerpt from the report of an anthro-pologist from another planet.



In the report he states:

Homo sapiens have managed to develop their technologies without first learning how to make effective use of their own perceptual and cognitive capabilities.

Their technological advances have come about through the collective and sequential efforts of large numbers of individuals performing highly specialized roles or functions. But even the most sophisticated members of the species are still functioning at low levels of knowledgability and intellectuality. They are beginning to have some awareness of the great disparity between their present and their potential performance levels, but they have, as yet, made little progress in realizing the full promise of those potentials.

When Wood's reading course ended, I went to her office to discuss my "mu method of writing and reading" with her, but learned she had moved to Washington, DC, with her husband to set up their "Reading Dynamics Institute." There she gained fame as the woman who taught rapid reading to John F. Kennedy



and their training courses were soon offered in over 150 US cities. Their business was not managed well and the Woods sold the company in 1970 but the company still offers

Evelyn Wood Reading Dynamics publications and contract courses around the US. So, I never had a chance to discuss my ideas with Wood.

I did write to her in DC, but never received a response.

In 1959, I set aside my interest in the psychology of reading because I was preoccupied with a new theory of descriptions that I called

“the particle perspective” (which I later renamed “epilingua”). Epilingua is a sweeping theory of logic and linguistics grounded in modern theoretical physics.

It’s a different way of thinking and talking about the world. It’s a method of analysis I have employed since that time. It accounts for my unusual ability to see things in new and different ways.

I’m writing a novel, *The Metafarm*, in which the principal character explains and illustrates Epilingua’s applications in different situations.

But the manuscript has been placed on the shelf until *The Mu Primer* has been published and the Mudoc software has come into wide use.

By 1961 I grew tired of being poor and tired and decided to see if I could quickly turn the Mu method into a successful and profitable product.

I set up a three-room Muvie production operation in an apartment that was provided to me in exchange for my services as the apartment house manager.

On the morning of the day I intended to shoot my first Muvie, I was just completing a 13-hour shift as the night switchboard operator at the University of Utah,

when I received a call from my wife who said that she and our (then three) children were in southern Utah in a truck rented by her parents and that they were all on their way to Phoenix.

She said that I should just stay in Salt Lake City and "do your thing." I didn't shoot the Muvie. I closed up the lab, sold our house, moved back to Phoenix and reconciled with my wife.

There I went to work for the State of Arizona as a psychological test researcher.

In 1962, we bought a home in Tempe near Arizona State University. There I gradually resumed my research efforts on the Mu method.

In 1964, four people, an ASU professor of electrical engineering, an ASU professor of sociology, a Phoenix eye surgeon and ophthalmologist, a Phoenix attorney, and I

chartered a not-for-profit corporation, the Communications Research Corporation. They were all highly-affluent men, but when they asked how much money I wanted them to donate

(which, for them, would have been tax-deductible contributions), I foolishly told them that all I wanted from them was their moral support, their endorsements,

and their expertise. Comments by three of them are included in Vista #7 in "The Mudoc: A Panoramic View". I then made trips to New York City to talk with publishing house heads

and foundation officers, made trips to Boston to talk with professors at Harvard and MIT, made efforts to interest venture capital providers and computer company people but all for naught.

The software and hardware technologies of the 1960s and 70s had not matured to the point where products like the Mu method and the telereader terminal (an electronic reading machine)

could be developed. So, after 10 years of existence I disbanded the not-for-profit Communications Research Corporation and in February 1974

an architect friend and I chartered The Mudoc Corporation as a for-profit company.

I have kept The Mudoc Corporation alive for the last 45 years as an empty vessel that could be brought to life to fulfill the promise of developing and implementing interactive movable type.

In those years I have acquired the reputation as a dreamer with the hopeless idea of changing the world by changing the way people write and read. During those years there have been a number of times when I thought we could make the company fly. I'll cite some examples, to wit:

We started offering Mudoc Corp stock (at 25 cents per share) in 1975 and two of the buyers were reading education professors at ASU.



They proved to be unhelpful in carrying out any research or helping raise capital and one retired and the other moved to another ASU (Appalachian State University).

In 1983 I borrowed $10,000 and purchased an Apple Lisa, the first GUI desktop system,



the first desktop that could be used to prepare and display Muvie simulations.

In a local computer user group, I met a brilliant young black software engineer, Eric McNear, and we started collaborating. Unfortunately, he, along with two white con-men,

had received financing as

a black-managed business

by the US government.

The con-men misappropriated the start-up funds

and disappeared.

At the same time,

Eric found himself in a failed romance

and ended up killing himself.

So, I was back to my one-man act.

In 1990 I became an Apple Developer.

On my Lisa, which by then

had become a MacXL,

I prepared a couple of Muvies

that would run on my daughter's MacSE.

I took them with me on microdiskettes



to the annual Apple developers conference

in Cupertino, California.

In a session where I was able

to make demonstrations on one of their Macs

to an Apple executive,

the demonstration failed miserably

because the Mac on which I was asked to

do the demonstration

did not have the typeface

I had used in developing the demo Muvies.

The executive quickly moved on

to the next presenter.

In 1995 I started corresponding

with Larry Tesler, Apple's Chief Scientist.

At that time, he was

overseeing development and refinement

of the Newton,



Apple's new personal digital assistant. I was sending him descriptive information about the "Telereader Terminal," the electronic reading machine I was proposing.

In 1996, in a letter to him, I listed "The Top Ten Reasons the Newton Won't Succeed." He took umbrage and told me he wanted no further communication with me. About a year later,

the Newton was failing in the marketplace and Tesler wrote and said he had been reviewing the descriptions of the Telereader Terminal that I was proposing and that we should meet to discuss it.

Before we had completed arrangements to meet in Cupertino, Steve Jobs returned to Apple



and replaced Tesler with the man who had been his chief scientist at Next, Inc.

In 2005 I wrote to Dr. Michael Crow, president of Arizona State University saying we would like to establish a working relationship with the university. I learned later that there was high interest and that

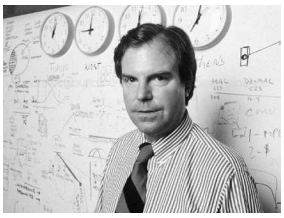
Crow had met with a group of his subordinates to discuss what I was proposing. It was decided that he would have me meet with their vice president for research

to look into the matter. He wrote to me and asked that I meet with Jonathan Fink. Fink said he would like me to meet with a faculty member who was assisting him, a math professor,

to discuss my work. I met with the math professor and attempted to demonstrate six Muvies on the MacSE that I had taken with me with disastrous results, the Muvies would not perform.

So, we just discussed my work and I left with him the 158-page Mudoc Corp business plan I had developed. At my follow-up visit with Fink, he said he did not think the Mudoc technology was a feasible project and that ASU would not be collaborating this us. Sometime later I called the math professor and told him I wanted to recover the copy of the business plan I had left with him that is was the last intact copy I had. He said he would look for it and would call me back. When he called back he said he remembered he had given it to his former secretary (who had moved out of state) to mail back to me. I think he had discarded it and just didn't want to admit it.

In 2014 I received a message from Nicholas Negroponte



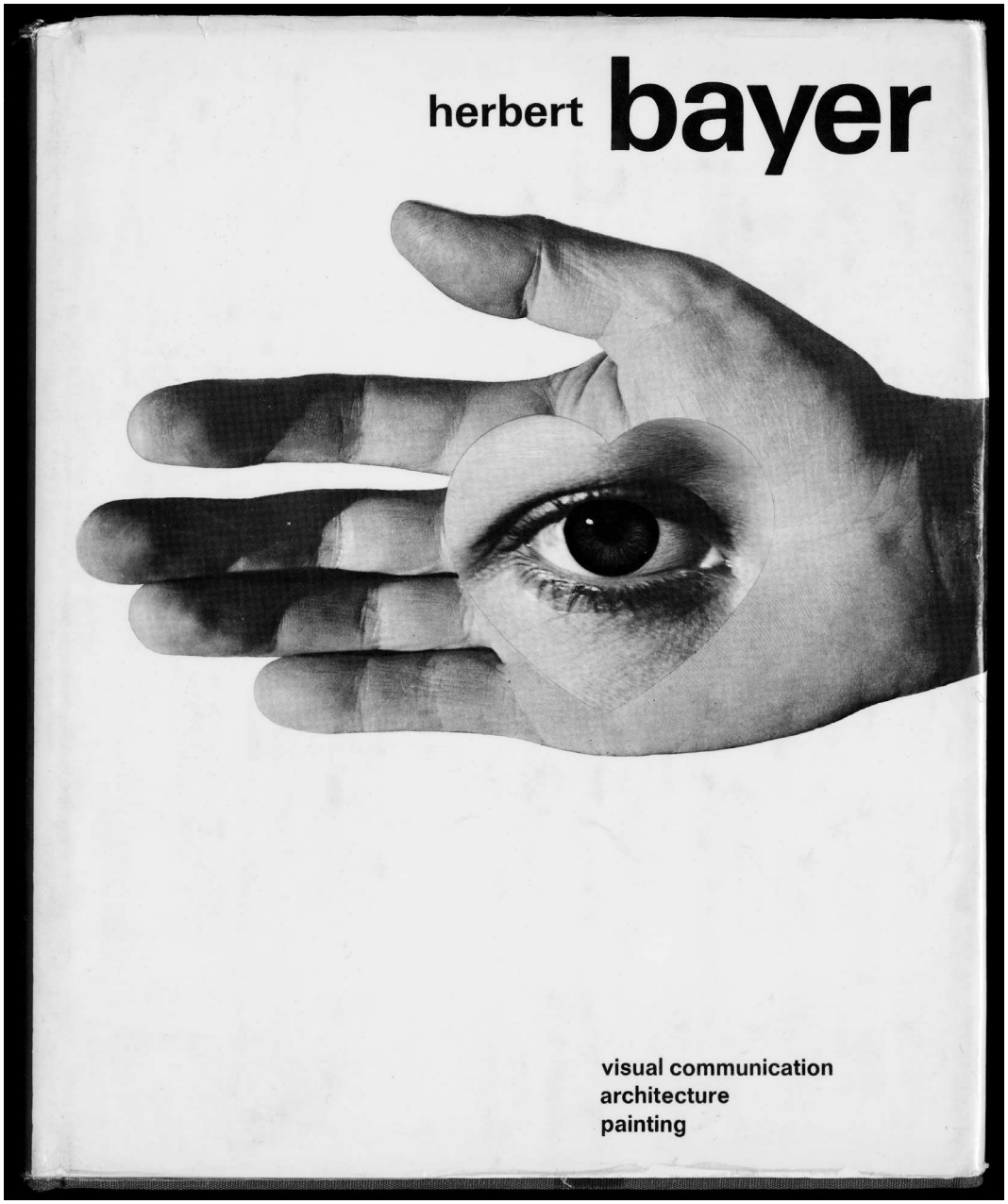
(founder and former director of the MIT Media Lab) suggesting that we participate in the XPrize Foundation's Global Learning Competition. He said "what you are doing is a bulls-eye for the XPrize Global Learning prize" which was $10 million plus five $1 million prizes for the five semi-finalists (with that money to be used to prepare the products for the field tests in Tanzania). The Mudoc software and

other Mudoc tools would clearly have been the best answer for the problems they wanted to solve. But, unfortunately, we did not have the resources needed to complete the onerous application process for the competition. In retrospect, I can think of a number of people and organizations that might have been willing to help us gather the resources needed to participate in the competition.

In the last part of this reader, we saw how Wayne Reed's efforts to popularise MuTypography have been tragically unsuccessful.

But his account does not describe any meetings with graphic designers! If only he could have met us thirty years ago!

Ironically, I first encountered 'square span', the predecessor of MuTypography, in the following text written by artist and designer Herbert Bayer:



typography is a service art, not a fine art, however pure and elemental the discipline may be.

the graphic designer today seems to feel that the typographic means at his disposal have been exhausted. accelerated by the speed of our time, a wish for new excitement is in the air. "new styles" are hopefully expected to appear.

nothing is more constructive than to look the facts in the face. what are they? the fact that nothing new has developed in recent decades? the boredom of the dead end without signs for a renewal? or is it the realization that a forced change in search of a "new style" can only bring superficial gain.

it seems appropriate at this point to recall the essence of statements made by progressive typographers of the 1920's:

previously used largely as a medium for making language visible, typographic material was discovered to have distinctive optical properties of its own, pointing toward specifically typographic expression. typographers envisioned possibilities of deeper visual experiences from a new exploitation of the typographic material itself.

they called for clarity, conciseness, precision; for more articulation, contrast, tension in the color and black and white values of the typographic page.

typography was for the first time seen not as an isolated discipline and technique, but in context with the ever-widening visual experiences which the picture symbol, photo, film and television brought.

they recognized that in all human endeavors a technology had adjusted to man's demands; while no marked change or improvement had taken place in man's most profound invention, printing-writing, since gutenberg.

the manual skill and approach of the craftsman was seen to be inevitably replaced by mechanical techniques.

once more it became clear that typography is not self-expression within predetermined aesthetics, but that it is conditioned by the message it visualizes.

that typographic aesthetics were not stressed in these statements does not mean a lack of concern with them. but it appears that the searching went beyond surface effects into underlying strata.

it is a fallacy to believe that styles can be created as easily and as often as fashions change. more is involved than trends of taste devoid of inner substance and structure, applied as cultural sugar-coating.

moreover, the typographic revolution was not an isolated event but went hand-in-hand with a new social, political consciousness and consequently, with the building of new cultural foundations.

the artist's acceptance of the machine as a tool for mass production has had its impression on aesthetic concepts. since then an age of science has come upon us, and the artist has been motivated more than ever, to open his mind to the new forces which shape our lives.

new concepts will not grow on mere design variations of long established forms such as the book. the aesthetic restraint which limits the development of the book must finally be overcome, and new ideas must logically be deduced from the function of typography and its carriers. although i realize how deeply anchored in tradition and how petrified the subject of writing and spelling is, a new typography will be bound to an alphabet which corresponds to the demands of an age of science. it must, unfortunately, be remembered that we live in a time of great ignorance and lack of concern with the alphabet, writing, and typography. with nostalgia we hear of times when literate people had knowledge, respect and understanding of the subject. common man today has no opinion at all in such matters. it has come to a state where even the typesetter, the original typographer, as well as the printer, has lost this culture. responsibility has been shifted onto the shoulders of the designer almost exclusively.

in the united states the art of typography, book design, visual communication at large, in its many aspects, is being shelved as a minor art. it has no adequate place of recognition in our institutions of culture. the graphic designer is designated with the minimizing term "commercial," and is generally ignored as compared to the prominence which is accorded by the press to architecture and the "fine arts." visual communication has made revolutionary strides and real contributions to the contemporary world picture. yet, the artist-typographer represents a small number of typography producers compared to the output of the nation. their efforts must be valued as they keep the aesthetic standards from falling, and because they alone set the pace in taste.

there can be no doubt that our writing-printing-reading methods are antiquated and inefficient as compared to the perfection attained in other areas of human endeavor.

the history of our alphabet and any probing into its optical effectiveness expose a lack of principle and structure, precision and efficiency which should be evidenced in this important tool.

attempts have been made to design visually (to distinguish from aesthetically) improved alphabets. but redesigning will result in just another type face unless the design is primarily guided by optics as well as by a revision of spelling. this, in turn, reveals the need for a clearer relation of writing-printing to the spoken word, a reorganization of the alphabetic sound-symbols, the creation of new symbols. the type designer is not usually a language reformer, but a systematic approach will inevitably carry him to a point where he will ask for nothing less than a complete overhaul of communication with visual sound.

however unlikely the possibilities for the adoption of such far-reaching renovation appears at the moment, revitalization of typography will come:

a. from the increased demands made on the psycho-physiological apparatus of our perceptive senses;
b. from a new alphabet; (see pp. 26, 78)
c. from the different physical forms which the carriers of typography will take.

the more we read, the less we see. constant exposure to visual materials has dulled our sense of seeing. overfed with reading as we are, the practice of reading must be activated. a new effort is needed to recapture and retain freshness. little known is the fact that the act of seeing is work, that it demands more than a quarter of the nervous energy the human body burns up. during waking hours your eyes almost never rest. in reading this article you must refocus as you skip from word to word. much energy is required for blinking and turning the eyeballs. more is needed by the tiny ciliary muscles to alter the shape of the crystalline lens for focusing. the effort of seeing contributes a large share to physical tiredness.

taking a closer look at present day typographic customs, i make the following suggestions, believing that they offer immediate possibilities for both improvement and change.

visual research

"the eye seldom focuses for long on one point in a design. it flits back and forth from one element to another in haphazard sequence, unless the design is skillfully arranged to force its orderly progress from one idea to the next. it is a vital part of the designer's job to make sure that the eye sees first things first and that it is made to dwell as long as possible on areas of special importance, such as the name of a product."*

graphic design will more than ever be determined by its purpose. the designer-typographer can find new impetuses from research in vision such as the above exemplifies. (see p. 46 "analysis of five posters.")

universal communication

for a long time to come we will accept the existence of the different languages now in use. this will continue to pose barriers to communication, even after improved (possibly phonetic) writing methods have been adopted within all the languages. therefore, a more universal visual medium to bridge the gap between them must eventually evolve. first steps in this direction have, strangely enough, been made by the artist. now science must become a teammate and give him support with precise methods for a more purposeful handling of visual problems.

the book has been a standard form for a long time. a new spirit invaded the stagnant field of rigidity with the adoption of the dynamic page composition. an important extension was introduced with the recognition of supra-national pictorial communication. with its combination of text and pictures, today's magazine already represents a new standard medium. while pictorial communication in a new sense has lived through a short but inspiring childhood, typography has hardly aspired to become an integrated element.

exploration of the potentialities of the book of true text-picture integration has only begun and will, by itself, become of utmost importance to universal understanding.

communication of selling

recently certain american national advertising pages have expressed a remarkable trend to planning. these pages contain and operate with a conglomeration of ugly, differently styled, contrasting or conflicting alphabets. the advertising agencies (no artist-designer's reasoning or taste could produce these pages) which produced this concept clearly must have been motivated by attention-getting-by-all-means agressiveness and provocation. the result is irritation to the reader who, therefore, reacts. this ignoring of aesthetics, in fact this twisting of unaesthetics into a function, provides a lesson to be learned. here is bad taste under the disguise of functionalism par excellence.

but new typographic life may come from such a ruthless technique as is exemplified in many of america's "hard-sell" advertising pages. the reason for this speculation is that here typography clearly serves an intended purpose. the means by which the

*from a booklet "an approach to packaging," container corporation of america, design laboratory, which makes extensive use of an ocular camera to check this aspect of the designer's work.

purpose is obtained are wrong and bear none of the aesthetic restraint which dominates much typographic thinking.

the narrow column
sizes of type faces must be proportionate to the length of the line. the smaller the type, the shorter the line (for a standard measurement, 10 point type face should not be set wider than 20 pica). adoption of the narrow column, which has proven itself to be considerably easier and faster to read, as newspaper readers can testify, would change the shape of the book. a "one column" book would be high and narrow, would not lend itself to binding on the long side, but might be divided into separate chapters in accordion folds collected in binders or boxes.

square span
tradition requires that sentences follow each other in a horizontal continuous sequence. paragraphs are used to ease perception by a slight break. there is no reason for this to be the only method to transmit language to the eye. sentences could as well follow each other vertically or otherwise, if it would facilitate reading.

following is an excerpt of a letter from "the reporter of direct mail advertising": 'square span' is putting words into thought groups of two or three short lines, such as

"after a short time	you will begin thinking	in easily understood	groups of words
you will automatically stop	confusing your sentences	with complicated phrases	and unnecessary words"*

typewriters and typesetting machines would have to be adjusted to this method. text written in logical, short thought groups lends itself best. the advantages of grouping words support the theory that we do not read individual letters, but words or phrases. this poses a new challenge for the typographer.

text in color
black printing on white stock, because of its extreme opposites, is not entirely satisfactory. the eye forms complementary images. flickering and optical illusions occur, however minimized they may be in a small type face. they can be reduced if the contrast of black on white is softened by gray printing on white stock; black printing on gray, yellow, light blue, or light green stock; brown, dark green or dark blue printing on light colored stock. the colors of printing in relation to the colors of stock need not necessarily be chosen for harmonies; it is the power of controlled contrast which must be retained.

change of impact
furthermore, a great easing of reading is effected and freshness of perception is prolonged if a book is made up with a sequence of pages of different colored stock printed in various colors. which color follows another is less important than that the hues be approximately of equal value to safeguard continuity.

dr. w. h. bates has recommended a frequent shifting to aid in refocusing a fixed stare caused by the eye-tiring monotony of reading matter. the typographer can support this recommendation by the above change of impact through color.

new slaves
speculation into the future (perhaps not so distant) leads me to assume that methods of communication will change drastically.

the storage of books will be replaced by microfilms which in turn will change the design of libraries. computing machines can already substitute for printed matter by storing knowledge. they will have any and all desired information available and ready when needed on short call, faster, more completely than research teams could, relieving and unburdening our brains of memory ballast. this suggests that we will write and read less and less, and the book may be eliminated altogether. the time may come when we have learned to communicate by electronic or extra-sensory means . . .

formalism and the straight jacket of a style lead to a dead end. the self-changing pulse of life is the nature of things with its unlimited forms and ways of expression. this we must recognize and not make new clichés out of old formulas.

h. b. 1959

*"square span" writing was developed by robert b. andrews, dallas, texas.