

VISIBLE LANGUAGE

The Journal for Research on the Visual Media of Language Expression
Volume IX, Number 1, Winter 1975 ISSN 0022-2224

- 7—23 The Curious Role of Letter Names in Reading Instruction
Richard L. Venezky
- 25—46 Radial Design in Wallace Stevens
Terrance J. King
- 47—56 The Collages of William Dole
William Dole and Gerald Nordland
- 57—66 The Photographic Restoration of Letterforms
Robert A. Hauser
- 67—71 Research in Brief: Shapes as Cues to Word Recognition
Patrick Groff
- 73—86 Excerpt: Simplifying the ABC's
Jay Doblin with Inder Agrawal, Marianna Porter,
and Robert Peterson
- 87—89 Comment: The Designer and Language
Alexander Nesbitt
- 91—92 Correspondence
- 93—95 Abstracts of Journal Articles in French, German, and Spanish
- 96 The Authors

Cover: Gert Dumbar, Tel Design Associated, Den Haag, Holland.

Visible Language, Volume IX, Number 1, Winter 1975. Published quarterly (Winter, Spring, Summer, and Autumn) by The MIT Press, Cambridge, MA 02142. Copyright 1975 by *Visible Language*.

Dr. Merald E. Wrolstad, *Editor and Publisher*
c/o The Cleveland Museum of Art, Cleveland, Ohio, USA 44106.

ADVISORY BOARD

Colin Banks, Banks and Miles, London
Dr. Roland Barthes, Ecole Pratique des Hautes Etudes, Paris
Fernand Baudin, Bonlez par Grez-Doiceau, Belgium
Pieter Brattinga, Form Mediation International, Amsterdam
Rev. Edward M. Catich, Saint Ambrose College
Dr. Murray Eden, MIT
Dr. I. J. Gelb, Oriental Institute, University of Chicago
Ephraim Gleichenhau, ICTA Representative, New York
Dr. Kenneth S. Goodman, Wayne State University
Dr. Randall P. Harrison, Michigan State University
Ernest Hoch, ICOGRADA Representative, Reading University
Harry Kamien, Washington, D.C.
Albert Kapr, Hochschule fur Grafik und Buchkunst, Leipzig
Alexander Lawson, Rochester Institute for Technology
C.L. Lehman, Tigard School District, Oregon
Aaron Marcus, Princeton University
R. Hunter Middleton, Chicago
Dr. G.W. Ovink, Tetterode-Nederland, Amsterdam
Dr. P. David Pearson, University of Minnesota
Charles Peignot, Paris
Dr. Marvin A. Powell, Jr., Northern Illinois University
Philippe Schuwer, Librairie Hachette, Paris
Mary Ellen Solt, Indiana University
Jack W. Stauffacher, The Greenwood Press, San Francisco
William C. Stokoe, Jr., Gallaudet College, Washington, D.C.
Dr. Miles A. Tinker, Emeritus Professor, University of Minnesota
Dr. George L. Trager, Northern Illinois University
Dr. Richard Venezky, University of Wisconsin
Dr. Stanley F. Wanat, State University at Stony Brook, New York
Dr. W.C. Watt, University of California, Irvine
Dr. Dirk Wendt, Psychologisches Institut, Hamburg
Michael Wood, Aberdeen, Scotland
Dr. Bror Zachrisson, Director, Grafiska Institutet, Stockholm
Hermann Zapf, Frankfurt am Main

General Information

VISIBLE LANGUAGE: *The Journal for Research on the Visual Media of Language Expression* is a quarterly publication of The MIT Press. The general aims and interest areas of the Journal are outlined on the inside front cover. The first four volumes—1967 through 1970—were published under the title, *The Journal of Typographic Research*.

Addresses for Communication with the Journal

Editorial correspondence should be addressed to the Editor, Visible Language, c/o Cleveland Museum of Art, Cleveland, Ohio USA 44106. Telephone: 216/421-7340.

Business correspondence about subscriptions, advertising, and related matters should be addressed to Visible Language, The MIT Press Journals Department, 28 Carleton Street, Cambridge, Mass. USA 02142. Telephone: 617/253-2889. Foreign subscribers may write to Betty Barker, The MIT Press, 126 Buckingham Palace Road, London SW1W9SD, England.

Subscription Rates for the Current Volume

Quarterly per year for individuals	\$14.50	£6.00
Quarterly per year for institutions	\$18.50	£7.70

Foreign subscribers should add \$1.00 postage.

All subscriptions will be entered on a calendar-year basis beginning with the Winter issue. In other words, subscriptions received at any time during the year will receive all four Journal numbers for that year. No half-year subscriptions are available. No payments for future volumes will be accepted. *All orders must be prepaid.*

Back copies. A limited quantity of all back numbers of *Visible Language* are available at \$3.00 (£1.25) to individuals and \$4.50 (£1.75) to institutions. Copies should be ordered directly from The MIT Press at the address listed above. A folder listing the contents of all past Journal issues is available on request.

Reprints of Specific Articles. Readers interested in securing copies of any of the articles published in the Journal should send for the appropriate number of the Journal, see above. Individual reprints are not available.

General Information

Claims. To be honored free of charge, claims for missing issues must be made immediately upon receipt of the next published issue.

Manuscripts

All manuscripts and inquiries about research articles and other contributions to the Journal should be addressed to the Editor. An Author's Guide for the organization, preparation, and submission of manuscripts is also available and includes special instructions for designers in preparing research reports. Authors are strongly advised to follow the general editorial style—headings, references, tables, captions—as shown in this and past copies of the Journal.

All copy must be double-spaced, including all references and long quotations in the text. All manuscripts should be submitted in *triplicate*, one of which should be an original typed copy. Authors are cautioned to retain a copy of their manuscript to guard against loss in the mail.

Abstracts. Manuscripts should be accompanied by an abstract of 100-200 words, typed on a separate sheet of paper. An abstract of a *research paper* should contain statements of (a) the problem, (b) the method, (c) the results, and (d) conclusions. Results are most important, and every abstract should contain at least the trend of results. An abstract of a *discussion article* should be used in abstracts.

Letters to the Editor

The editors welcome comments on articles, reviews, and letters that have appeared in the Journal. Communications should be addressed to the Editor. The Editor will also relay to the author your questions or comments on any article. Your response—and the author's comment in reply—will not be published without your permission and your approval of any editing.

Advertising

	<i>Advertising Rates</i>	<i>Type-page Size</i>	<i>Overall Page Size</i>
Full page	\$100 £40.00	26 x 41 picas	6 x 9 inches
Half page	\$60 £24.00	26 x 20 picas	6 x 4½ inches

For inside covers, add 25%. Minimum space is a half page.

Bleed pages and color accepted; write for additional information.

Printed letterpress. Cost of engravings charged to advertiser at cost.

Agency commission 15%. No cash discount.

Advertising content subject to approval of publisher.

Advertising copy and engravings should be received *two months* prior to quarterly publication on 1 February, 1 May, 1 August, and 1 November.

Advertisers should contact Christine Anderson at The MIT Press address given above. Telephone: 617/253-2889.

Brief Communications

"Visible language" is an exploratory concept. Many issues need discussion; many opinions need expounding; many creative ideas need expression. We feel that definition of the concept can be sharpened by including in the journal a wide variety of short, pertinent contributions from all areas of visible language research, theory, design, and application:

- ◇ Personal opinions--about ideas expressed in this journal or about any developments in contemporary visible language thinking and expression.
- ◇ Inquiries for research projects, sources of information, etc.
- ◇ Interesting historical discoveries.
- ◇ Quotations from books, articles, speeches, etc.
- ◇ Illustrations of things you like and things you don't like.
- ◇ Excerpts from exhibitions and catalogs.
- ◇ Research developments.
- ◇ Anecdotes, visual slips in print, cartoons....

Items are welcomed from any source. Any type of material is suitable--photocopies, proofs, tear sheets, photographs.

We encourage handwritten copy and notes with illustrations. Miscellaneous items are easily come by; you undoubtedly run across some every day. Take a minute to send a few to:

Visible Language

c/o The Cleveland Museum of Art

Cleveland, OH 44106

We want to give appropriate credit wherever possible.

Please include:

- ◇ the source of your communication.
- ◇ the names of those involved in creation and/or production.
- ◇ the name of the author and/or submitter.

These paragraphs have been produced by the Mead Dijit (Direct Image by Jet Ink Transfer) Image System. Dijit employs 100 ink jets per inch to produce precisely controlled streams of ultrasonically stimulated ink droplets which are controlled by computer. Each of the ink jets is capable of generating over 50,000 individually controlled droplets per second to form letters, numbers, graphic images of all kinds. And all of these images are formed at speeds up to 45,000 lines of text per minute. In more immediate terms that means the 3,000 or so lines of text in this issue might have been run off in 4 seconds. (Mead Dijit Image Centers, Dayton, OH 45403)

The Curious Role of Letter Names in Reading Instruction

Richard L. Venezky

For about two thousand years educators assumed without question that learning the letter names in their proper sequence was a prerequisite for literacy. Learning the ABC's became synonymous with learning to read. But today there is disagreement over the value of early letter-name training. Some claim that it aids letter or word discrimination; some claim that it aids attaching sounds to letters, and some claim that it interferes with both of these tasks. An analysis of the letter names and of experimental and pedagogic evidence lends little support to the claims of letter-naming benefits. In several countries—including the United States, the Soviet Union, and Israel—letter-name knowledge has been found to interfere with learning to attach sounds to letters. But letter-name knowledge has also been shown to be one of the best single predictors of reading success, and no matter what is shown experimentally about the utility of letter names, they are efficient labels for the letters and an inseparable element in the popular concept of reading instruction.¹

The earliest recorded procedure for teaching reading, called the alphabetic or ABC method, began with a stiff dose of letter-naming and sequencing, followed (for the survivors) with letter sounding—alone, then in syllables, and then in words. Those who graduated from this regimen were then permitted to read groups of words, sentences, and paragraphs with emphasis on both oral production and meaning. In one form or another this was the approved method for teaching reading from its origin in antiquity until well into the nineteenth century. In America it survived as the standard method until about 1840 (Anderson & Dearborn, 1952, p. 204) or 1870 (Huey, 1908, p. 265) or the 1920's (Chall, 1967, pp. 140f). For the last fifty or so years, according to Chall (1967, pp. 140f) the accepted practice has called for not teaching letter names and sound values until the child has learned to read words: "The teacher's

guidebooks for most basal-reading series suggest that letters and their sound values be taught when the child can read about fifty to one hundred words by sight.”

However, a firm belief in the efficacy of letter-name knowledge has never been totally purged from American educators, as evidenced not only by the highly visible efforts of *Sesame Street* but also by those educators who still establish letter-name knowledge as the first—and sometimes only—goal of prereading activities. It is not beyond imagination, therefore, that letter-naming could be returned to the core of reading instruction, especially in an era that has already witnessed the return of Art Deco, 50’s movies, and fraternity parties.

The Origins of the Letters and Their Names

The alphabet used today to teach reading in English-speaking countries came to England through four major cultural borrowings. Like all major Western writing systems, it originated in the North Semitic alphabet which evolved in the Middle East over 4000 years ago.² By the end of the second millennium B.C.E., this alphabet was borrowed by the Greeks, who passed it on to the Etruscans, who in turn gave it to the Romans. From Italy it was carried by ecclesiastical hands to England where with Christianization in the sixth and seventh centuries, it replaced the runic alphabet which the Germanic conquerors of England had brought from the Continent.

By the time of the Greek borrowing, the North Semitic alphabet, which represented consonant sounds only, had a traditional ordering for its letters and had evolved meaningful names for each (cf. Modern Hebrew: aleph “ox,” beth “house,” gimel “camel”). The Greeks added vowels, but retained both the original ordering and the names, which became meaningless labels (e.g., alpha, beta, gamma—perhaps the first recorded use of nonsense syllables). Apparently the Etruscans were the first to replace the Greek terms with names based upon the letter sounds; however, the evidence for this replacement is sketchy at best and is based primarily upon late Latin evidence (Gordon 1971). Diringer (1968, pp. 419f) states with some confidence, nevertheless, that “the greater part of the Latin

names of the letters, which have descended into English as into the majority of modern alphabets, were taken over from the Etruscans....” For English it is safe to assume that the letter names were introduced along with the letters. (The runic alphabet also had letter names at the time it was first used for writing English).

The Modern Romance letter names are all derived from Latin, except, of course, those for non-Latin letters. Thus, *j*, which did not exist in the Classical Latin alphabet, is *i lunga* in Italian, but *jota* in Spanish. English *ze* is apparently a shortening, by analogy with *be*, *ce*, *de*, etc., of earlier *zed*, which though derived ultimately from the Greek *zeta* (cf. It. *zeta*; Sp. *zeta*, *zeda*) was not named in English until after the Norman conquest.

The ordering of the letters is also of great antiquity, being evidenced by various passages in the Hebrew Bible and by an early eighth- or ninth-century (B.C.E.) inscription found at Lachish, in what is now Israel. In addition, a fourteenth-century (B.C.E.) Ugaritic tablet shows, among the thirty Ugaritic letters, the twenty-two North Semitic letters in exactly the same order as they have in modern Hebrew.³

Instructional Practices

Although the ABC method with its granite base of letter-naming was the favored form of reading instruction for over 2000 years, it was not without its critics. In the first century of this era, Quintilian spoke against teaching letter names and the order of the letters before all the letter shapes were learned. The basis of his plaint was the belief that the memorized names detracted the child from fixing his attention on the letter forms.⁴ In 1570 John Hart, the English phonetician and spelling reformer, inveighed against the evil of letter naming, claiming that learning the names of the letters hindered learning to read. Hart’s objections were based upon the discrepancy between names and sounds, as demonstrated by his impassioned attack upon the letter *h*: “For H. what reason is it to call it *ache*, which we speak when we would express the grief of braine, flesh or bone, and say

and write headache, etc. whereas the nature and office of H. is to signifie the only putting forth of the breath, before or after the pure voyces called vowels..." (Danielsson, 1955, pref. IVa).

Aside from objections based upon the negative value of letter-naming there have also been observations that learning the letter names is difficult for some children. Hoole, for example, reported in 1660: "This course (of teaching the letter names) we see hath been very effectual in a short time, with some more ripe witted children, but others of a slower apprehension (as the most and best commonly are) have been thus learning a whole year together (and though they have been much chid and beaten too for want of heed) could scarce tell six of their letters at twelve months' end..." (Hoole, 1660, p. 33).

Hoole devoted a large chunk of his *Petty Schoole* to the problems of teaching the letters, but none of his suggestions could compete for inventiveness with the "gingerbread method," which according to Huey (1908) reissued, was advocated by Basedow in the middle of the eighteenth century. Letters were baked of gingerbread, and

"As he can name he eats the letter;
Proceeding thus with vast delight
He spells and gnaws from left to right."⁵

Huey cites letter-training procedures used by the early Greeks and Romans, including one in which twenty-four slaves were purchased as playmates for a slow learning boy, and each given the name of a letter in the Greek alphabet.⁶ If nothing else, this is evidence that even the children from higher socio-economic levels in ancient Greece had trouble learning the names of the letters.

In more recent times, Huey (1908, p. 313) claimed that "a knowledge of the letter-names will of course not be needed for reading." On the other hand, he felt that familiarizing a child with the letters would not interfere with his learning to read. Anderson and Dearborn (1952, p. 206) who are especially critical of tasks which are meaningless for young children, claimed "learning the letter names serves no useful purpose before the child learns to read."

In Russia, Elkonin (1963, p. 170) found that knowledge of letter names did interfere with learning to read. "Children of 6 to 7 years already know the names of many letters, sometimes the whole alphabet, but they cannot read and if they try to do so simply put together the names of letters. This is one of the worst habits with which many children enter school to begin learning to read and it is necessary to teach them afresh."

In two countries where the teaching of the decoding process is felt to be reasonably successful—Austria and Israel—letter names are not taught until well after the child can discriminate the letters and attach sounds to them. About the teaching in Israel, Feitelson (1965, pp. 27f.) writes: "Once it has become evident that a strong bond of association between any letter symbol and its exact sound value are of utmost importance when teaching reading by a phonetic method, one would think that introducing the letter names as well during the early learning stages might cause interference.... Our classroom observations tended to confirm this assumption time and again."

The Value of Letter Names

Those who favor the early introduction of letter names in reading instruction show little agreement among themselves on the specific benefits of this practice. One argument centers on attaching sounds to letters (Durrell); a second on the facilitation of letter discrimination (Fries); and a third on word identification (Muehl, Olson). In this section the experimental data relevant to the general area of naming will be surveyed, followed by discussions of the evidence for and against the three positions just mentioned.

Naming and Learning. Experiments on the influence of naming and learning and transfer indicate either no consistent pattern, or that the stimuli, the names, the task, the ages of the subjects, and the criterion level of name learning are all significant variables. For motor performance, naming more often than not facilitated both learning and transfer.

Gagne and Baker (1950) gave three groups of college students varying amounts of training in associating letter names with colored lights. During training trials subjects attempted to name the letter associated with a light within two seconds after the light went on. At the end of the two-second period the correct letter appeared on a screen. Training groups, along with a control group which received no training, then learned to press a different button for each of four lights. For this task the training groups made fewer errors and had shorter response times. Gagne and Baker concluded that the effect of the letter association training was to decrease the confusability of the stimuli.

Rossmann and Goss (1951) obtained similar results with college undergraduates on a list of twelve geometric figures, where nonsense syllables were learned as responses to the figures, followed by the learning of motor responses to the same figures.⁷ In both this and the Gagne & Baker experiment, the names had no relationship to the stimuli. Using a slightly different procedure, Saltz and Newman (1960) found that learning component names to a low criterion aided in a mechanical assembly problem with these components, while learning the same names to a high criterion level produced more errors than occurred when no names were learned. In this experiment the actual component names were used.

To test the Gagne and Baker hypothesis on stimuli confusability, Robinson (1955) trained three groups of college students to identify fingerprints. One group learned no names for the prints, one group learned to call half of them "cops" and the other half "robbers," and the third group learned separate names for each of the ten stimuli. The group that learned separate names was not superior to either of the other groups on a same-different transfer task involving pairs of fingerprints. Spiker (1956) performed a similar experiment using figures composed of different numbers of concentric rings, with the number of rings in each figure serving as a label. One group of children was taught the names for the stimuli, while a second group received discrimination training, but no names. In a delayed reaction task

which followed, the younger children (3 years 9 months to 4 years 9 months) who received name training made significantly fewer errors than the young children who did not receive name training; but in the older group (4 years 10 months to 5 years 6 months) there was no difference between the two groups. Spiker concluded that the names helped the subjects produce representations for the stimuli during the delay period, and that pre-training on naming had no effect on the older children because they tended to invent names for the stimuli on their own.

Ranken (1963) hypothesized that naming would facilitate short-term retention of discrete items or sequences of such items, but would result in the loss or distortion of figural information. To test this he trained one group of college students to assign animal names to novel geometric shapes (the relationship of the name to the shape was pointed out), while a second group received discrimination training on the same shapes. Then, one-half of each training group did a jigsaw puzzle task with the same stimuli while the other half did a memory task. A significant interaction was found between the effects of names and the type of problem; the naming subjects did better on the memory task, but worse on the jigsaw puzzle task.

Attaching Sounds to Letters. The most plausible and practicable value for early letter-naming—if a value exists—would be in facilitating the association of sounds and letters. Durrell (1968, p. 5), among others, makes this claim: “Since most letter names contain the sounds of the letters, the ability to name letters should aid in establishing relationships between the phonemes of the spoken word and the printed form of the word.”

If letter names actually aid in attaching sounds to letters, then two different processes could be posited to explain this facilitation. In the first, the letter name is a mediator between the output of the visual recognition process and the stored phonetic (or articulatory) pattern. This assumes that strong linkages exist between the name store and the visual store,

and between the name store and the phonological store, but relatively weak linkages between the visual and phonological stores. Segmentation of the name does not necessarily have to take place in this procedure, nor does the name necessarily have to contain the sound, although this might aid in establishing a stronger name-sound linkage.

In the second scheme, the sound for the letter is extracted from the name itself, a process which is facilitated by those alphabets which are based upon the *acrophonic principle* whereby the sound most commonly assigned to the letter is the first sound of the letter name. This holds, for example, in Hebrew, Arabic, and Greek. In English several names deviate from this principle; the name for *h* retains a sound no longer symbolized by the letter; that of *w* describes its origin from two *u*'s; and *y*, a late addition to the English alphabet, neither its sound nor its origin. (According to the Oxford English Dictionary, the English name for *y* is "of obscure origins." In the Romance languages it is called "Greek *i*"—e.g., Fr "i grec," Sp. "i griega"—while in German it is "i psilon.") In addition, *f*, *s*, and *x* and the sonant symbols *l*, *m*, *n*, and *r* are composed of a checked vowel (/ɛ/ or /a/) followed by the sound symbolized. The remaining consonant names in English are open syllable names based upon the acrophonic principle. However, of the twenty-six letters of English, eleven have at least two common pronunciations each: the vowels *a*, *e*, *i*, *o*, *u*; *w* and *y*, which can be either consonants or parts of vowels (e.g., *beware/dew*; *beyond/grey*); *c* and *g* as in *city*, *cage*, *gym*, and *game*; and *s* and *x* as in *sign/resign*, *fix/exist*. Four others have lower-frequency variants: *d* (*dial/cordial*), *t* (*mat/nation*), *n* (*thin/think*), and *r* (*run/stir*). Of the remaining letters, most have low-frequency variant pronunciations or can be silent; e.g., *h* as in *hit* and *honest*, *z* as in *zip* and *quartz*. In addition, there are consonant sequences which represent single phonemes (*ch*, *dg*, *gh*, *ph*, *rh*, *st*, *th*, *tch*, and *wh* which in some dialects represents a single sound and in others, two phonemes in the reversed order from the spelling).

In summary, sixteen English letters follow the acrophonic

principle, while *f, h, l, m, n, r, s, w, x,* and *y* do not. It should be noted further, however, that the names for all five vowels plus those for *c* and *g* do not contain the sound which is traditionally introduced first for these letters in reading programs. This leaves only nine letters whose names begin with the sound used in initial reading. But even if the English letter names were completely acrophonic, there is some doubt that children, especially at entry to grade one, would be able to segment very easily the first sound from the letter name. Studies by Zhurova (1963/64) indicate that many would not.

Letter Discrimination. In step 1 of stage 1 in Fries's system for teaching reading (Fries, 1962) pupils are to develop an ability "to identify and distinguish the graphic shapes of the letters;" this is to be learned to a criterion of "100 percent accuracy" as demonstrated by "instant and automatic responses of recognition." This, according to Fries (1962, p. 124), "does not necessarily mean attaching the conventional names to these distinctive shapes, although the names are very useful as means of checking the identification responses." Thus Fries makes no suggestion on whether to teach the letter names or not at this stage, but claims that if they are learned they are useful for checking the letter identification response. Yet it is not apparent from the remainder of Fries's instructions for teaching reading where this identification response is to occur, since the only letter-naming task he suggests requires same-different responses to pairs of graphemic stimuli. What might be intended is that after the same-different response is made, names could then be attached to each stimuli and the name patterns compared as a check on the first response. But this is both impractical and beyond the cognitive abilities of most first grade entrants.

From the experiments reviewed earlier on tasks similar to letter-naming it might be argued that names would aid letter discrimination either by reducing the psychological similarity of the forms (Gagne and Baker) or by providing a more retrievable representation of the letter than its figural repre-

sentation provides (Spiker). But these arguments become academic when it is observed that most children at the beginning of first grade can match letters of the alphabet successfully, yet can, on the average, name only about one-third of them. Nicholson (1958), for example, found that for 2,188 children tested at the beginning of first grade in the Boston area the mean number of lower-case letters matched successfully was 24.48, while at the same time the mean for naming lower-case letters for the same population was 9.00. Letter matching was tested by showing a test letter simultaneously with five other letters placed to its right on a sheet of paper. The child was instructed to circle the letter among the five which was like the test letter.

When the test letter was shown for only five seconds and then removed before the multiple choice selections were exposed, the mean for correct responses was still relatively high: 22.12. Similar results for 3-5 year-old children were found by Calfee, Chapman, and Venezky (1972), but with a smaller population. Consequently, teaching the letter names at the beginning of reading instruction could have, at best, a marginal effect upon letter discrimination.

Word Identification

Both laboratory and classroom procedures have been used in attempts to evaluate the effect of letter-name knowledge on word recognition. In a laboratory experiment (Muehl), a word recognition task was constructed from nonsense letter-string stimuli and concrete noun responses, and tested on a small group of kindergarten children. In the classroom evaluation (Olson), a large group of children were tested at various times during their first year of reading instruction on various reading skills, including letter-naming and word recognition abilities. Then, attempts were made via correlations to establish a relationship between these two factors. The results of the two approaches are contradictory.

Muehl (1962, p. 181) hypothesized: "If...(the)...verbal labeling process is the basis for mediating word discrimination and name association, then providing children with a

consistent set of labels in the form of letter names should facilitate this discrimination and association process....”

To test this hypothesis, he trained two groups of kindergartners on attaching names to letters (Task I) and then tested them on the ability to attach common names (*boat*, *sled*, *cake*) to three-letter nonsense strings (Task II). One group learned names for three letters which were relevant for discriminating the nonsense strings, and one group learned letters and names which were irrelevant.

The response data for Task II showed no significant difference between the relevant and irrelevant groups for correct responses, although there was a significant difference for omissions.⁸ From these results Muehl concluded that learning letter names interfered with the task of learning to associate picture names with nonsense letter strings containing these same letters. Aside from the questionable conclusion, the stimulus items used by Muehl deviate from what is found in a true word recognition task. The stimuli were non-familiar three-letter strings: *yml/yfl/ygl/* and *ygl/yul/ydl*, where only the middle letter was necessary for discrimination. According to word recognition studies by Edelman (1963) and Marchbanks and Levin (1965), letters in the middle of a word are used as cues in word recognition much less frequently than letters at the beginning or at the end. This may account for the failure of any group to achieve even 50% correct responses on Task II. (If we assume that the children learned the three responses—*boat*, *sled*, *cake*—on the familiarization trials, then for the 16 trials in Task II, a mean of 16 should represent blind guessing. The actual means varied from 17.81 to 22.61, which indicates that very little learning took place for any group.) In addition, labels for only one of the three letter positions were learned by the relevant group; yet in reading, a person who knows letter names would have a label for each letter in a word. What effect this would have on Muehl’s experiment remains to be tested. Arguments for either greater facilitation or greater confusion seem equally valid.

Furthermore, what significance to attach to the omission

data is difficult to determine. Muehl attributes it to competitive blocking: the letter name is the dominant response to the critical stimulus element and therefore must be displaced by the word-name response. This argument would be valid if the irrelevant group had made significantly more correct responses than the relevant group—but they didn't, indicating that neither group was overly attentive to the critical stimuli. In short, this study failed to find a significant effect for letter-name training on word recognition. More recent studies with first-grade children by Samuels (1972) and by Jenkins, Bausell, and Jenkins (1972) also failed to find such an effect.

In a study by Olson of the reading and reading-related skills of 1,172 first-grade children, letter-naming ability in September correlated highly with oral reading ability in February. Furthermore, it was found that of the 119 children from this group who could not name 20 or more letters in February, only nine could identify 70 or more words in a word recognition task. From these data Olson (1958, p. 35) concluded: "While a knowledge of letter names does not always assure high reading achievement, the lack of that knowledge assures low reading achievement. Apparently a child must have a knowledge of letter names long before he masters 75 words." But there is no evidence from this study that lack of letter name knowledge caused the word recognition deficit. Both, for example, might result from a poor attendance record. Nevertheless, it is puzzling that letter-naming ability at the end of kindergarten or in September of first grade has been found by a number of studies to be one of the best predictors of reading success not only at the end of first grade, but as late as third grade.⁹

Two plausible explanations for this relationship have been offered. The first is that letter-name knowledge itself facilitates the acquisition of literacy, therefore the child who comes to the reading task with this ability is already one step ahead in the game. If this can be shown to be true (although none of the evidence cited so far indicates that it is), then the obvious conclusion is that all children should be taught letter

names in kindergarten or before. But this brings up a second question: why do some children know letter names when they begin school and others not? Solely because of differences in home environment? Or do some children who receive continual encouragement and training for this task in the home still fail to acquire the ability? At this point in time we know almost nothing about the learning of letter names, other than the general developmental pattern during reading instruction. The statements quoted earlier in this paper on the learning of letter names in previous centuries indicates that this has always been a difficult task for many children, even those from the higher socio-economic levels. Furthermore, studies by Ohnmacht (1969) and Johnson (1970) on the effects of letter-name instruction on reading achievement (grade one) have failed to find a significant advantage for letter-name training over other forms of initial training.

The second and more acceptable explanation is that letter-name knowledge at the beginning of first grade reflects the presence of a variety of factors which themselves are important for learning to read; e.g., level of cognitive development, emotional stability, attention span, and proper interaction with adults outside of school. By this reasoning, concentrated drilling on letter names for children who lack any of these factors will not lead to a major improvement in reading ability, even if the letter names are acquired.

Conclusions

A heavy emphasis on letter-name learning in either pre-reading or initial reading programs has neither logical nor experimental support. Letter-sound learning, word recognition, and reading ability in general do not appear to be affected in a major way by letter-name instruction, and while one could quibble over the particulars of the experimental evidence for these conclusions, it is unreasonable to expect to find a robust letter-naming effect through replication or expansion on the studies surveyed here, especially since not a single one supported letter-naming instruction. This is not to say that children should not be taught letter names, or

that letter-name instruction per se is harmful. Letter names are convenient but not indispensable labels. What needs to be discouraged is an overemphasis of letter-name learning, especially at the expense of other essential learning experiences. The inner-city child who lacks exposure to books and reading will not be greatly aided by letter-naming drills, nor will the child who fails to grasp the essentials of decoding or word discrimination.

On letter names as predictors of later reading success, we know very little at present. The first set of data needed are those that would show for which age, I.Q., and socioeconomic levels this relationship is valid. Then, we would need to explore the source of the relationship—is it an indicator of more basic skills, or does it result from the intrinsic value of the names themselves? But whatever value is found experimentally for letter-name knowledge—be it positive or negative—letter names will probably remain as an integral and inseparable component in the popular concept of reading instruction. Certainly Juliet did not consider letter names in declaring: “What’s in a name? That which we call a rose by any other name would smell as sweet.”

¹Preparation of this paper was supported in part by a grant from the National Institute of Education through the Wisconsin Research and Development Center for Cognitive Learning. An earlier version of this paper, written in 1970, is still awaiting publication in a *Festschrift in Memory of Ruth H. Weir*, (The Hague: Mouton & Co.).

²The discussion which follows is based primarily upon Diring, 1968, Vol. I, and Gelb, 1952, with additional notes from the *Oxford English Dictionary*.

³Although the ordering of the letters dates from at least the fourteenth century (B.C.E.), the use of this ordering for alphabetization is relatively modern. For a thorough synopsis of this topic, see Lloyd W. Daly, "Contributions to a history of alphabetization in antiquity and the Middle Ages," *Collection Latomus*, 1967, 90, whole issue.

⁴Cited by Mathews (1966), p. 11. See also Huey's brief notes on Quintilian (Huey, 1908 reissue, p. 241). The original source for both Mathews and Huey is *Quintilian's Institute of Oratory*. Literally translated with notes by the Rev. John Selby Watson, 2 vols. London, 1875.

⁵Huey, p. 241. The three lines cited here are, according to Huey (p. 241 fn), taken from "Alma," Canto two, quoted from R.R. Reeder, "Historical Development of School Readers and of Method in Teaching Reading," *Columbia University Contributions to Philosophy, Psychology, and Education*, VIII, No. 2 (1900), P. 92.

⁶Huey, p. 241.

⁷This study may have been contaminated somewhat by the use of electrical shocks.

⁸On the pretraining of letter names, 41 of 87 children failed to reach criterion.

⁹Although letter-naming is apparently one of the best single predictors of reading success, and clearly superior to either chronological age or I.Q. in this role, its absolute value varies widely from study to study. Wilson and Flemming (1938), working with 25 high-I.Q. children (mean = 120.6) in the Horace Mann School in New York, found that the rank-order correlation between naming lower-case letters in the fall of grade one and reading ability in the following spring (as measured by standard reading tests) was .594. On the other hand, DeHirsch, Jansky, and Langford (1966) found that for children with I.Q.'s greater than 106, the product-moment correlation between letter-naming ability in kindergarten and reading ability in grade 2 was .37. It is difficult, however, to find two studies that tested the same age-levels and employed the same testing instruments. For a review of these studies, see Chall, 1967, pp. 140ff.

REFERENCES

- Anderson, Irving H., and Walter F. Dearborn. *The Psychology of Teaching Reading*. New York: Ronald Press, 1952.
- Calfee, Robert, Robin Chapman, and Richard Venezky. "How a child needs to think to learn to read," in Lee Gregg (ed.), *Cognition in Learning and Memory*. New York: John Wiley, 1972.
- Chall, Jeanne S. *Learning to Read: The Great Debate*. New York: McGraw-Hill, 1967.
- Daly, Lloyd W. "Contributions to a history of alphabetization in antiquity and the Middle Ages." *Collection Latomus*, 1967, whole issue.
- Danielsson, Bror. *John Hart's Works on Orthography and Pronunciation*. Stockholm, 1955.
- deHirsch, Katrina, Jeanette J. Jansky, and William S. Langford. *Predicting Reading Failure*. New York: Harper & Row, 1966.
- Diringer, David. *The Alphabet*, 3rd ed. Vol. I. London: Hutchinson & Co., 1968.
- Durrell, D.D. "Success in 1st grade reading," *Journal of Education (Boston)*, 1958, 140, 1-6.
- Edelman, G. "The use of cues in word recognition," in *A Basic Research Program on Reading*, Harry Levin, et al. (Eds.) Final Report, Cooperative Research Project No. 639. Cornell University, 1963.
- Elkonin, D.B. "The Psychology of mastering the elements of reading," in Brian and Joan Simon (ed. and translator), *Educational Psychology in the U.S.S.R.*, London: Routledge and Kegan Paul, 1963.
- Feitelson, Dina. "Structuring the teaching of reading according to major features of the language and its script," *El. English*, 1965, 42, 870-77.
- Fries, Charles C. *Linguistics and Reading*. New York: Holt, Rinehart and Winston, 1962.
- Gagne, R.M., and K.E. Baker. "Stimulus pre-differentiation as a factor in transfer of training," *Journal of Experimental Psychology*, 1950, 40, 439-51.
- Gavel, Sylvis R. "June reading achievements of first-grade children," *Journal of Education (Boston)*, 1958, 140, 73-43.
- Gelb, I.J. *A Study of Writing*. London: Routledge and Kegan Paul, 1952.
- Gordon, Arthur E. "The letter names of the Latin alphabet," *Visible Language*, 1971, 5, 221-28.
- Hoole, Charles. *A New Discovery of the Old Art of Teaching School*, 1660. Reissued with introduction and notes by Thiselton Mark, Syracuse, N.Y., 1912.
- Huey, Edmund Burk. *The Psychology and Pedagogy of Reading*. New York: Macmillan, 1908. Reissued 1968 by the M.I.T. Press, Cambridge, Mass.
- Jenkins, J.R., R.B. Bausell, and L.M. Jenkins. "Comparisons of letter name and letter sound training as transfer variables," *AERJ*, 1972, 9, 75-86.
- Johnson, R.J. "The effect of training in letter names on success in beginning reading for children of different abilities," AERA Paper, Minneapolis, Minnesota, 1970.
- Marchbanks, G., and H. Levin. "Cues by which children recognize words," *Journal of Educational Psychology*, 1965, 56, 56-61.
- Mathews, Mitford M. *Teaching to Read, Historically Considered*, Chicago: University of Chicago Press, 1966.

- Muehl, Siegman. "Effects of letter-name knowledge on learning to read a word list in kindergarten children," *Journal of Educational Psychology*, 1962, 53, 181-186.
- Nicholson, Alice. "Background abilities related to reading success in first grade," *Journal of Education* (Boston), 1958, 140, 7-24.
- Ohnmacht, D.D. "The effects of letter-knowledge on achievement in reading in the first grade," AERA Paper, Los Angeles, 1969.
- Olson, A.V. "Growth in word perception abilities as it relates to success in beginning reading," *Journal of Education* (Boston), 1958, 140, 25-36.
- Oxford English Dictionary*, 13 vols. Oxford: Clarendon Press, 1933.
- Quintilian (Marcus Fabius Quintilianus). *Quintilian's Institutes of Oratory*. Literally translated with notes by the Rev. John Selby Watson. 2 vols. London, 1875.
- Ranken, H.B. "Language and thinking: positive and negative effects of naming," *Science*, 1963, 141, 48-50.
- Robinson, J.S. "The effect of learning verbal labels for stimuli on their later discrimination," *Journal of Experimental Psychology*, 1955, 49, 112-14.
- Rossmann, Irma, and Albert E. Goss. "The acquired distinctiveness of cues: the role of discriminative verbal responses in facilitating the acquisition of discriminative motor responses," *Journal of Experimental Psychology*, 1951, 42, 173-82.
- Saltz, Eli, and Slater E. Newman. "The effect of prior learning of symbols on performance in reasoning," *American Journal of Psychology*, 1960, 73, 91-99.
- Samuels, S.J. "The effect of letter-name knowledge on learning to read," *AERJ*, 1972, 9, 76-74.
- Spiker, Charles C. "Stimulus pretraining and subsequent performance in the delayed reaction experiment," *Journal of Experimental Psychology*, 1956, 52, 107-11.
- Wilson, Frank T., and C.W. Flemming. "Correlations of reading progress with other abilities and traits in grade 1," *Journal of Genetic Psychology*, 1938, 53, 33-52.
- Zhurova, L.E. The development of analysis of words into their sounds by preschool children. *Soviet Psychology and Psychiatry*, 1963/64, 2, 17-27.

C D B!



O-L H.



D B S A B-Z B.

O, S N-D!

K-T S X-M-N-N D N-6.

I M A U-M B-N.

U R N N-M-L.



I M C-N A G-P-C.



Excerpted with kind permission from the charming *C D B!*
by William Steig. New York: Windmill Books, Inc., Simon & Schuster, Inc.
Copyright 1968 by William Steig.

Radial Design in Wallace Stevens

Terrance J. King

In some early Stevens poems there is evidence of a typographical pattern I call "radial design," a device in which the poet selects a central unit (such as a word) and on both sides evenly arranges a pattern of other units. Radial design is no accident. One finds not only a definite historical consistency in the way the pattern develops but also a tight continuity between it and ideas about language and perception expressed in the poems themselves. Stevens' overall aim is to impose this fixed, spatial structure upon the sequential flow of a poem in order to suspend the representational function of its language and thus compel us to observe words as things in themselves.

I do seek a center and expect to go on seeking it. . . . It is the great necessity even without specific identification.

Wallace Stevens, in a letter to Sister Maria Bernetta Quinn

Many of the obscurities in Wallace Stevens' verse can be resolved if we think of his poetic structures as operating on two verbal levels, the empirical and the semantic. The empirical plane derives from the physical nature of words and would include rhyme, meter, and typographical design. The semantic plane, on the other hand, derives from the referential nature of words and consists of such elements as imagery and diction. This dichotomy could, of course, be applied to any poet, but in the case of Stevens it can serve particularly well, often having an effect somewhat like that of a microscope stain that allows structures, previously hidden by another layer of organization, to become suddenly visible. In especially the early poetry (from his first important lyrics published in 1915 to those included in the final, 1936, *Ideas of Order*), Stevens liked to undergird his themes with meticulously wrought—and concealed—empirical structures.¹

Perhaps the most ambitious of these is radial design, my term for a pattern Stevens employs in several poems, all of which appear in the first version of *Harmonium* (1923). He creates radial design using syllables,² words, phrases, verses, or stanzas as typographical units, arranging them evenly on both sides of a central unit in order to form a pattern having a numerical or, in some cases, geometric symmetry. The central unit works as a key to correlations a reader may make between this radial structure and everything else the poem is saying.

In "Life Is Motion" (*CP*, 83),⁴ for example, the word "stump" is the central unit, having on each side 11 words³ or 19 syllables; and this same word, we shall find, also acts as a kind of fulcrum for the statement of the piece:

In Oklahoma,
Bonnie and Josie,
Dressed in calico,
Danced around a stump.
They cried,
"Ohoyaho,
Ohoo" ...
Celebrating the marriage
Of flesh and air.

On a semantic plane, two figurative weddings frame the poem: at the beginning, the nuptial of interaction between Bonnie and Josie and, at the end, the marriage of flesh and air, this latter wedding suggesting a harmony of man and the physical world. But if we interpret the poem only this far, the radial design supervenes as a mere oddity.⁵ We need, at this point, to observe Joseph N. Riddel's remark about the reflexive nature of Stevens' poetry, "wherein the self (or subjectivity) of the poet is objectively manifest in the verbal phenomenon of his poetic world."⁶ Radial design is a vehicle of this reflexive mode. Bonnie and Josie cannot recognize this pattern, but the poet-speaker can. It works to make the poem a kind of dramatic monologue—not, in the usual sense of this term, delineating the uncommon lines of a speaker's personality but rather defining the nature of what he shares with all other men, the perceptual faculty. On a semantic level, the poet-speaker sees the earthy,

spontaneous dance swirling around the stump; and yet on an empirical level, he also sees that this same “stump” hubs the rigid and artificial radial design. He does not perceive in two separate acts, however, but only one, apprehending a composed reality that resolves into two constituents, motion and permanence. The motion we associate with the dance, the permanence with the radial design. The speaker celebrates the marriage of man and his world, of order and chaos, of permanence and flux; he structures a fixed form, projects it into the flow of sensation, and then somehow “discovers” this same fixed form as if the physical world itself were yielding it. Life is motion wearing the fiction of permanence. The congruence of dance and design, of pressing impulse and permanent order, represents the whole of reality which the speaker—in one act—creates and finds.

Radial design suggests that Stevens has tailored lyrical structure to the particular issues that this topic of perception raises. A poem with such a pattern renders a polarity similar to the one lying at the core of human knowledge. Our two-level dichotomy between empirical and semantic relation transposes into a verbal medium the radical antinomy Stevens sees between object and subject. Within the Kantian framework the poet uses for his epistemology, the object is of its very nature inaccessible. The mind must integrate, interpret, and make symbols from the stimuli it receives; it must of necessity distort the *noumenon*, the pure thing-in-itself. The naked eye is an illusion;⁷ perceived reality “is never the thing but the version of the thing” (*CP*, 332). And so in its very deceptiveness, radial design effects the kind of astonishment a man feels in discovering that he has been deceived by what lies right in front of him and, more, that in large measure he himself is the deluder, his own “sleight-of-hand man” (*CP*, 222).

1915

Although not yet creating a true radial design in 1915, Stevens nevertheless uses a geometric plan of centralization in the very early poem, “Sunday Morning” (*CP*, 66).⁸ In Figure 1 the roman numbers list the order of stanzas; the letters designate the frames created by the paired sections.

On an even larger structural scale, a dramatic unity, based on the figure of the woman, exists between Frames A and D. In Frame A the poet stages her action: she enjoys the calm sentence of an immediate, material reality, gives up this reality for daydreams about the Christian promise of immortality (I), and then awakens to a new consciousness of the physical world (VIII); in Frame D he engages her in a kind of dialogue with the narrator. Even though the third-person reference persists in D (the second person would destroy the poem's elegiac mood), the two clearly participate in a dialectic that moves toward the narrator's paradox, "death is the mother of beauty," the key antithesis to the creed impelling the woman's reveries. "Death is the mother of beauty" argues that change is the essential quality of all reality—a direct challenge to the static terms of the Christian heaven. Representing only one phase of a world-in-change, death would act as a mother in that it would presuppose or "generate" its alternate phase, life, one form of which is beauty—to be taken broadly as the life of the mind.

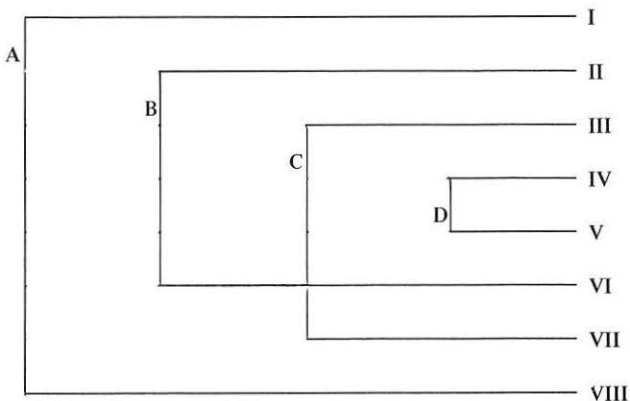
A and D comprise the poem's essential statement; the other

Figure 1. *Frame A*. The woman abandons her hope of a Christian paradise, an act the narrator portrays as an awakening from a daydream.

Frame B. The narrator continues his attack against Christian belief, but here the two stanzas are more functionally equivalent, each one developing the argument of the more important section immediately preceding it.

Frame C. The narrator traces the history of religious belief, submitting that man is progressing toward the realization of a divine humanity.

Frame D. The quasi dialogue between the woman and the narrator yields the central statement of the poem: "death is the mother of beauty."



two frames play developmental and supportive roles. Frame B, for instance, restates and clarifies but does not say anything really new. The second stanza merely spells out the argument of the first, as does the sixth stanza that of the fifth. (In addition to having equivalent functions, the components of B correspond rhetorically. In each the narrator changes from the interrogative to the hortatory mode, first trying through mordant questions to erode the Christian position and then moving to replace it with a hedonistic alternative.) Frame C corroborates A and D in a different way. Probably as a counterpoint to the woman's excursions into the past and the future, the narrator briefly outlines the history of divinity and then makes predictions about an age to come. His thesis is that the concept of God has been drawing close to the concept of man. Christ, as both God and man, represents an advance over Jove: our blood is viewed as "commingling" with the Christian "heaven," a synonym here for divinity. But there is a third stage also envisioned. Now in the future tense, the narrator asserts that our blood will come to be fully the blood of paradise—that is, fully divine—only when the earth will be good of and for itself, when it will "seem all of paradise that we shall know." The seventh section takes up this future vision with such close continuity that the two parts of Frame C could stand together as a single poem. This second part of C keeps the important symbols of blood, sky, and star (this last changed to the god-like sun); and it suggests, largely through these same symbols, that man will not lose but transform religious experience. Without Jove, the sensual freedom associated with paganism will reach a meridian of expression; and without Christ, the spiritual riches of Christianity will become, in their secularization, as accessible as trees, lakes, hills, or the interlocked hands of men that perish. that Stevens is consciously using these frames seems apparent in a 1915 letter to Harriet Monroe, who as editor of *Poetry* told him that the entire poem could not be included in the journal. He replied that "provided your selection of the numbers of *Sunday Morning* is printed in the following order: I, VIII, IV, V, I see no objection to cutting down. The order is necessary to the idea" (*L*, 183). To reduce the work, Stevens excerpts B

and C and makes a simple sequential arrangement by collapsing the essential frames, A and D. Doing so, he can easily preserve

preserve "the idea" because of the strong continuity already existing between the stanzas of these important frames.⁹

In spite of its frame-within-frame scheme, however, "Sunday Morning" does not show a true radial design. In contrast with our paradigm, "Life Is Motion," it does not base its plan of centralization on an empirical system of relation and does not have the perception of the speaker as its topic. But most importantly, the arrangement diagramed in Figure 1 signifies nothing in terms of what the poem says. Where the radial system of "Life Is Motion" becomes a kind of silent metaphor—as crucial to the poem's argument as that of its dance image—the equivalent structure in "Sunday Morning" merely serves a rhetorical function, organizing pairs of sections so that the most important parts appear at the center and at each end. Stevens can comply with Ms. Monroe's request and destroy this rhetorical framework because he does not involve it with "the idea" of the poem itself.

1917

A true radial design does not appear until "All over Minnesota" (See *OP*, 7) is published in 1917,¹⁰ a sketch that, however unassuming, clearly indicates a new direction in Stevens' use of verbal structure (Fig. 2).

Stevens himself does not segment the poem into these small typographical stanzas; I am using white space in Figure 2 to show how radial design determines the poem's printed layout and how strongly the four-unit, frame-within-frame arrangement recalls the plan of "Sunday Morning." The imagery of Frame A brings the mind's eye to a scene (line 1) and then draws it away (line 13), while Frame B uses color contrast (red-white, white-green) to blend Jalmar into his wintry milieu. On an aural level, C advances this union of man and environment: some birds join with the wind's male voice in a soprano-bass choir while others utter the name of their listener.

Unlike the scheme in "Sunday Morning," however, the radial

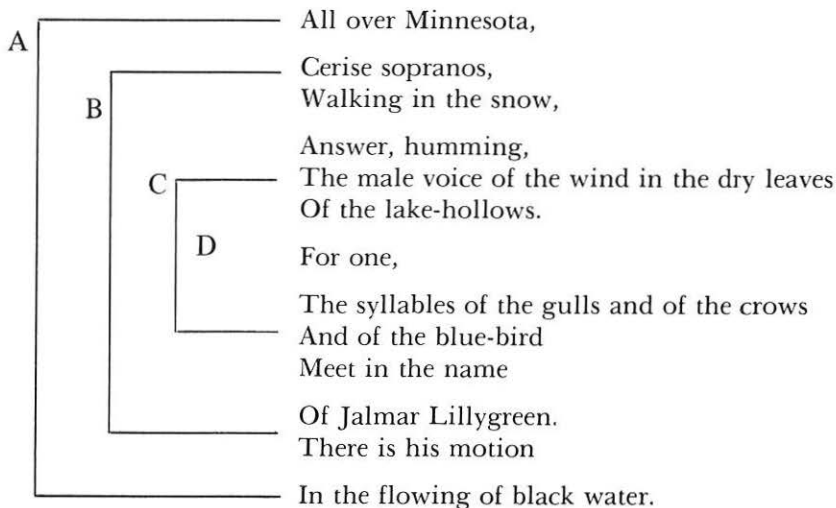


Figure 2. "All Over Minnesota."

structure here derives, at least partially, from empirical relation. The short length of D, first of all, allows the eye to see it as the central unit. But not so obvious is the way equivalence in syllabic verse-length links the components of the frames surrounding D:

Frame A....7 and 8

Frame B....5, 5 and 6, 5

Frame C....4, 10, 5 and 11, 5, 4

A one-syllable difference blurs the correspondence between the components of each frame. In C the eye is further eluded by the jumbling of linearly parallel verses so that those that are even (4 and 4, 5 and 5) or nearly so (10 and 11) will not immediately be seen as such. As in "Life Is Motion," we shall find that the words at their semantic level will make full sense through recognition of the empirical scheme and vice-versa. Again emerging as the main topic is the perception of the poet-speaker, whose mind is personified by Jalmar. Just as this Minnesota figure becomes one with his physical environment, so too does the poet-speaker unite with his, namely, the language on the page. Jalmar's motion is "in the flowing of

black water," and the motion of his creator's mind is in the flow of black print. For Stevens the mind co-inhabits the material reality it apprehends, whether this reality be a word or a world. "The soul," he submits in another poem, "... is composed / Of the external world" (*CP*, 51). The radial design of "All over Minnesota" is Stevens' peculiar way of saying that the mind, like a central fire, transforms everything into a resemblance of itself.

Jalmar listens to the syllables of birds and hears his name; and the speaker uses the syllables of the poem to suggest, first, that Jalmar is a central, radiating presence in the world he perceives and that, second, he himself composes—in both senses of the term—the world he portrays. "The mind of the poet," says Stevens, "describes itself as constantly in his poems as the mind of the sculptor describes itself in his forms..." (*NA*, 46).

Drawing a similar analogy from another visual art, he maintains that "the mind begets in resemblance as the painter begets in representation; that is to say, as the painter makes his world within a world..." (*NA*, 76). It is not surprising, then, that Stevens recognizes a close affinity between the structural principles of painting and those governing radial design, which is, after all, a spatial feature. He would be aware that in painting the eye forms its own kind of radial design, for in following the principle of compositional focus, it finds a center-point to which it relates everything else.¹¹ In "Valley Candle" (*CP*, 51) the beams of light do not order the chaos of the dark valley; the eye itself structures the scene, finding a point of light and inter-relating what surrounds it:

My candle burned alone in an immense valley.
Beams of the huge night converged upon it....

When the "Special Number" issue of *Others* appears in this year 1917, it is clear that Stevens is linking this center-point principle with radial design as a primary technique. While "Valley Candle," which here leads a group of five new lyrics,¹² does not itself show such a strategy, it precludes a remarkable example of it in the poem immediately following, "Thirteen Ways of Looking at a Blackbird" (*CP*, 92):

Among twenty snowy mountains,
The only moving thing
Was the eye of the blackbird.

The blackbird of this first sketch bears an unmistakable likeness to the solitary candle. The settings of both are exemplary of how “poetry and painting alike create through composition” (NA, 163). The eye chooses a point out of an immense expanse as if it were selecting the center of a circle whose circumference was presumed instead of drawn. In terms of this point, the eye forms rather than registers the scene, finding through the center-point the north and south, the east and west of the world it sees. Stevens applies this center-point principle to radial design in order to unify all thirteen sections; but before we can study the specific terms of this application, we need to explore why the theme of unity is, in this poem, especially important.

Even after a reasonably careful reading, the mutual autonomy of the thirteen parts seems a more striking feature than their unity. Each section not only has a different setting but often a different topic. In the first way of looking at a concrete object, the subjective voice and eyes of the speaker assume an active role but do not dominate their objective counterpart, the blackbird. Other ways, however, portray less tranquil relationships within this subject-object polarity.

XI

He rode over Connecticut
In a glass coach.
Once, a fear pierced him,
In that he mistook
The shadow of his equipage
For blackbirds.

“He rode over Connecticut” (perhaps a play with “overrode”) in the sense that he traded physical presence for fantastic invention. Stevens will sometimes allow a persona to inflate the range of the imagination as if reality were subservient to it—riding in a glass coach, reaching “right up to the sun” (CP,

74), or thinking of a dangerous enemy as a “bug in the grass” (*CP*, 210)—and then, through explicit or tacit statement, will have the same wrongly minimized reality assert itself with its own brand of power. In this passage, the mere suggestion of reality’s shadow sufficiently exposes the vulnerability of the traveler’s glass world.

As much as this eleventh part differs from the first, Stevens nevertheless writes one poem, not thirteen. On the surface he does want to suggest that the speaker has merely gathered an odd number of loosely related impressions, but at deeper levels Stevens lays tightly fashioned structures. In XI, for example, he casts the theme of misemphasis within a third-person reference in order to maintain through all the pieces a single, consistently enlightened speaker. More than anything else, it is this speaker that enables the whole to say more than do the parts taken together as a whole. One sketch may be seen as emphasizing the objective pole, (VII, VIII, X, XI), another the subjective (II, III, V, VI, IX, XII), or still another the accord between both (I, IV, XIII), but individually they all work within a generally static framework, catching this polar interplay out of time and, as in a painting, depicting within it an *act* of the speaker. “Thirteen Ways” itself, on the other hand, stages his *action*, something involving process. The poem does not resemble a gallery with thirteen pictures as much as it does a motion-picture film with thirteen frames. And yet, we may ask, even if one recognizes that the whole poem reveals this action, what more is shown besides indefinite extension? The speaker moves in a generally additive progression, one in which the thirteenth part implies not so much a termination but just another fourteenth way. But at the same time, the pleasure this final part describes can operate as a goal of the speaker’s perception and so suggest that it is a purposeful as well as progressive action. As in “The Snow Man” and “The Emperor of Ice-Cream,” cold reality here refreshes without consoling and returns the speaker full circle to the snowy satisfaction of his first way—the emotional fulfillment of the end complementing the aspectual harmony of the beginning.

Seeing the pleasure of harmony as the poem's fundamental idea, we are able to appreciate Stevens' choice of "Among twenty snowy mountains" as the speaker's first statement. In no other part do object and subject come more closely together. Like the ink brush of a Sung artist, the speaker's voice approaches but does not reach impersonality. Here also the eye surveys the widest expanse and discerns the narrowest compass. Perhaps the speaker, having such keen notice, can catch his image in the blackbird's moving eye. At any rate, even though the blackbird may not mirror him in this way, the center-point principle enables it to reflect "the act of [his] mind" (*CP*, 240).

Unifying the whole poem, Stevens joins this same principle with radial design to show that the blackbird also mirrors the action, the process, of his mind. The radial structure centers as VII, a piece only a little different from XI: the "thin men of Haddam" are merely variants of the glass-coach rider—all idealists whose perceptual balance has slanted drastically toward the subjective. And yet unique in VII are subtle elements like the more immediate reference in the second person and the abrupt, vertical drop from the ethereal birds of gold to the fleshly and mundane blackbirds of Haddam (a Hartford suburb). Part of the speaker's voice modulates to an urgent pitch just audible beneath the stronger tones of his ironic, biblical phrasing. It is this fainter pitch, however, that leads us to a more important irony: where disharmony most affects the speaker and where he sees the greatest distance separating subject and object, there lies the "eye" of the radial design, a pattern that always comes to signify an ultimate accord between perceiver and perceived. In the central line of this central stanza, "see," with 165 syllables falling on each side, completes the radial symmetry of the poem. If we abstract this central line from its immediate context and apply it to the speaker's action through the entire poem we have

Do you not see how the blackbird...?

Does what? Acts as a center-point, as a compositional focus? It appears that such an elliptical question would have to be rhetorical, drawing our attention to the dual role the blackbird

plays, as that which the speaker sees and as that by which he sees himself. In IX, he says that

When the blackbird flew out of sight,
It marked the edge
Of one of many circles.

It marked the edge of an objective circle, the horizon, but also marked the center of the subjective circles the eye projected into the scenes it chose to see.¹³

The third poem of the *Others* group, "The Wind Shifts" (*CP*, 83), closely sequels "Thirteen Ways," but now the epistemological emphasis changes to a psychological one. In this last member of what is apparently a triad, the speaker views the irrational as a psychic force that paradoxically impels man to project order into the external world so that ultimately "the irrational is rational" (*CP*, 406). With 32 words on each side, "irrational" emerges as the central unit of the poem's radial design. But besides this pattern, one finds other ties with "Thirteen Ways." In its thirteen verses, we have four ways of looking at the irrational, the poem's actual topic, for which the shifting wind is only a metaphor. Like the wind, the rage within undergoes continual change, exerting its power with an invisible, intractable action. And again as in the previous lyric, it is the speaker who unifies all the ways of looking at something. The title could more overtly announce "This Is the Way Wind Shifts"—the whole poem, largely through the symmetry of the radial design, becomes a fifth way of seeing the "rage for order" (*CP*, 130), this time within the poet-speaker himself.¹⁴

1919

Radial design does not appear again until 1919, but in this year five new poems, including "Life Is Motion,"¹⁵ show examples of it: "Ploughing on Sunday," "Homunculus et La Belle Etoile," "The Indigo Glass in the Grass," and "Anecdote of the Jar"—these last four occurring with ten other pieces in *Poetry*, XV (Oct.), 1-11, under the title "Pecksniffiana." Of these, "Anecdote" and "Homunculus" mark the strongest advance in Stevens' conception of radial design.¹⁶

In "Anecdote" (*CP*, 76) Stevens chooses the stanza as the

basic unit of the radial pattern, surrounding the even middle section (having syllabic verse lengths running 8, 8, 8, 8) with two uneven parts (8, 8, 9, 4 and 8, 6, 8, 8). As in "Thirteen Ways" he places radial design in a drama where the speaker acts as the protagonist and reality the antagonist. In "Anecdote," however, the rhythm of the interaction is stressed. The radial design itself encodes this rhythm that rises out of chaos (8-8-9-4) to an order (8-8-8-8-) and then falls back to chaos (8-8-6-8). The governing idea of the piece lies in the apparent contradiction of the third phase, where chaos emerges in a scene dominated by the order of the jar. As a preparation for this third part, Stevens uses the eighth line to introduce the terms of the paradox: while order has the quality of something man erects, something permanent, solid and "tall," it also has the quality of something he enters briefly, "of a port in air," of that which can only momentarily avail the mind that creates it. Whether the speaker finds order in the dissolving aspect of a blackbird or the frozen form of a jar, he sees his act of discovery as one that distorts as well as creates, one that can never yield a solid, final port of total truth. When order is projected into the external world, it exists as part of the present at one moment and part of the past in the next, becoming then a "violent order" which the poet's connoisseur of chaos calls "a disorder" (*CP*, 215). In the first section the untouched aspect of reality reveals one version of chaos; the distorted aspect in the third betrays another. At the beginning the speaker structures reality; at the end he is about to restructure it.

Along with radial design, several other empirical devices heighten this cyclic sense of the end flowing into the beginning. The last line, for example, echos the first through duplication of meter and phrase. Stevens even arranges the rhyme scheme so that it will resound the undulation of chaos-to-order-to-chaos (Fig. 3).

In Figure 3 I depart from the conventional capitalization and spacing of the actual poem in order to schematize the rhyme chains that link the three sections together. The upper half of the diagram shows how the internal sequence of "-ROUND" finds its completion in the external component "GROUND,"

I placed a jar in Tennessee,
And ROUND it was, upon a hill.
It made the slovenly wilderness
SurROUND that hill.

The wilderness rose up to it,
And sprawled aROUND, no longer wild.
The jar was ROUND upon the
And tall and of a port in

It took dominion every-
The jar was gray and
It did not give of Bird or Bush,
Like nothing else in Tennessee.

GROUND
AIR.

↓
WHERE.
BARE.

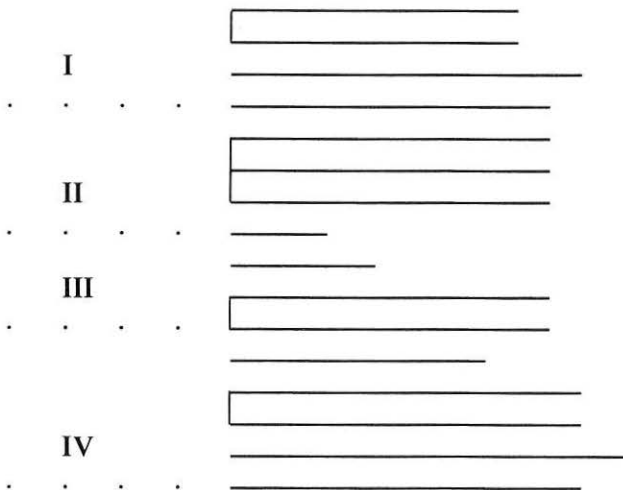
Figure 3. "Anecdote."

joining in its progress the first two stanzas. It is as if the symmetry suggested by “-ROUND” originated in the interior realm of the mind and then moved to its terminus in the external world. The empirical effect of “the jar was round upon the ground” is that of transitory concord: the eye sees the separation between internal and external components while the ear hears a single chime.¹⁷ After telling us that he achieved this rapport with reality, the speaker says that the jar was ephemeral, ubiquitous in effect, and sterile in nature. These three qualities are suggested by the same lines whose end-sounds create an external chain which, like the internal rhyme plan in the first part of the poem, serves both an empirical and semantic function, connecting the second stanza with the third and showing how closely these three qualities of externalized order imply one another. And yet sterility, the third quality, does not re-sound as the final note of “Anecdote,” for the alliteration of “BARE” with “Bird or Bush” joins—not accidentally—the barren jar with the fertile wilderness. The speaker does not unite the two in this way only to accentuate the contrast between them; he does not just drag out, in other words, the tired distinction between art and nature. He is hinting here at a profound resemblance. Since the jar, bird and bush are all progeny, they obliquely refer to their fecund sources. Whereas the jar itself is

In the sections surrounding the fifth and central stanza, a base of even lines set successively against a disarray of uneven ones translates the “young emerald, evening star” (line 2) into a topographical portrait (Fig. 4).

Figure 4 shows how Stevens “flickers” the first four sections of “Homunculus” (the speaker may be hinting at this effect in the second stanza, where he mentions that “the salty fishes / Arch in the sea like tree-branches, / Going in many directions / Up and down”). A simpler version of this device appears in the 1918 work, “In An Ancient, Solemn Manner” (*OP*, 11-12), another poem about the evening star, where Stevens works a glimmering effect into four triads by maintaining the same lengths in the first and third lines and varying the second: 11-9-3, 11-10-3, 11-7-3, 11-10-3. In “Homunculus,” the effect of a pulsating base of even lines suggests that the eye sees within *la belle étoile* a twinkling symmetry, “density” or “permanence.” The speaker’s first statement, bringing substance and light together in the “young emerald, evening star,” anticipates the last, which hardens the good light of the star into a gemmed solidity:

Figure 4.



It is a good light, then, for those
That know the ultimate Plato,
Tranquillizing with this jewel
The torments of confusion.

The speaker, however, does not deny that the jewel-star is an anthropomorphic projection. Like the blackbird and the jar, *la belle étoile* ultimately points back to its earthly creator, the homunculus being a green, miniature likeness emanating out of the light which a star emits, which an emerald reflects (note the pun of “reflecting” in line 19). The crucial fifth stanza—empirically suggesting no symmetry, no density, and semantically referring to night and silence—is the very section allowing that philosophers “can bring back thought”: they can conceive of an insubstantial, dark, and silent noumenal reality as well as perceive a phenomenal one. Paramount here is the speaker’s implied distinction between reality as sense-less concept and sensible percept. Reversing Plato’s famous allegory, he returns to the dark cave of thought to find the Absolute, the *idea* of reality. The way man conceives of an object—even within the post-Cartesian void of modern thought—determines the way he perceives it, the way he sees, hears, touches, structures, and invigorates it. Paradoxically, this total night in which the modern philosopher conceives of reality might, the speaker asserts, yield a perceived world that is

... a wanton,
Abundantly beautiful, eager,
Fecund,
From whose being by starlight, on sea-coast,
The innermost good of their seeking
Might come in the simplest of speech.

Recollecting “Homunculus” in 1936, Stevens tells Ronald Lane Latimer that the poem is based on the idea that “there is a center for every state of confusion,” a statement that now makes us think of the radial design, especially when in the same letter he says that the work “seems to have an early poem of order” (*L*, 306). In other poems, like “The Idea of Order at Key West” (*CP*, 128), his speaker states explicitly that the search

for order is an essentially religious endeavor. While "Homunculus" evinces less in this matter, it states clearly enough that a knowledge of the ultimate Plato fulfills the same basic human needs that the knowledge of God previously fulfilled. Like God, the ultimate Plato is a concept, not a percept; it is not *la belle étoile* but that which enables man to create and enjoy this jewel-star, finding thereby a release from confusion. In placing the idea of the object at the center and not the object itself, the speaker is in effect deifying ignorance; but in the later terms of Stevens' St. John, it is this "little ignorance that is everything, / The possible nest in the invisible tree" (*CP*, 437), this last metaphor betraying the same center-pursuing artist who in "Homunculus" plots the sunken image of the radial design.

We have at this point some clue to why Stevens uses the name of Dickens' character Pecksniff to entitle the group in which both "Anecdote" and "Homunculus" appear, for in each we find not only a certain preciousness but also an "hypocrisy" or irony which radial design helps to uncover. At least in these two works, the speaker wants to allow our expectation to extend as far as possible in one direction so that his total statement will, in reversing this direction, strike with a sharpened edge.

After "Pecksniffiana" radial design never advances. In fact, Stevens virtually drops it.¹⁸ That this pattern was discarded rather abruptly is as appropriate to Stevens' critique of perception as the other facts we have learned about it, the design being, after all, one more of "the evanescent symmetries / From that meticulous potter's thumb" (*CP*, 98). Any censure or vindication of radial design must take this dismissal into account with everything else. Did Stevens simply go as far as he wanted with the structure? Did the need to create "a larger poem for a larger audience" (*CP*, 465) gradually override a lesser need for what might have seemed a kind of private bravado? Or similarly, did the ideal of pure, unconceptualized poetry—pre-eminent at the venerated level of his early work—come to fade as something a little dishonest?¹⁹ For it was ideas that he loved, and it was ideas that he always wrote about. Why, he might have decided, should their terms be locked in the teleg-

raphy of something like radial design? Whatever questions one might ask, they should issue from an overview of Stevens' full career, since in no little way does his total verse represent a single poem about a single topic.

It would be easy to say that the voice in the very late poems like "A Discovery of Thought" (*OP*, 95) or "The Course of a Particular" (*OP*, 96) speaks with a firmer, deeper eloquence than what we hear in "Thirteen Ways" or "Homunculus" and that the late, exhausted Stevens, who discards virtuoso devices like radial design, calmly writes his greatest poetry. But to what extent are there two voices and two Stevenses? In "The Course of a Particular," the dry voice speaks of "an exertion that declines," referring not just to the immediate metaphor of the crying leaves but to a total effort, part of which is the silent metaphor of the radial design. What is perhaps most compelling about this life-long poem Stevens was always finishing is the way its speaker rejects what he has just created, the way he sees it, not as having been wrong, but as no longer serving a mind that will never stop. In another late poem, "To an Old Philosopher in Rome" (*CP*, 510-11), the memory of all structures that have been laid aside lends a sense of magnitude to a diminished scene, one in which the spareness of an ambered hospital room can enunciate a

Total grandeur of a total edifice,
Chosen by an inquisitor of structures
For himself.

¹During the thirties, Stevens relied increasingly upon syntactic (and so semantic) structures and apparently felt a waning enthusiasm for empirical expression. Several poems in *Ideas of Order* show the first evidence of this change. After this volume no new empirical structures appear, and a number of earlier ones are abandoned. See my unpublished dissertation (University of Michigan, 1970), "An Effect of Ease: Stanzaic Structure in the Early Poetry of Wallace Stevens," pp. 219-265 *passim*.

²To avoid ambiguity in his syllable counts, Stevens consistently observes the fewest demarcations phonetically possible. In the poems treated in this paper, *being* (the noun) is counted as one syllable, *emerald* as two, and *indecipherable* as five.

³Robert Pack notes the word count in *Wallace Stevens: An Approach to His Poetry and Thought* (New Brunswick, N.J.: Rutgers University Press, 1958), p. 69.

⁴The following abbreviations will refer to these works of Stevens:

CP: *The Collected Poems of Wallace Stevens* (New York: Alfred A. Knopf, 1954)

L: *Letters of Wallace Stevens*, ed. Holly Stevens (New York: Alfred A. Knopf, 1966).

NA: *The Necessary Angel: Essays on Reality and the Imagination* (New York: Alfred A. Knopf, 1951).

OP: *Opus Posthumous*, ed. Samuel French Morse (New York: Alfred A. Knopf, 1957).

Numerals following these letters indicate page numbers.

⁵Such an adventitious device would not be consistent with a poet who stresses the need of integrating form with substance. In a letter to Delmore Schwartz, Stevens says that "poetic form in its proper sense is a question of what appears within the poem itself" (L, 590). He expresses the same viewpoint in NA, 167-168 and OP, 226, 233.

⁶"Wallace Stevens," in *Fifteen Modern American Authors*, ed. Jackson R. Bryer (Durham, North Carolina: Duke University Press, 1969), p. 422.

⁷See Nelson Goodman, *Languages of Art* (Indianapolis: Bobbs-Merrill, 1968), pp. 7-8.

⁸Outside the verse itself, I can find no direct evidence that Stevens uses radial design. The history of the pattern must accordingly begin with a poem. His prose does show, however, a temperament to which radial design would be congenial. As early as his journal, kept from 1898 to 1912, his sensibility links abstraction with appreciation of the physical world. In a 1900 entry he writes that "the stars are clear and golden and geometrical and whatever else they try to be, I rather like that idea of geometrical—it's so confoundedly new!" (L, 48). And two years later, he reflects that "the sea is loveliest far in the abstract when the imagination can feed upon the idea of it" (L, 59).

That Stevens never divulges anything about radial design also stands fairly in character. It is true that in some areas he draws detailed explanations for editors and scholars but does not imply by this practice that his commentary would be helpful in every instance. Where he uses legerdemain, for example, a gloss would be self-defeating—as one actually is in a letter to Ronald Lane Latimer where Stevens discusses "The Comedian as the Letter C." He betrays something like chagrin right after he tells Latimer that the play on the sound of "c" in the poem forms the basis of its title: "If I had made that perfectly clear, susceptible readers might have read the poem with ears like elephants' listening for the play of this sound as people at a concert listen for the sounds indicating Till Eulenspiegel in Strauss' music. . . . I have the greatest dislike for explanations. As soon as people are perfectly sure of a poem they are just as likely as not to have no further interest in it; it loses whatever potency it had. Consequently, if you refer to the role of the letter C in this poem, do, please, refer to it as your own explanation and not as mine, although it is mine." (L, 294)

⁹Five Stanzas actually appear in *Poetry*, VII (Nov. 1915), 81-83. It is clear from Stevens' June 23rd letter (*L*, 183-184) that Ms. Monroe wished to add the seventh stanza as a conclusion.

¹⁰This poem is the first sketch of "Primordia," a nine-piece work appearing in *Soil*, I (Jan.), 76-78.

¹¹Cf. Ronald Sukenick, *Wallace Stevens: Musing the Obscure* (New York: New York University Press, 1967), pp. 73-74.

¹²The issue, appearing in December, shows the following order: "Valley Candle," "Thirteen Ways of Looking at a Blackbird," "The Wind Shifts," "Meditation," and "Gray Room" (pp. 25-28). The last two pieces do not manifest any direct implication with radial design (but see below, note 13) and do not appear in any subsequent publication of Stevens.

¹³In "Meditation," the fourth piece of the *Others* group, the speaker apostrophizes the imagination as "Prince," warning him against unwittingly becoming a figurehead. This same voice declares that a one-sided emphasis upon objective patterns leads to ennui:

What is it that I think of, truly?
The lines of blackberry bushes,
The design of leaves—
Neither sky nor earth
Express themselves before me...(lines 6-10).

An interesting contrast to this yawning voice is heard in the 1923 poem "Stars at Tallapoosa." Here an invigorated speaker, amidst a midnight setting where all the lines of the external world have disappeared, delights in finding the figurations of his mind appearing like "a sheaf of brilliant arrows" (*CP*, 72) among the stars.

¹⁴With respect to the type of radial design found in "The Wind Shifts," I can find no substantial reason for Stevens' choice of a number like 32. I rest a tenuous speculation, however, on what could be a theme of completion. Thus in "Life Is Motion," the central unit "stump" perfects 11 and 19 by changing these prime numbers into the composite figures, 12 and 20. The blackbird perfects 165 in a similar way. On a semantic level, the direct object of the central unit "see" becomes something like "how the blackbird [acts as a center-point]"; but empirically the four-syllable object completes 165, since 169 is the square of 13. The numbers of "The Wind Shifts" might have been chosen in order to establish still another link with "Thirteen Ways." The completed figure, 33, could work with the five ways of looking at the irrational so that in their product of 165 they can reflect the preceding poem. As extravagant and private as this kind of Platonistic number juggling may seem, it could still have been attractive, at least for a time, to an artist for whom "Narcissism itself is merely an evidence of the operation of the principle that we expect to find pleasure in resemblances" (*NA*, 80).

¹⁵It appears with "Earthy Anecdote" in *Others*, V (July), 14. From the standpoint of this paper, however, a more important placement occurs in the final, 1931 version of *Harmonium* (and consequently in *The Collected Poems*), where "Life Is Motion" precedes "The Wind Shifts."

¹⁶"Ploughing on Sunday" (*CP*, 20) and "The Indigo Glass in the Grass" (*OP*, 22) do not show much that is very new. In "Ploughing on Sunday" Stevens uses word and phrase repetition to form a frame-within-frame effect

around lines 10 and 11. A more obvious appeal to the eye occurs in "The Indigo Glass," where the verses steadily increase in length up to the central line and then taper off in the second half of the poem.

¹⁷Semantic interplay between two rhyme components is fairly common in the early Stevens. He especially likes to rhyme a word suggesting the imagination with one representing reality: "guitars"-*"catarrhs"* (CP, 10, 12), "seem"-*"ice-cream"* (CP, 64), "cock"-*"rock"* (CP, 82), "guitar"-*"are"* (often in "The Man with the Blue Guitar," CP, 196, particularly in the first sections). Similarly, the identical rhyme "hill"-*"hill"* in "Anecdote" may suggest the idea of reality without the mind, as "night"-*"night"* does in "Sonatina to Hans Christian" (CP, 109).

"Anecdote" is the first poem of Stevens to rhyme an end-word with sounds within a line in order to suggest the Cartesian model of an internal and external world. But afterwards the same scheme appears in "The Ordinary Women" (1922), "Sea Surface Full of Clouds" (1924), "Sailing after Lunch" (1935), and "Farewell to Florida" (1936). Of these works, "Sailing after Lunch" (CP, 120), in its last two stanzas, manifests the strongest instance of the device.

¹⁸Radial design does appear a few years later but with none of the earlier flourish. A frame-within-frame scheme interconnects the stanzas of a 1922 work having the prodigious title "Frogs Eat Butterflies. Snakes Eat Frogs. Hogs Eat Snakes. Men Eat Hogs" (CP, 78). Here empirical association is quite weak: the last word of the first stanza rhymes with the last in the fifth; in the second stanza the first two words and the very last appear in the same positions of the fourth section. In a 1923 poem, "The Jack-Rabbit" (CP, 50), Stevens uses "buzzard," a symbol of death, as the central unit (38 syllables on each side). As far as I can detect, radial design does not occur again in subsequent poems.

¹⁹In 1935 Stevens admits to Latimer that during the *Harmonium* period he liked "the idea of images and images alone, or images and the music of verse together... *pure poetry*, as it was called" (L, 288). But in the same letter he also states that to interpret any *Harmonium* poem as being entirely without meaning is "ridiculously wrong."

This paper owes an enormous debt to many people. I especially thank three. Scott Tillinghast was instrumental in the discovery of radial design in "Thirteen Ways." Originally I had miscounted the syllables and designated the juncture between "see" and "how" (VII) as the central unit. Tillinghast not only caught my error in the syllable count but also suggested "see" as the central unit. I extend my deepest appreciation to Ms. Elizabeth Meese and Ms. Julie Jensen. Every page owes much to their painstaking efforts with the early drafts of this paper, often in matters of content as much as style.

Grateful acknowledgment is extended to Alfred A. Knopf, Inc., for permission to quote from the copyrighted works of Wallace Stevens.

The Collages of William Dole

William Dole and Gerald Nordland

William Dole's painted collages are formal compositional inventions, balancing pictorial elements and sensitive saturations of color-form with un-intelligible signs—the calligraphy of type, symbol, diagram, and handwriting—which seduce your eyes and provoke uncertain readings. The artist also comments on his own work.

William Dole is a draftsman and painter who has worked for more than fifteen years in the painted and pasted-paper world of collage. He composes his collage paintings using many of the discarded papers of modern life—old contracts, envelopes, maps, or drawings. In addition to such detritus, Dole has a keen eye for more precious aspects of paper and printing—fine papers themselves, mathematical and scientific diagrams or illustrations, scraps of stylized handwriting from letters, receipts or other documents, fragments of printing with distinctive type-faces like German, Latin, and Greek, which he utilizes alongside sensitively washed or stained watercolor papers, marbled endpapers from discarded books, or the borders of a stock certificate.

This broad armory of paper materials, both found and made, provide the artist with a reservoir from which he works in forming his pictorial constructions. Each collage painting is a balanced compositional whole which invites examination and study much as does a neo-plastic painting by Mondrian. Dole's is a compositional strategy in which the two-dimensional surface is developed into a complex pattern which often breaks into three dimensional sensations through color planes opening into depth or standing in front of architectural spaces, before the tensions of the picture plane reassert themselves mysteriously.

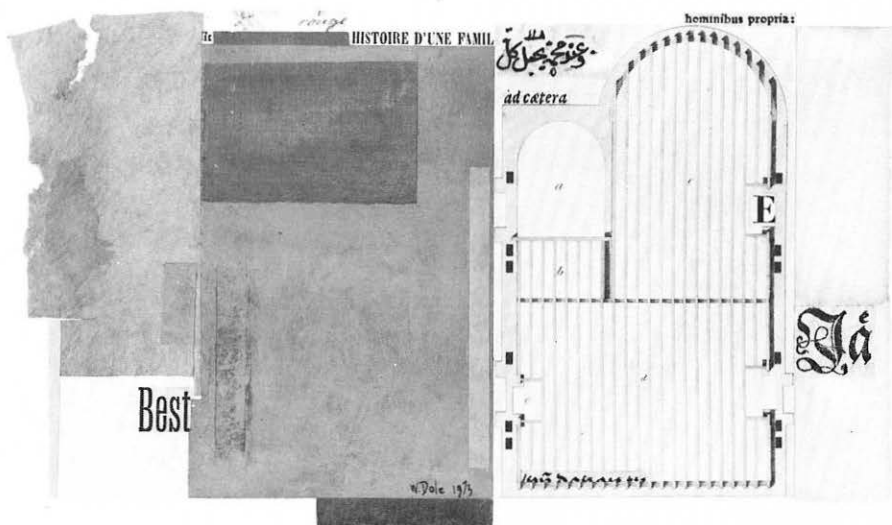


Rigamarole. Collage, 6-1/2 x 9-3/4 inches, 1974.
William Dole. Staempfli Gallery, New York.

Dole's use of letterforms, words, and symbols may remind one of classical modern parallels from Braque and Picasso through Carra to Schwitters and beyond. His capital letters, ampersands, crosses, and circles command visual attention, take firm positions on the picture plane and serve to order space....

The elements in Dole's constructions are focused on broad variations in texture, subtle utilizations of ragged edges in paper, torn or feathered passages of transparent color. The calligraphy of type, symbol, diagram, and handwriting are pushed to underline the little dramas of his works. His over-all composition moves freely between scatter-balance to firm architectural divisions, from extended horizontal works to complex grid forms, always intelligent and usually surprising.

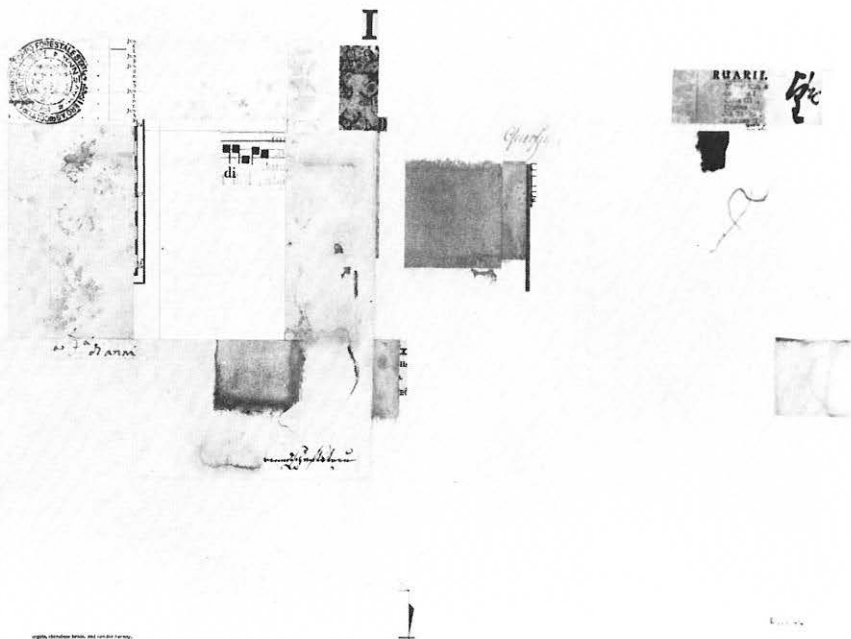
Finally, the spirit and quality of Dole's painted collages are



Signet. Collage, 4-1/8 x 7-1/4 inches, 1973.
 William Dole. Collection, Mrs. Lois Brown.

different from the classical Cubist, Futurist, and Merz works. Dole's fine papers, stained colors, Latin and Greek printings, European and Persian handwritings, tend to evoke a secure nostalgia, a sense of peeking into almost familiar material, as do also his fragments of astronomical, mathematical, or scientific diagrams. Some of the larger color-plane works suggest a change of scale and an architectural space as in viewing a city block facade in old downtown New York. Essentially Dole's collage paintings are formal compositional inventions, balancing pictorial elements and sensitive saturations of color-form with unintelligible signs which seduce our eyes and provoke uncertain readings.

Collage has been disrespected since the great works of 1912-22. Only Kurt Schwitters' collage art has achieved classic recognition. Schwitters' sensibility was inescapably tied to his



Pro Forma. Collage, 11 x 17-1/2 inches, 1974.
William Dole. Staempfli Gallery, New York.

generation. His materials—corrugated papers, devalued bank notes, check stubs, and bus transfers—carry an intense and passionate feeling consistent with his more orthodox Expressionist comrades. Dole's paintings build upon the same base but move more slowly in a counterpoint of visual chamber music, complex but faintly sweet, ambitious but never flamboyant, disciplined but never without unique personal warmth and tonal richness.

Gerald Nordland

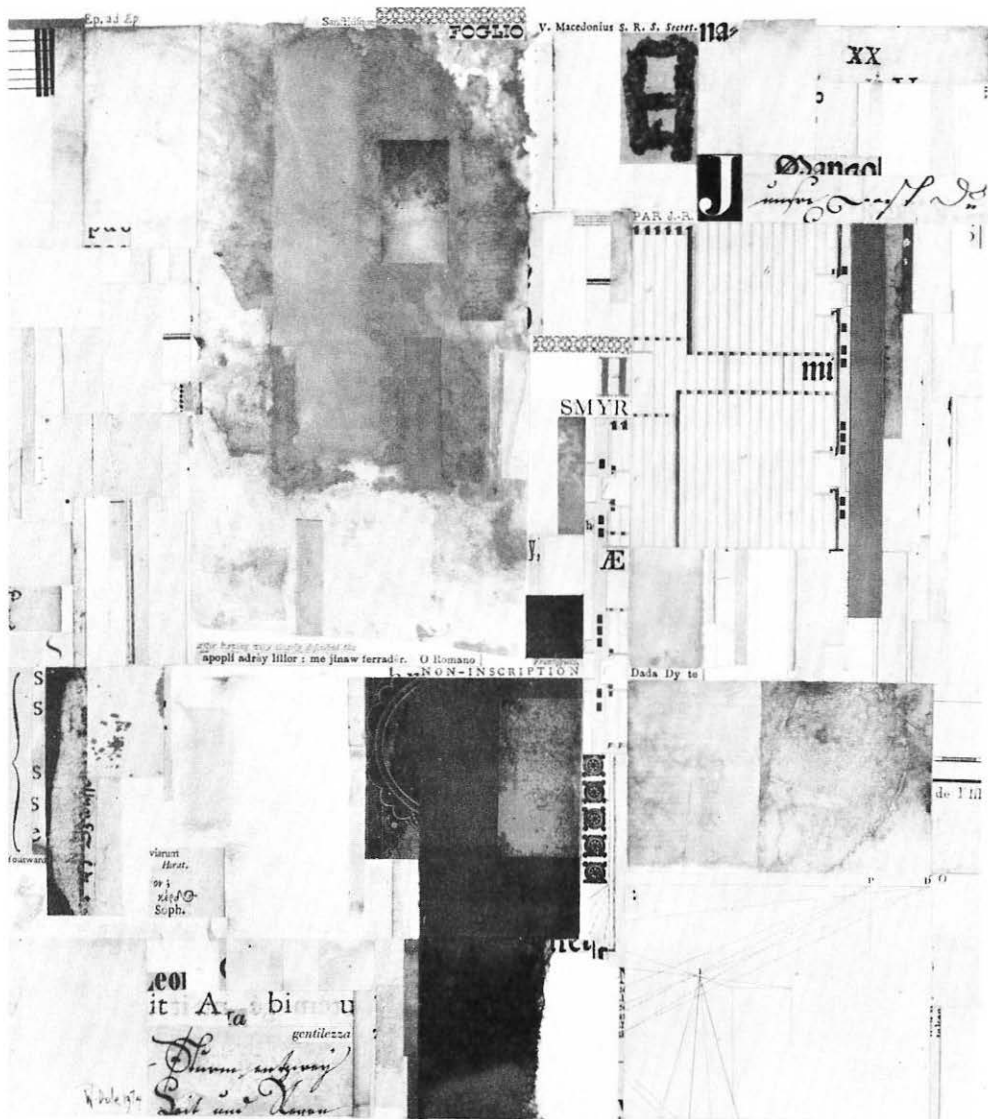
Gerald Nordland's statement is reprinted with kind permission from the catalog which accompanied the showing in late 1974 of William Dole—Recent Collages at the Staempfli Gallery in New York City. All of the illustrations are reproduced here courtesy of Staempfli Gallery, New York.

William Dole presented the following statement at a symposium held at the University of California, Santa Barbara, in 1973.

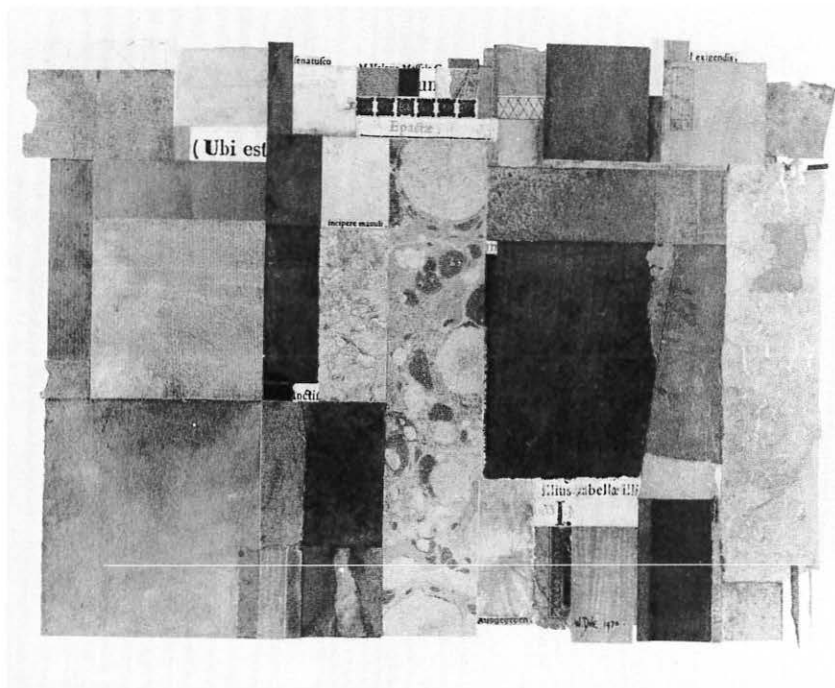
My method is chance; my intention: ambiguity.

I have chosen this statement as my introductory remark, as it has a ring of inevitable profundity. Actually it came to me one morning just before I woke up, and I have pondered on it from time to time since. As I hate to waste anything, I thought it might be useful in organizing some thoughts about my work.

First, on chance. For the past fifteen years or so I have worked mainly in collage. I have chosen this technique because of the control it permits me, the possibility for testing various combinations of shapes or color, and the possibility for endless change, refinement. This would seem to imply the opposite of chance. However, to begin with, I came to the technique quite by chance, and as the result of two separate incidents. First, I was given a collection of Japanese papers which would now be over a hundred years old, if I hadn't used it all up. Second, I bought a beautiful old leather portfolio in a second-hand store in Florence in about 1956. In the portfolio I discovered later a collection of old letters from the Risorgimento, marbled paper, pages from books (uncut and unbound), receipts, orders, maps, etc. As I said, I hate to waste anything, so I had to find a way of using these lovely things. I had admired the collages of Braque, and had seen the large Picasso exhibition in Chicago in 1939 and again in San Francisco in 1940. I knew of Schwitters' work through reproductions only, but I had seen collages by Motherwell and by Rauschenberg in New York in 1955. I had also seen an exhibition at Frank Perls' gallery of very large collages on linen by Rico Lebrun in about 1953 or '54. Rico had written, with his usual eloquence, a memorable statement about the propriety of the technique, both aesthetically and also in terms of its longevity with proper care. I should also mention here Chinese paintings with their accumulations of seals and inscriptions. The relation of pictorial (representative) elements and calligraphic or printed elements suggested interesting expressive possibilities, even though the verbal



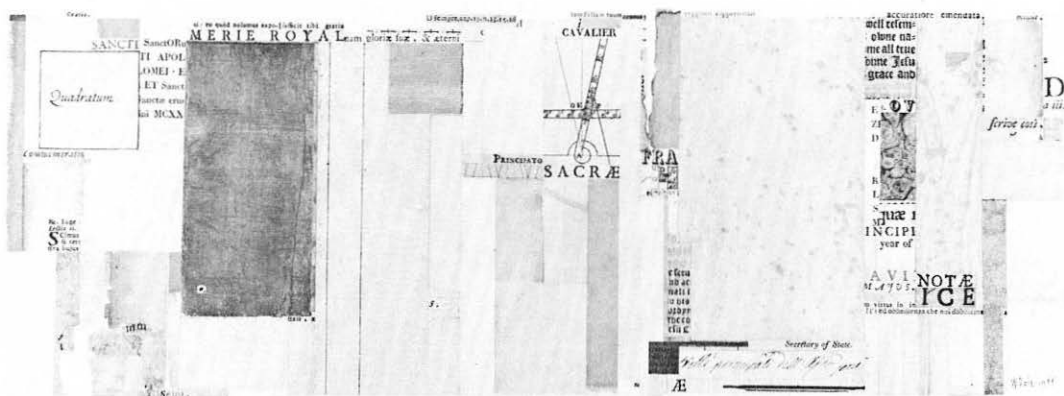
Chant. Collage, 10-1/4 x 9 inches, 1974.
William Dole. Staempfli Gallery, New York.



Albeit. Collage, 7-1/4 x 10 inches, 1970.
William Dole. Collection, Mrs. Donald Kellogg.

language was unknown to me. Then, too, there is all the bad art that influences one, that I don't choose to go into now.

People sometimes suggest to me that I must have a vast collection of materials to work with—the implication being that I have bins, boxes, barrels full of scraps. Actually I have a very modest collection to work with—a couple of shallow drawers full, and what can be spread out over a couple of work tables. In making a collage I do not plan it all out ahead of time and then fill it in, although this had been my usual working procedure in painting. Rather, it would be more accurate to say that I construct a collage, the idea and the physical process developing and proceeding simultaneously. Chance plays a part in the selection of each element since I can neither see nor remember all of my materials at once. The casual or accidental

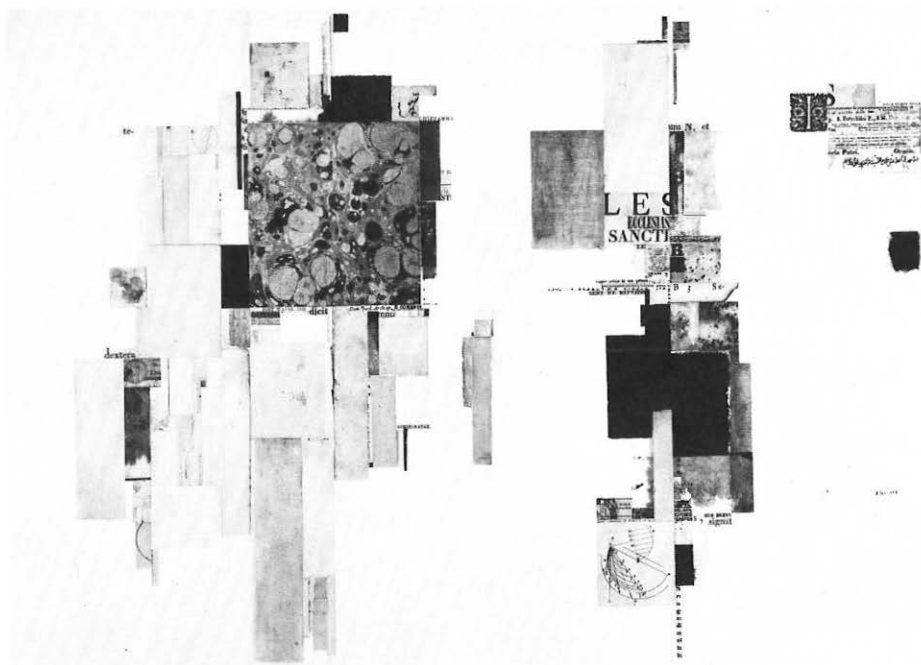


Narrative. Collage, 5-3/4 x 16-1/8 inches, 1966.

William Dole. Collection, The Pennsylvania Academy of The Fine Arts.

juxtaposition of two or more elements or colors often suggests a relationship which becomes a part of the final work, or the beginning of a new one. A search for some particular shape or color or texture may turn up something quite different and may change significantly the direction of the work.

I am superstitious perhaps about searching out materials to use in my collages. I prefer that they be given to me by others—as much of my material has been—or that I come on it by chance. This may be an unconscious reaction to the accusations that I must spend a great deal of time in libraries with a pair of scissors, snipping surreptitiously here and there. My liberal education has implanted in me a natural repugnance to destroy whole, useful books, and on the very few occasions when I have abandoned my scruples and bought a book to deliberately use, the result has been disastrous.



Declaration. Collage, 24 x 36-1/8 inches, 1968.
William Dole. Collection, George Young.

I prepare all the colored papers I use by staining them—usually quite small pieces—with water color. Since they are prepared for possible future use and not in relation to a particular context, chance plays some part in the preparation—the reaction of different papers to paint, the mixture of colors, the method of application, etc., can become quite experimental when freed from a known or expected function.

As to ambiguity: I don't mean to be obscure or mysterious. I do believe, however, more and more as I grow older, that art can only be described in terms of paradox, that whatever may be said of it, the opposite is also quite likely true as well. This is particularly evident when I try to explain my own work. What I hope for in my collages is that they will contain several various levels of meaning. For example, having been brainwashed in the “integrity-of-the-picture—plane” syndrome early on, I am

very conscious of the surface pattern, and I believe that color relations work most strongly on this level. However, it is very difficult to make a two-dimensional pattern that does not have some three-dimensional illusion. The counterpoint between flat pattern and spatial effect is a kind of ambiguity in which neither has primacy. On another level my collages may appear to be architectural—in the sense of referring to buildings, or they may refer to documents of one kind or another. The reading may also refer to nature, although I rarely make overt reference to specific place or time. I don't want to suggest that I am setting up aesthetic Rohrschach tests, but neither would I be content to make merely pretty surface patterns. I find it most difficult to speak about the printed and written elements in my collages. Ambiguous they may be—but also important. The printed word—even in an unknown foreign language—has a sense of authority that no other graphic element has. Thus a polyglot pattern of words even though tacitly meaningless demands visual attention. This pattern, I feel, in my work creates another counterpoint to those of surface pattern, spatial extension, and referential suggestion. Increasingly, I think of these relations of words, parts of words, and individual letters as concrete poetry, unavailable for formal exegesis, impossible to scan in any conventional order of left to right in sequential lines (or in an Oriental order of vertical lines). Multilingual, truncated, and omnidirectional they (hopefully) perform a poetic function. And this is what I intend each of my works to be, at every level, a poetic statement.

Finally let me say that although I use the technique of collage, I claim no special privilege for it, no cachet, nor do I apologize for it. I feel that a work of art should be judged for what it does, rather than how it is made or what it is made from. A work in mosaic, or in plastic, or whatever material, is not a special category; it is only a way of getting on with the work.

Reprinted with kind permission from the exhibition catalog *The Work of William Dole*, Grant Holcomb, Mount Holyoke College, South Hadley, Mass., 1974.

The Photographic Restoration of Letterforms

Robert A. Hauser

The creation, for exhibition purposes, of a photographically restored facsimile of a damaged nineteenth-century lithograph is discussed, with emphasis on the varieties of deterioration that can affect letterforms and on the principles of conservation and restoration. The paper follows the sequence of deterioration and conservation of the artwork, looking at the typographic restoration in detail. Some discussion about the archival nature of the print and museum conservation in general is a necessary prerequisite to understand the preferences for choosing the ultimate photographic restoration processes used to restore the missing letterforms, which is the primary concern of the article.

Typography, in addition to its conventional definition as the composition of printed matter, can also be considered in its role as a language of form and material prone to both visual and physical disintegration. The study and practice of museum conservation includes the extension of our visible language in the archival form of prints, books, documents, etc.¹ Paper and ink—the materials of these objects—must co-exist, and it is their properties of permanence and durability which determine the life and condition of the book, print, or document and its typographic statements.

The degradation of paper and ink,² the material components of the print under consideration, can be attributed to any combination of five principal types of deterioration: (a) hydrolytic, (b) oxidative, (c) microbiological, (d) catalytic, and (e) mechanical (Smith 1968, p. 348). The kinds of damage and deterioration from these causes acting on the cellulose fibers of the paper and the ink can, as separate or contributing forces, result in a variety of detrimental conditions; e.g., acid embrittlement, discoloration, tearage, abrasions, lacunae, infestation, accretions, and staining.

These are the circumstances involving a nineteenth-century lithograph (Fig. 1) selected for an exhibition. This lithograph has been afflicted by many of the physical-chemical types of degradation which have contributed toward the demise, ruin, or absence of certain structural properties (paper) and apparent features (type) on which the print's documentary and artistic distinctions are dependent. (Figures 2-6 show additional examples of impaired letterforms observed on other items and resulting from human and physical/chemical causes.)

Structurally the paper has suffered lacunae and tears throughout the graphic format from mechanical damage. It was dismembered at one time into an unknown number of pieces, of which eight remain.

Apparent or visually determined damage to artistic work (the landscape portion) and more specifically, typographic matter (the loss of six printed letterforms) has impaired the print's aesthetic qualities and impeded the legibility and meaning of four words in three lines of type at the lower right portion of the print, as shown in Figure 1 and Figure 10 (detail).

Curatorial study of these incomplete words determined that the letters missing from the top line word are "CK" from the word "JACKS;" in the middle line, the missing letters are "HI" from the word "MACHINES;" and from the bottom line, the letters "N F" are missing from the words "IRON FRAMES." These words, if left with omissions as they appear on the original print, would not, in the photographic facsimile prepared for exhibition, be decipherable to the majority of visitors examining the copy on view.

Methods of remedying these structural and apparent discrepancies and conditions follow three conservation approaches: (a) the study into causes and treatments to be performed by laboratory analysis to determine acid content, ink solubility, etc.; (b) retarding these causes by preservative measures as performed by chemical deacidification of paper, repair of tears, etc.; and (c) corrective measures as performed by restoring the print to its original state or function. This was undertaken by rejoining and adhering the eight dismembered pieces onto a support paper, making it structurally and visually whole, as it appears in Figure 1.

opinion, that the animals, inhabiting all naturally polished shells what are capable of not only adding to the extent and growth of their shells, but that they are able, from time to time, as occasion may require, to add a fresh polished covering to the whole shell. Should this opinion

opinion, that the animals, inhabiting all naturally polished shells what are capable of not only adding to the extent and growth of their shells, but that they are able, from time to time, as occasion may require, to add a fresh polished covering to the whole shell. Should this opinion

ing advantage of the absence of the chiefs of Salerno. in an expedition against the Beneventans, armed themselves, and, after burning and plundering Salerno, marched back in triumph to their native abodes. Being thus restored to their country, they formed a better constitution and code of laws. and adopted various measures likely to prevent inter-

*usually made with, from 40 to 50 spindles
on to Jack or Dresser. Spools for forming wool
is being put in on the Jack. The drive.*



Radel Del.

Benoist Tact.

Teinture des Gobelins, service du Couchoir et le Sèchoir.

As conjecture, any attempts at this stage to restore the visual contents or functions of the print which have been lost, such as introducing the six letterforms by artistic means should be considered as modifications to the natural condition of the original design and identified as a form of disfigurement that is inappropriate and deleterious to the authenticity of the print (Buck 1973).

Therefore, confrontation by the conservator with the restoration of letterforms concerns interests and priorities which are somewhat different from those of typophiles, printers, designers, bibliographers, and paleographers, yet these attitudes should not be incompatible with their aims or inconsistent with standards of letterform design, composition, and artistic documentation. But any modification or attempt at reintroducing letterforms by artistic means to replace missing letters should be undertaken only when making a photographic facsimile, not in attempting to work on the actual print. The creation of the photo facsimile therefore avoids restoration practices which would possibly involve alteration or disfiguring unduly the authenticity of the original print.³

When institutions plan exhibitions—whether permanent, temporary, or traveling—photographic duplicates are commonly substituted for artifacts. This is done especially when an object's rarity, condition, etc., preclude its use for exhibition, as was the decision regarding this print. R. M. Organ (1968, p. 192) discusses this topic: "Protection of antiquities that are on display will require special measures. The Conservation Department should be in sufficiently close touch with display conditions to

Figure 2. Defective fabrication of paper causing hole.

Figure 3. Hole repaired to improve page legibility.

Figure 4. Crimp in paper obscures legibility.

Figure 5. Misspelled first "E" in "Dresser" relettered as "R."

Figure 6. Insect digestion in the word "Teinture."

be able to foresee when cases ought to be cleared in advance of redecoration and to advise against the proposed use of specific materials.”

The advantage of photography in this instance is the presence in undamaged areas of the print of letterforms similar to those missing. These normally would be used as guides when re-lettering or tracing letters to be used in supplying letterforms to restore photographically the missing ones. Instead, the idea of photographically transposing existing letterforms themselves to serve in place of the missing letters was adopted.⁴

The photo restoration techniques involved six procedures:

(1) The upper portion of the print, the landscape, was photographed as a continuous tone negative, on which the print's paper margins were masked out. A paper enlargement from this negative was then made at 150% of the print's original size.

(2) The bottom or lettered portion of the print was photographed as a high-contrast film negative. In other words, the grey tones of the paper were dropped out, leaving black letters against a white background. Two paper enlargements were then made from this negative at 150% of the print's original size.

(3) A count of all the available letterforms from which replacements for the six missing letters could be selected and transposed totaled seven C's, one K, five H's, eighteen I's, nineteen N's, and four F's.

(4) After individual study of these fifty-four letters to select those best suited to restore the missing letters the following were chosen as indicated in grey tones: The combined letters "CK" were taken from a top line word "PICKERS" (Fig. 7) to restore the missing "CK" in the damaged top line word "JACKS" (Fig. 10). The combined letters "HI" were chosen from the top line word "MACHINES" (Fig. 8) to restore the same missing letters in the same damaged word "MACHINES" in the middle line (Fig. 10). The separate letters "N" and "F" were chosen from the middle line words "NARROW FANCY" (Fig. 9) to restore the missing letters "N" and "F" in the damaged bottom line words "IRON FRAMES" (Fig. 10).

(5) These selected letters were then cut from one of the high-contrast paper enlargements made during step two and inserted

**ERY, PICKERS, DUSTERS, CARD M
PLAIN and TWILLED LOOMS, with or with
LING MILLS, SHAFTING, HANGERS, and P**

Figure 7. Letters "CK" from "PICKERS" restore word "JACKS."

**RD MACHINES, with THREE, FIVE and S
or without DROP BOXES, BROAD and NARI
and PULLEYS. All of**

Figure 8. Letters "HI" from "MACHINES" restore another "MACHINES."

**VE and SEVEN ROLL RUBBERS, or TUBI
and NARROW FANCY LOOMS, BROAD and N
All of the above MACHINERY mad**

Figure 9. Letters "N F" from "NARROW FANCY" restore words
"IRON FRAMES."

NING J: S, WARPERS, DRESSERS,
NG MA: NES, TWISTERS,
OF IRON FRAMES as preferred.

Figure 10. Detail of four words with six missing letters.

NING J: CKS, WARPERS, DRESSERS,
NG MA: NES, TWISTERS,
OF IRON FRAMES as preferred.

Figure 11. Restored word "JACKS."

NING J: CKS, WARPERS, DRESSERS,
NG MA: HLES, TWISTERS,
OF IRON FRAMES as preferred.

Figure 12. Restored words "JACKS," "MACHINES," and "IRON FRAMES."

or transposed onto the second high-contrast paper enlargement in the appropriate place. The letters "CK" borrowed from the word "PICKERS" are shown after their insertion in restoring the word "JACKS" (Fig. 11). This procedure was followed until all four words were restored with their properly interchanged letters (Fig. 12).

(6) This paper enlargement containing the transposed letters was then rejoined with the earlier photo enlargement made in step one of the top landscape portion. The whole was then rephotographed as a continuous tone negative, using a halftone screen overlay, at 100% or actual size of the original print, producing the finished photo facsimile ready for exhibition.

This exercise shows the restoration of legibility of damaged letterforms, making the print more suitable for exhibition, but it is to be hoped that the exercise will also point up the realization that art is a man-made resource, and like any resource, its existence is not indefinitely assured. All art has the potential of returning to matter, and in this particular case, letterforms containing intellectual information from the nineteenth century might have deteriorated along with the aesthetic values of the print. The creation of the photographic facsimile served the immediate purpose of facilitating legibility for the duration of the exhibition, but for long-term benefit, it also restored the content of the message without altering the authenticity of the original print.

¹*The American Heritage Dictionary of the English Language* (New York: 1969) defines conservation as "preservation from loss, waste, or harm." For discussion of the subject in greater detail, see the references listed here.

²"In fact, the sulfuric acid produced by the interaction of ferrous sulfate and the organic acids of the galls does burn into the paper, and in some cases where there are heavy deposits of ink, it burns a hole through the paper." (Barrow 1972, p. 17). Acid conditions are less prevalent in the earlier carbon-based gum arabic inks and in present-day pigment and dye-based linseed oil printing inks.

³Bodhan L. Marconi (1969, p. 2) has stated the differences of opinions among experts on this issue. Some think that "each repair of a missing part is an extraneous distorting element," while others feel that "compensation of lost parts is necessary for artistic perception by visitors in the gallery."

Garry Thomson (1973, p. 19) makes a similar point: "The arguments will continue on whether losses, large or small, should be filled in so as to become invisible or not. . . . Restoration should mean highly durable repair by methods which are, however, reversible, so that it always remains possible to remove the materials used."

⁴The idea for this approach came in part, appropriately enough, from a paragraph by printer and historian Isaiah Thomas (1810, p. 9) "We owe the same justice to the ancient philosophers as to the ancient sculptors; we should judge of the parts which are lost by those which remain, as it is reasonable to suppose there was a mutual correspondence between them and, that a collection of them would form a whole, which would be perfectly uniform and consistent."


REFERENCES

- Barrow, W. J. *Manuscripts and Documents: Their Deterioration and Restoration*. (2nd edition) Charlottesville, VA: University of Virginia Press, 1972.
- Buck, Richard. "On Conservation: What Is Condition?" *Museum News*, LII (October 1973), 15-16.
- Bulletin*, published by the American Institute of Conservation, c/o Conservation Center, One East 78th Street, New York, NY 10021.
- Cunha, G. M., and Cunha, D. G. *Conservation of Library Materials*. 2 vols. Metuchen, NJ: Scarecrow Press, 1971. [Vol. 2 is bibliography and supply list.]
- Dolloff, Francis W. *How to Care for Works of Art on Paper*. Boston: Museum of Fine Arts, 1971.
- Marconi, Bodhan L. *Aesthetic Problems in Conservation of Art on Paper and Parchment*. Amsterdam: International Council on Museums, 1969.
- Organ, R. M. *Design for Scientific Conservation of Antiquities*. Washington: Smithsonian Institution, 1968.
- Paper Conservation News*, published by H. Wayne Eley Associates, 15 Broadway, New Haven, CT 06511.
- Plenderleith, H. J. *The Conservation of Antiquities and Works of Art*. London: Oxford University Press, 1962.
- Restaurator*, published by Restaurator Press, Postbox 96, DK-1004, Copenhagen K, Denmark.
- Smith, Richard. "Guidelines for Preservation," *Special Libraries*, LIX (May-June 1968), 346-352.
- Studies in Conservation*, published by the International Institute for Conservation of Historic and Artistic Works, 608 Grand Buildings, Trafalgar Square, London WC2N, 5HN, England.
- Thomas, Isaiah. *History of Printing in America*. Worcester: 1810.
- Thomson, Garry. "Planning the Preservation of Our Cultural Heritage," *Museum*, XXV, No. 1/2 (1973), 15-25.

Research in Brief: Shapes as Cues to Word Recognition


Patrick Groff

The theory that “shape” provides a useful learning cue for a child’s early recognition of a word has been maintained by various writers, but it has not been verified by research. An analysis of similar shapes for high-frequency words also argues against using shape as a cue for word recognition. The broader concept of word shape (or contours) is considered and deeper research suggested.

It has long been held by most experts of beginning reading instruction that the “shape” of a word constitutes a useful cue to its recognition by the young child. Miller’s comments exemplify this belief. “At the beginning stages of reading instruction,” she advises teachers, “word recognition can be taught either by picture-word association or word form clues such as configuration: ”¹ At the beginning stage of reading instruction teachers are told to stress how a word “looks.” According to Jones, “in the beginning reading when the child is merely told that this word is *cat* and that one is *elephant*, he can tell them apart simply because they do not look alike.”² While most current experts in beginning reading disagree with Veatch’s individualized approach to this instruction, they do support her contention that the *first* step in a “sequence of phonics” for the beginning reader should be “learning words by their shapes as they appear.”³ In the writings on beginning reading instruction there can be found many disagreements as to how several of the details of this instruction should be carried out. Only rarely, however, does one find a comment negatively critical of the belief in ‘shapes’ of words as vital cues to their recognition.

Moreover, the notion that the shapes of words do serve this

function is maintained by today's experts in reading instruction as a direct contraposition to what the published research says of the perceptual processes used by beginning readers. A recent review of such research findings which points out this evidence concludes that "the shape of a word is the least-used cue to its recognition by beginning readers."⁴ Thus, the assumption that beginners in reading find the shape of a word a reliable aid to its recognition can be easily dismissed as "lore," as one group of researchers into the matter put it.⁵ Why the current experts in reading generally choose to ignore or dismiss these empirical findings, and persist in their contention that word "shape," as they call it, is the cue to word recognition most easily taught to young children, remains a mystery. In no case have they given the reasons why they maintain such a contrary position about this issue.

The advocates of the shape of words as valid cues to their recognition, as noted, say that words can be recognized instantly by the beginning reader with this cue without his having to go through any further analyses of the graphic form the word presents. What such writers intend to signify there by shape is never fully explained, unfortunately. When they do mention shape they refer to the length of a word in number of letters, and to the descending-ascending nature of its letters. This is the definition of shape given by Miller, above. as she says, the "shape" of *elephant* is 

For the sake of argument let's conditionally accept this definition of shape (the actual contour of a word would involve more graphic features than this obviously). To what extent, then, do the words the beginning reader usually is given to learn to recognize have shapes unique to each of them, and therefore different from all the other basic or beginning words? How many such different shapes are there among the most commonly used, highest-frequency words that form the core of reading ability of the beginner? How many different shapes represent one word, as versus two, three or more words?⁶

To answer these questions I examined a recent composite list of highest-frequency words, taken from several different studies of common words from school book sources. The 238


words on this composite list⁶ (*I* and *a* were excluded) were found to have a total of 87 different “shapes” (as defined by Miller). About half of this total number of shapes, 47, represent one word each, and no other word. This means that only about 20 percent of the words here have a shape unique to each of them, but to no other word on the list. It was found the remainder of the words on this list have this distribution:

- 10 different shapes represent 2 words each.
- 10 different shapes represent 3 words each.
- 8 different shapes represent 4 words each.
- 3 different shapes represent 5 words each.
- 3 different shapes represent 15 words each.
- 2 different shapes represent 12 words each.
- 4 different shapes represent, respectively 6, 9 and 10 words each

Then, I made a similar analysis of the shapes of the 200 highest-frequency words on a second list of words taken from writings in general.⁷ This second study revealed there were 33 different shapes not common to these two word lists studied.

The evidence from these two analyses forms a strong reminder that the shapes of high-frequency words have little utility as cues the beginning reader can use to distinguish one of these words from any other one. This supports the general research on this matter. It speaks out in yet another way against the notion of teaching beginning readers to use the shapes of words, as defined by leading experts, as cues to their recognition.

As has been said in passing, the contour of a word represents a more complicated graphic pattern than does

elephant reduced to . There obviously are more graphic features in the contour of *elephant* than in this shape. We know of the graphic features that act as cues to the recognition of letters (e.g., the characteristics *open* or *closed*, *horizontal* or *vertical*, *straight* or *curved*).⁸ There also are features of words that when used by mature readers allow them to recognize words as quickly as they can letters.⁹ Whether the actual contours of words (as versus the shapes of words, as defined here) might be included among such features used as cues by

beginning readers is problematic. At present there is no available empirical information from which to determine this.

Smith apparently would maintain "contours" are as unreliable cues as are shapes. He believes more mature readers, who use "immediate word identification" recognize words "on the basis of visual feature relationships in the configuration as a whole and not by a synthesis of information about individual letters or letter groups."¹⁰ Smith means by this, however, that information from all parts of a word is used as an aid to its identification. And, that words "are by no means identified on the basis of the familiarity of their shape or contour."⁹ His own research contradicts this, however. Smith and others¹¹ found that when college students read words in which both size and case were altered (e.g., *ArE*) there was a significant reduction of these students' ability to identify these words as versus those in normal print. The same was found when the relative size of elements of lower-case print were altered (e.g., *elEn*). Whether this would hold for beginning readers, again, is unknown.

With the evidence available it is doubtful, however, that the shape of a word, as currently defined by reading experts, presents features useful as cues to its recognition by beginning readers. As the evidence presented in this discussion illustrates, the number of words that can be represented by a unique shape is too small to provide enough categories of visual information needed for accurate word recognition. This is so even on relatively short lists of words, as has been demonstrated here. Research as to the effects of the true contours of words as cues for word recognition by beginning readers is needed.

- ¹Wilma H. Miller. *The First R: Elementary Reading Today*. New York: Holt, Rinehart and Winston, 1972, p. 64.
- ²Daisy Marvel Jones. *Teaching Children to Read*. New York: Harper and Row, 1971. p. 155.
- ³Jeannette Veatch. *Reading in the Elementary School*. New York: Ronald 1966. p. 403.
- ⁴Patrick Groff. "The Topsy-Turvy World of 'Sight' Words." *Reading Teacher*, 27 (March 1974) 572-578.
- ⁵Joanna P. Williams, Ellen L. Blumberg and David V. Williams. "Clues Used in Visual Word Recognition." *Journal of Educational Psychology*, 61 (August 1970) 310-315.
- ⁶Robert L. Hillerich. "Words Lists—Getting It All Together." *Reading Teacher*, 27 (January 1974) 353-360.
- ⁷Henry Kucera and W. Nelson Francis. *Computational Analysis of Present-Day American English*. Providence: Brown University, 1967.
- ⁸Eleanor J. Gibson. *Principles of Perceptual Learning and Development*. New York: Appleton-Century-Crofts, 1969.
- ⁹Frank Smith. *Understanding Reading*. New York: Holt, Rinehart and Winston, 1971.
- ¹⁰Frank Smith. *Psycholinguistics and Reading*. New York: Holt, Rinehart and Winston, 1973. p. 121.
- ¹¹Frank Smith, Deborah Lott and Bruce Cronnell. "The Effect of Type Size and Case Alteration on Word Identification." *American Journal of Psychology*, 82 (June 1969) 248-253.

Azazian is a frenetic language....

The characters of the Azazian alphabet are buttressed with curlicues, runes, serifs, and slants and horn-shaped symbols from the days of our flirtation with alchemy. They twist and curl around one another, and seem to choke the page. Anyone unfamiliar with our alphabet who happens to look at a specimen of our poetry or prose, at the tangled characters, the crowded words, and the stark feel of the sentence gaps, would unquestionably discover that Azazian is a frenetic language, a language of hot spurts and shouts. The English alphabet is stolid and land-locked; ours is amorphous and irascible. An Anglo p will always be a p. Shake an Azazian one and it becomes an l; lie an Azazian r on its back and it becomes an n. Nothing is sacred, solitary, or safe. And why shouldn't our alphabet, which was given to us by Karooku, reflect his squiggly nature, his solipsism, his love for tricks and sleight of hand, his shifty, protean ways? Penmanship is stressed in gypsy homes, and most of us learn the Azazian alphabet—every stroke and rune—from our fathers at the age of three. At four we can recite songs from the Book of Ur, and answer the nitty questions put to us by priests in our church. But we've had to pay the price at public school. Our Anglo teachers lose their hair, become shrews because of us. It takes us months and months to overcome our nausea for school, and few of us are able to move without some kind of limp from the intricacies of Azazian to this pigheaded language of the Anglos, which can't be twisted or reshaped, with its twenty-six solitary characters, its practically useless x's, its silent k's, its strict punctuation, its mundane, unmarvelous sounds.

From Jerome Charyn's *Eisenhower, My Eisenhower*. New York: Holt, Rinehart & Winston.

Excerpt: Simplifying the ABC's

Jay Doblin with Inder Agrawal, Marianna Porter
and Robert Peterson

How efficient is the roman alphabet? Not very in an age when man-to-man and man-to-machine exchanges are so vital to our communication processes. The efficiency of the alphabet is discussed in terms of information theory, and a new system of letterform design—an extension of the familiar seven-stroke electronic numerals—is proposed.

Surprisingly, in spite of all the advances in technology, no concentrated effort has been made to fit the roman letterforms to present communications media. The roman letterforms served their purpose when the space, time, or costs for storage or transmission were under no great strain and most communication was man to man. But today man-machine and machine-machine communications are an integral part of our daily lives. In this environment these archaic letterforms have severe limitations. While graphic designers produce endless style variations of roman letterforms and designers struggle to accommodate these letterforms for keyboards, displays, and readouts, technology already has evolved as a solution that could be expanded into a more efficient alphabet....

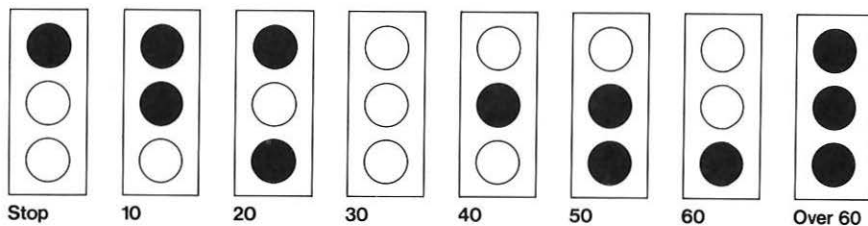
Two-state Codes in Communication

The problem with the present letterform lies mainly in the inherent lack of economy and efficiency in converting the complex hand drawn letterforms into a two-state code which is essential for transmission. The terms "economy" and "efficiency," lead to the conclusion that a measure of information is possible. Measurement of the meaning is difficult. Information that is valuable to one person in a certain circumstance

could be totally useless in another circumstance or to another person. For the purposes of designing improved letterforms, consideration of the meaning of the letter "A" is irrelevant. What is important is to determine how much information must be transmitted to distinguish the message "A" from other possible messages and, furthermore, how much information is required to visually communicate the form of "A." Both these aspects of information can be readily measured.

In information theory the smallest unit of information is termed a "bit," an abbreviation for the term binary digit. One bit is the amount of information needed to make a decision between two possible alternatives. The amount of information conveyed by the indicator lamp of an oven, for instance, is one bit; the "on" or "off" status of the lamp tells us about one of the two possible states of the oven. This one bit signal can be expressed as two to the first power (2^1), two possible states of one signal. Two bits of information are required to decide among four (2^2) alternatives, three bits to decide among eight (2^3) alternatives; four bits to decide among sixteen (2^4) alternatives; and so on. Every time a bit is added the number of alternatives is doubled.

To demonstrate the communication capacity of a three-bit code, an ordinary three-lamp traffic signal with red, yellow, and green lights is now used to communicate only three messages—stop, caution, go. But the three lights could communicate eight (2^3) different messages. For example, if the red light were on, the signal could mean stop, as it does now. If red and yellow were on together, it could signal the message, "Proceed cautiously at ten miles per hour." If red and green were on, the signal could communicate, "Proceed cautiously at twenty miles per hour." When all three lights were off, the signal could mean, "Drive carefully at normal city speed limit of thirty miles per hour." If yellow alone were on, the signal could communicate the message, "Go forty miles per hour." If green and yellow were on, the message would be, "Go fifty miles per hour." Green alone could be, "Go sixty miles per hour." If all three lights were on it would signal, "Go as fast as you can." This stop-light system is not being recommended, but is cited



The standard three-lamp traffic signal, although in practice used to communicate only three messages, demonstrates how, with various combinations of the colored lights, a three-bit code could be used to communicate eight different messages.

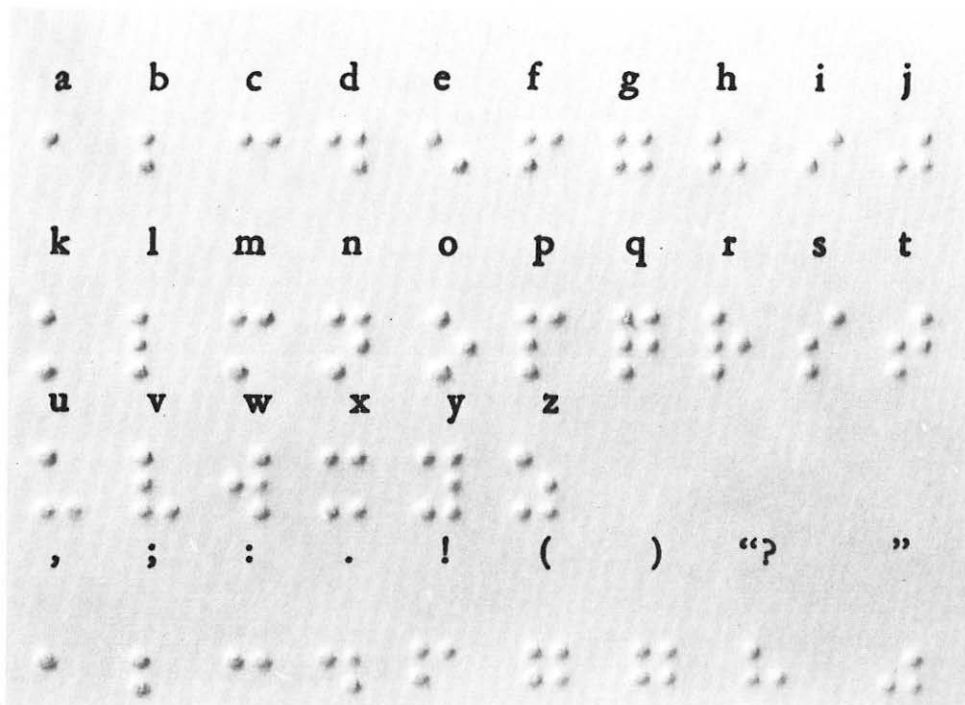
to demonstrate the communication capacity of a three-bit system.

The alphabet consists of twenty-six letters. When we see an “A” the message conveyed is one of twenty-six possible messages. This would be true irrespective of whether “A” is upper- or lower-case, in any size, or in whatever typeface. Since it takes four bits of information to decide among sixteen (2^4) possible alternatives and five bits of information to decide among thirty-two (2^5), the information contained in the message “A” lies between four and five bits (4.71 to be exact).

Six bits (2^6) permits encoding sixty-four different messages which is sufficient to contain all the twenty-six letters, ten numerals, and all the punctuation marks.

Braille, a Six-bit Language

Early recognition of the communication potential of six efficiently used bits occurred in 1829 when Louis Braille published his alphanumeric system that has become the universal written code for the blind. As early as the seventeenth century embossed letterforms for the blind had been introduced, but they were cumbersome to handle, difficult to learn, and could not be easily written. Braille characters use combinations of six embossed dots in a matrix three high, two wide. Of the sixty-four possible figures, twenty-six are used for letters, ten for numerals, and the rest for punctuation, some small common words, and a few common letter sounds. Other combinations have been designated for musical or scientific notation. Their value is that the



The lack of information economy in roman letter-forms which require thirty-five bits to communicate is demonstrated by the Braille alphanumeric system which requires only six bits to communicate sixty-four figures.

low bit count makes them easy to perceive tactilely, and easy to produce manually.

It is now possible to see the inherent lack of information economy in the roman letterforms. While it takes only six bits to transmit alphanumeric messages, it takes at least thirty-five bits to communicate the roman letterform. It was shown by Shannon in his famous theory of communication that all the available information in a continuous signal can be collected by sampling it at finite intervals. The length of the interval, of course, depends on the nature of the signal. The halftone process used in printing and the scanning for television broadcast are good examples of this. Similarly, the form of a letter can be communicated by a series of discrete dots. The minimum number of dots required would then be an indication of the infor-

mation required to communicate the form. It takes a 5 x 7-dot matrix or thirty-five bits of information to render roman letterforms. This is the format used in most electric signs, scoreboards, CRT displays, and in "hard copy" data terminals.

This thirty-five bit (2^{35}) matrix has the capacity to produce 34,358,738,368 different characters—millions more than needed. The reason for this astronomical capacity to produce characters is caused by the complexity of the archaic roman letterform, and even the thirty-five bit letterform is marginal in both design and readability.

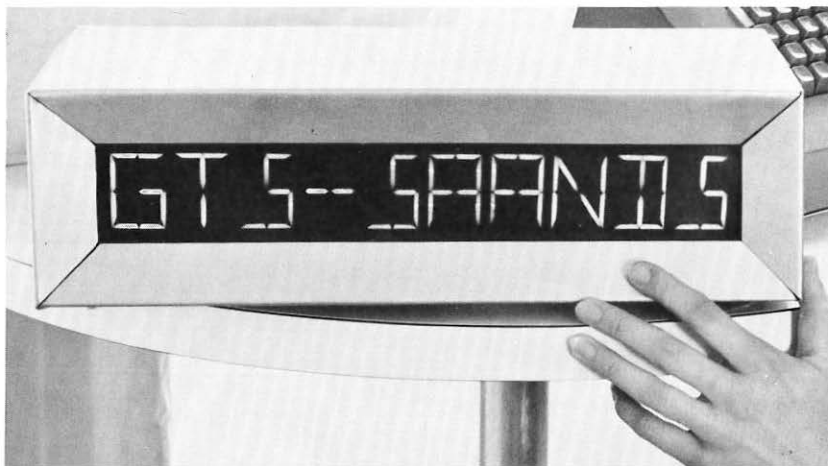
To get around this problem, manufacturers of signs and other readout devices use coding and decoding devices that convert the thirty-five bit code (as read by an optical character reader, for instance), into a six or seven bit code for transmission. For a display, a seven-bit code received in a communication channel must be decoded to a thirty-five bit code for display or printout. What is needed is a six- or seven-bit letterform that can be read directly.

BASIC Letterform

To answer this requirement the BASIC letterform has been devised by Design Planning Group. Derived from Braille, it uses seven strokes to connect the six dots. Seven strokes double Braille's six-bit message capacity to 128 (2^7) different messages. The alphabet is an extension of the familiar seven-stroke set of numerals which is widely used on scales, scoreboards, calculators, digital instruments, and electronic cash registers.

The BASIC electronic alphabet is based on the standard number stick figure. This matrix can be narrowed and spacing reduced so that more characters can be packed into the same line length. For print communication BASIC typeface can be thickened, reproporioned and respaced so that the visual effect is more balanced and elegant. Letter spacing for printing could be computerized so that typographic output would be easy to read and would present an even greyness of color.

A variety of technical methods are already used to display the electronic seven-stroke numerals. But for this article the interesting aspect is not these technological mechanisms that produce the letterforms, but the ease with which all of us have



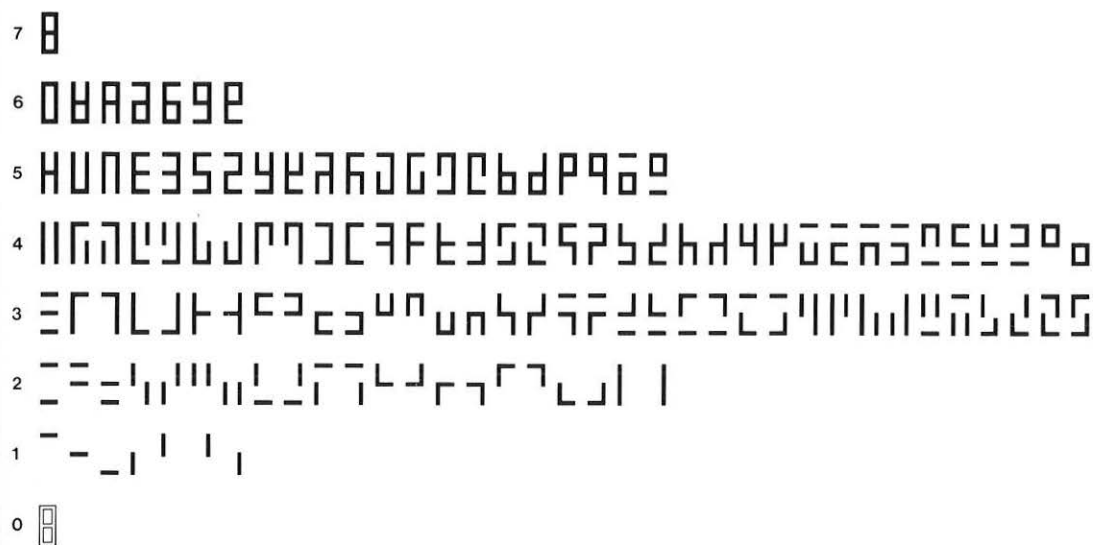
A host of equipment is now in use employing the seven-stroke numerals. There is no reason why the same equipment cannot be used to communicate letters as well as numerals. However, no known alphabet has been developed for this purpose.

adapted to reading these seven-stroke numerals that use no curves or diagonals.

Before any of the letters were chosen from the 128 BASIC characters, the numerals were assigned because of their widespread use. Because of this, BASIC compromises a few of the letters. S and Z are sacrificed because preference is given to 5 and 2; since there is no diagonal or vertical center stroke, M, W, and V are revised. X is the worst problem since there are no diagonals, so the H form is used; h uses its lower-case form. The rest of the letters are self-explanatory since they resemble their roman counterparts. There are plenty of characters left for punctuation, formulae, music, contractions, etc. We have found that learning the BASIC is quick and painless.

The Legibility of BASIC

But there is more to designing an alphabet than achieving a low bit count. In every communication system the sender and receiver have an agreed upon set of possible messages or message elements called "message space." In an alphanumeric code the message space consists of the letters, numerals, and whatever punctuation marks or additional characters are mutually under-



Of the 128 characters formed by the seven-stroke code, forty-five are used for the BASIC letters, numerals, and operators. This leaves quite a large selection of characters for other uses—scientific, musical, and other forms of notation.

One of the best examples of a simplified alphabet, by Christopher Evans and Timothy Epps, is based on a twelve-stroke square grid capable of producing over 4,000 different characters. Neither curves nor diagonals are used so the rendering of some letters, like X, must be compromised. Because of its simplicity, the Evans-Epps letterform lends itself to optical character recognition.



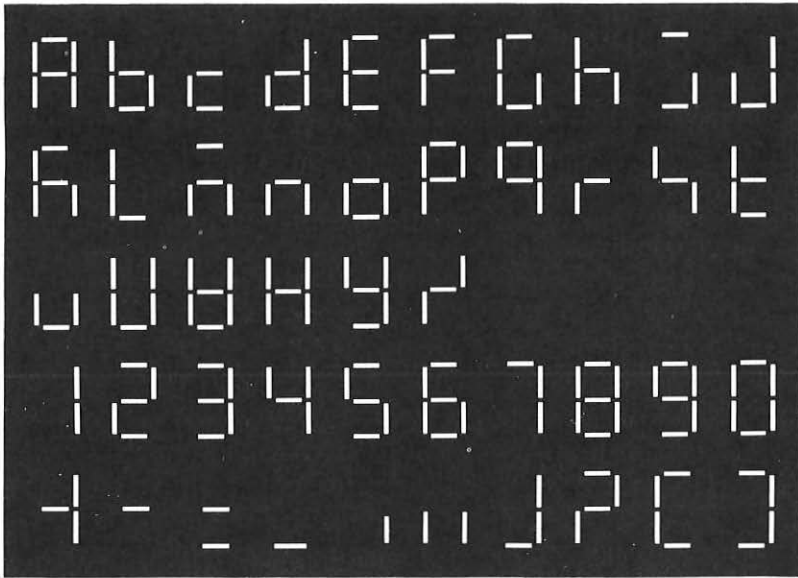
stood by the communicating parties. Thus, physicists can have their peculiar symbols, as can mathematicians or biologists. In communicating, then, familiar characters are recognized which are then assembled into meaning. Faced with an unfamiliar form a person is either taken aback or will interpret it as something familiar. In theory, it ought to be easy to read a seven-bit code consisting of seven sequential dots (like the code used on paper tape). But the difficulty of recognizing 128 different dot forms is impossible and so realization comes that the nature and quantity of information needed for recognition is different than that needed for transmission.

Pattern recognition is a complex process about which little is known. It is generally believed, though, that recognition is the result of our ability to discriminate relevant features of a form. These features, or invariants as they are called, contain the minimum information required for the pattern to be identified. Thus, a letter in its various forms, handwritten in various styles or printed in various typefaces, is recognized by virtue of some information-bearing elements—the strong triangular form of “A” or the circular “O” or the two lines crossing to form an “X.” Our alphabet now uses combinations of all three basic visual forms: the square, triangle, and circle, and therefore may tend to deliver the greatest letterform discrimination. It is possible that the eye, with its powerful discrimination capacity, perceives differences better when forms are more varied, even at the expense of a high bit count?

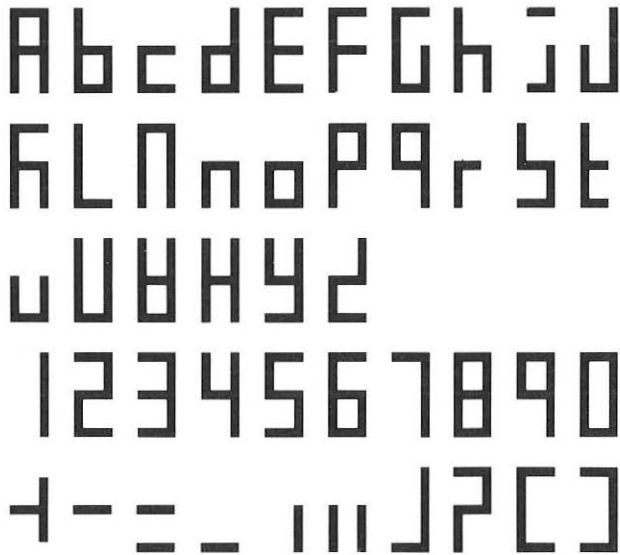
Under adverse visual conditions BASIC might fail more quickly than standard letterforms because there is no redundancy in the characters. Most roman letterforms can be cut in half and still read. BASIC couldn't stand this. The only way to determine these unknowns is through adequate testing in the visual laboratory....

The Aesthetics and Efficiency of BASIC

At first, BASIC may look harsh and angular. Gone are the elegant thicks and thins, there are no juicy O's, no serifs to hold the lines of letters together. But the lower bit count simplicity of BASIC is in line with the long-term trend toward simplicity in



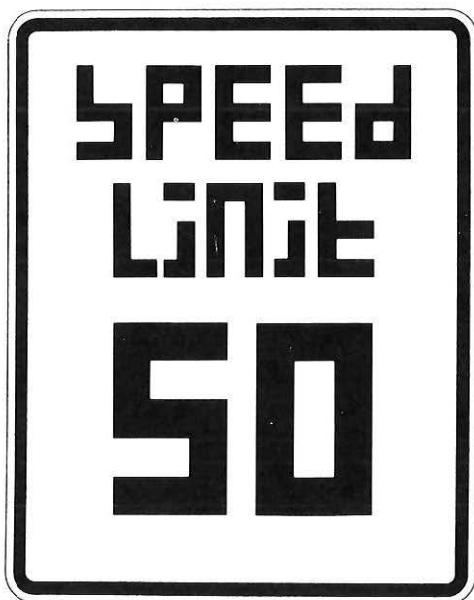
The twenty-six letters, ten numerals, and other operators of BASIC are illustrated using the seven-stroke electronic display matrix. Most of the characters resemble the roman predecessors, but I, M, S, V, W, and Z require some relearning. Of the operators, + does not have a crossbar and ? loses its dot.



THE OLD ALPHABET, A to Z
WAS CHANGED TO FIT TECHNOLOGY
BUT WHEN IT WAS READ
IT WAS FREQUENTLY SAID
THESE NEW LETTERS ARE ALL GREEN TO ME

Legibility of BASIC can be judged by the facility with which this sentence is comprehended.

An existing road sign is compared to one using BASIC.



design, a result of the shift from hand to machine production. Another reason is a need for greater visual order in an increasingly complex environment. It should be noted that the more visual training the eye gets, the more it tolerates, prefers, or demands greater simplicity of form. Hand-carved furniture became progressively simpler until the Bauhaus, and then it was propelled to pure geometric form. This trend is exemplified by the products of Braun and the architecture of Mies. Obviously, there is a pernicious symbolic drag of the old hand-crafter "royal" forms on mass-produced products, but the long trend of design is to cleaner form. This trend to simplicity is true of letterforms as well. Written symbols started as very complex ideograms which over centuries became simpler phonetic marks which were then "geometricized." Complex German script became simple with its sans serif, single-thickness strokes and circular O's. BASIC carries the visual economy of letterform toward a logical conclusion.

A most important attribute of BASIC is its efficiency. The increasing demand on time, space, and cost for storage or transmission of records and messages has led to the common use of micrographic, magnetic, and electronic media. The quantity of the information stored or transmitted is limited by the inherent constraints of the media. For micrographic recording, for instance, the image is reduced until the resolution limit is reached. This limit can be a factor of the resolution limits of cameras, of enlargers, the fineness of the "grain" of photo-sensitive materials, etc. Within these constraints, an elementary typeface can stand greater reduction than can a complex typeface. A letterform with a lower bit count could increase communications capacity. In addition, a more efficient letterform designed for the man-machine interface could lead to inexpensive optical readers that would enable huge quantities of printed material to be digested by computers at a low cost. Excessive coding and decoding of information could be avoided since display or printing of an efficient form would require no more information than that needed for transmitting the message. Because BASIC has the potential to require less equipment to produce it, a compact typewriter for it has been projected.

The BASIC Typewriter

Considering the technical advances that have made possible miniaturized dictation and calculating equipment, there is no reason why such technology should not be applied to a typewriter. The introduction of electric-powered typewriters lowered the typist's effort, but they are still a long way from being refined equipment. As they are, typewriters are heavy, bulky, noisy, fragile, complicated, and expensive devices. The virtues of BASIC can be combined with current advances in producing typed copy (such as Texas Instruments' Silent 700 electronic data terminals) where the character printer, instead of being a cluster of individual mechanically impacted type characters, is a monolithic 5 x 7-dot matrix silicon heat element. Typing is done on thermographic paper which forms characters at the rate of thirty per second. Printing is entirely electronic, there is no mechanical typing impact and no noise.

The physical shape of the projected BASIC typewriter is flat, and its light weight permits it to be carried in a briefcase. It can operate on a line cord or rechargeable batteries. Extensible legs at the rear permit it to be set at any angle so as to slope the keyboard to suit the operator. Its thinness allows it to be used at standard desk height without the "drop area" necessary for most typewriters. Because there is no carriage slam or mechanical hammering, the unit does not "walk" on the desk as do standard typewriters.

The keyboard, a design proposed by the Max Planck Institute, divides the keys into right and left hand areas for touch typists. The space between the keyboards straightens the arms and reduces fatigue. The main reason for staggering the rows of keys on conventional typewriters is to permit the mechanical type arms to pass by each other. But since this unit has no mechanical connections from the keys to the typing head, the key rows need not be staggered. There is little perceptible motion or sound when the keys are touched which at first gives an eerie feeling, but which is quickly accommodated.

Various modules can be added to the BASIC typewriter. An acoustic coupler can hook up the typewriter to feed or be driven by a computer. A cassette tape drive can store information and

ABCDEFGHIJ
 KLMNOPQRST
 UVWXYZ
 " # \$ % & ' + > < !
 1234567890

Texas Instruments' Silent 700 data terminal uses a dot matrix on a monolithic solid state printhead to provide silent electronic printing. The five by seven matrix is composed of thirty-five heating elements which form the characters on heat sensitive paper. Other devices for dot matrix printing use paper that is sensitive to electric current or electrostatic ink jets.

The projected BASIC typewriter has, among its advantages, a keyboard proposed by the Max Planck Institute which divides the keys into right and left hand areas.



in turn drive the typewriter. A paper tape drive can be used. A typical numerical keyboard can be added to convert the typewriter to an outprinting desk calculator. The unit can also be used as terminals for point-to-point communications networks.

To sum up, BASIC appears to meet the communications requirements of today: BASIC, after a minimum of learning, is at least as readable as existing letterforms; BASIC typographic characters have a good balance of white to black to allow greater readability and superior micrographic reduction; BASIC requires the minimum information for communicating its forms; BASIC is machine sensible as well as man sensible; BASIC permits display using current technology—light emitting diodes, liquid cryst.

Excerpted with kind permission from an article in the January/February 1974 issue of *Industrial Design* magazine. Copyright 1974 by Whitney Publications Inc.

Comment: The Designer and Language

Alexander Nesbitt

The designer, on the whole, does not understand what language is. He has been “visually educated” in the manner of the usual design school or art school. His very simple approach to communication is to crucify the problem upon the cross of his all-important design. As far as meanings are concerned he rarely, if ever, looks for them.

Most of his problem stems from the society in which he was born and lives; he is caught in this and almost never reaches the awareness of his own being. In an almost straight materialistic sense his art or design is the result of the demands of the marketplace: the necessity to sell huge quantities of photographic material of all kinds, for instance, is just one of these factors. Of course, the society we are concerned with is western society. Mass marketing—the consumer society—actually dictates what comes out of most of the design schools in the end, and forms the basis for the communications which follow modes and patterns from year to year in which there is essentially no meaning beyond the buy and use incentive.

In the more or less unconscious effort to escape the damning reality of such an existence, the designer or artist—or even poet—invents artifices of all kinds to convince himself that he is his own man and really not the slave of a system. In this play existence, in which he fancies himself to be creative and free, he indulges in all sorts of aberrations: typographical, photographical, and communicational; for only in this way can he find an outlet to combat the evils of the system: by perverting the meanings and fouling the possibilities of communication. The artist has been revealing the horrors of the world and society for a long time; the designer follows pretty much the same bent.

All the inhuman aspects of our world setup are reflected by the artist and designer in a variety of ways: they all lead to a foundering of one kind or another, according to the nature of the individual. The

techniques of non-human communication are invoked to produce results that are hailed as new, startling, creative. What meaning all of it has in human terms is considered to be wholly irrelevant. In the overall sense these designers and artists work to please or mystify each other; it is very easy to insist that the great mass of the population is not up to them perceptively nor intellectually. Again, the use of all the machines and devices, whatever their kind, is justified by the necessity to keep our technological system going, and with it our precarious economy.

What has happened in typography and lettering is quite discernible. Lettering, to take up the latter first, has been banished from most of the design schools; no further study of the early letterforms or of their history is considered necessary. The drying-out process that has been going on for some twenty-five years has finally produced design-school directors, deans, etc., who are thoroughly dehumanized and thoroughly subservient to the dictatorship of technology and its handmaidens—if such a designation be allowable for a basically sterile complexity. It is not difficult to imagine what has befallen typography; in its present state it is simply chaotic.

All of this in the end may not be as disastrous as it seems. We are being forced to reconsider the wastefulness and prolixity of the problem. There may, finally, not be enough energy to activate all the gadgets and contraptions that come out of man's fever dream of conquest of nature; one need not mention all the other hazards that now beset the world population. It may seem far-fetched to link the state of lettering and typography to the haunting threats of extinction that rise from the ranks of the biologists, ecologists, agronomists, oceanographers, etc.; but the same sort of threat is presently in the language and, consequently, the written or printed word: here, it is confusion and meaninglessness.

There have always been the skeptics of language, the cynics, and the perverters of truth. They did not always control all the sources of communication available to the masses; now they do, or rather the masses themselves do—the anomaly of life in the twentieth century. However, the pressing problems of meaning and truth for all western culture will not always be befogged by spurious politicians, pseudo-scientists, hack literary men, nor the great venal army of advertising and public relations practitioners. One may say that there are two directions: the lie and the truth; it is very important to humankind that our designers, artists, leaders in all walks of life take the latter direction. Then those slow changes in word meanings, alphabetic and

orthographic changes, and the possible breakthrough in visual communication may come about normally. The present overheated, over-advertised, auto-erotic efforts to change everything overnight may be almost confidently predicted to fail. If there is one thing that schools of design should do, it is to train young people to understand language; for this a new generation of instructors will be needed to say the least.

Alexander Nesbitt (The Third & Elm Press, 29 Elm St., Newport, RI 02840) is recently retired as professor of art at Southeastern Massachusetts University following a long career in art and design education with a special interest in graphic design. He has lectured widely and has numerous publications on typography, calligraphy, etc. With his wife he started in 1965 the Third & Elm private press which now takes most of his attention.

art and typography

typography enters into art.

characters and pieces of newspaper enliven the early works of braque and picasso.

kurt schwitters composes pictures with coloured pieces of printed paper.

but experiment in modern typography had already started at the end of the 19th century.

mallarme, the french poet who succeeded in musicalising language, gave his verses a new visual form, freed his poems from the traditional way of typesetting.

his sentences ran freely over the pages.

gradually typography leaves its rectangular prison,

no longer feels the chains of symmetry,

tries to lead the eye over the page and accentuates the direction from the left to the right.

the revolution in art originates a new typography.

contrasts destroy the grey form.

old characters acquire new value.

the white of the character becomes more important than the including form.

the white of the page reigns over the black.

transparency is one of the fundamental principles.

typography becomes a means to bring quick messages to the many.

publicity in daily papers and in weeklies, light publicity in our cities makes extensive use of new discoveries.

the importance of the designer increases every day;

is he aware of his responsibility?

willem sandberg, amsterdam

Correspondence

The editors welcome comments on articles, reviews, and letters that have appeared in past numbers. Communications should be addressed to the Editor, c/o The Cleveland Museum of Art, Cleveland, OH USA 44106.

To the Editor:

Re: Origin of expression 26 (more or less) soldiers (of lead).

You will be aware of the speculation concerning the expression 24-26 soldiers of lead. I have stumbled upon the following:

“Je suis le capitaine de vingt-quatre soldats, et sans moi Paris serait pris.” —A.

“I am the captain of twenty-four soldiers and without me Paris would be taken.” —A.

Hugh Rowley *Puniana or Thoughts Wise and Other-Wise*, John Camden Hotten, London 1867, p. 42.

Neither French scholars nor I have been able to trace the origin of this expression. Note that lead is not mentioned. Also it was about that period that there would have been fears that Paris would be taken. Perhaps you and/or your readers might throw light on this obscurity. Anyway the quotation slightly adds to our knowledge.

Peter Mayer

Graphic Department, Goldsmiths' College, London

In reply to a query by Peter Mayer, James Mosley of the St. Bride Printing Library, London, has replied in part:

“Soldiers of lead” is quoted by Francis Meynell in his book *Typography* (1923). He said it was “obscure in origin” and (later) “French in origin.” No amount of effort has succeeded in finding an earlier source for it than Meynell’s book, and some of us are beginning to suspect that he may consciously or unconsciously have made it up himself. My theory is that it cannot antedate lead toy soldiers and is therefore not likely to be before 1850. If the origin is not Meynell himself, I guess it to be some little-read (and perhaps unreadable) work of about that date.

To the Editor:

Is this visible typography?

I am very unhappy about the covers of recent issues of *Visible Language*. They are looking more like covers for a cheap underground periodical of an obscure organization or for a self-made high school publication. An important scientific journal to be taken seriously should not use gimmick covers; there is no connection at all with the typography inside. Surely there are in the United States and other countries many young designers who could do an adequate job of designing covers for a scholarly publication.

If the next issue shows no indication of a return to a normal and correct cover design, I do not want to publish in this "Journal for Research on the Visual Media of Language Expression" and I would like my name removed from the Advisory Board.

Hermann Zapf
Darmstadt (West Germany)

On page 247 of the Summer 1974 number, copyright for Nicolette Gray, "Lettering and Society," was incorrectly attributed to *Visible Language*. The article is copyrighted by the author, not by *Visible Language*.

This number of *Visible Language* has been composed in Baskerville types produced on phototypesetting equipment manufactured by the VariType Division of Addressograph Multigraph Corporation. It has been printed by the Mueller Printing Company, Cleveland, Ohio, on Plainwell Kashmir Matte—80-pound text and 65-pound cover paper.

Résumé des Articles

Traduction: Fernand Baudin

Le nom des lettres et l'enseignement de la lecture
par Richard L. Venezky

Depuis deux mille ans environ les éducateurs admettaient sans discussion que connaître le nom des lettres dans leur ordre alphabétique est le premier pas dans l'apprentissage de la lecture. Apprendre l'ABC et apprendre à lire étaient synonymes. Mais à présent la thèse est contestée. Les uns prétendent que cela aide à identifier les lettres et les mots; d'autres encore prétendent que cela gêne l'identification aussi bien que la phonétisation. En y regardant de plus près, l'observation et l'expérimentation ne sont guères favorables à la thèse a priori. Dans plusieurs pays tels que les Etats-Unis, la Russie, Israël, on a observé également que de connaître le nom des lettres constitue la meilleure garantie d'une bonne acquisition de la lecture. Aussi, en dépit des données expérimentales il reste que les noms sont des appellations très efficaces et qu'ils sont inséparables dans l'esprit des gens d'une bonne connaissance de la lecture.

Les mises en page "radiales" de Wallace Stevens
par Terrance J. King

Dans certains poèmes de ses débuts, Stevens a fait usage d'un type de composition que j'appellerai *radial design*. Tous les éléments d'un poème y sont disposés de part et d'autre d'un élément central (un mot, par ex.). Ce n'est pas un effet du hasard. On y découvre à la fois un ordre historique certain & un lien étroit avec les idées exprimées dans les poèmes au sujet du langage & de la sensibilité.

Les collages de William Dole *par William Dole & Gerald Nordland*

Les auteurs commentent un nouveau type de compositions inventé par William Dole où la peinture, les collages, l'écriture, les diagrammes et les symboles sont combinés pour le plaisir des yeux et la provocation à une lecture aventureuse.

La restauration photographique des caractères
par Robert A. Hauser

L'auteur examine la reconstitution photographique qui avait été faite d'une lithographie romantique pour les besoins d'une exposition. Il s'attache plus particulièrement aux dégradations des textes, aux moyens de les prévenir et de les restaurer. Pour cela il décrit le processus de la dégradation et celui de la restauration, surtout des textes typographiques. Un examen du point de vue de l'archiviste et du conservateur en général est le préalable indispensable pour déterminer le procédé le plus approprié - ce qui est proprement l'objet de l'article.

La lecture globale *par Patrick Groff*

Plusieurs auteurs ont soutenu que la forme globale des mots favorise l'apprentissage de la lecture chez l'enfant. Cela n'avait pas encore été vérifié expérimentalement. La théorie est contestable au moyen de formes voisines pour des mots courants. Aussi convient-il de réexaminer la notion même de contour avant de reprendre des recherches plus approfondies.

Simplifions l'alphabet *par Jay Doblin*

L'alphabet est-il vraiment efficace ? Pas tellement, pour une époque où les confrontations homme-homme et homme-machine sont vitales pour la solution des problèmes de communication. L'efficacité de l'alphabet est examinée du point de vue de la théorie de l'information et un autre système est proposé, qui est en fait une expansion du système numérique utilisé en électronique.

Kurzfassung der Beiträge

Übersetzung: Dirk Wendt

Die merkwürdige Rolle der Buchstaben-Namen im Lese-Unterricht von *Richard L. Venezky*

Etwa zweitausend Jahre lang haben Erzieher ohne Zweifel angenommen, dass das Erlernen der Buchstaben-Namen in ihrer richtigen Reihenfolge eine Vorbedingung zum Lesenlernen sei. Das Lernen des ABC wurde synonym zum Lesenlernen. Aber heute herrscht Uneinigkeit über den Wert des frühen Einübens der Buchstaben-Namen. Einige behaupten, dass es bei der Buchstaben- and Wort-erkennung helfe, einige meinen, dass es bei der Verknüpfung von Lauten mit den Buchstaben nütze, und andere sagen, dass es bei beiden Aufgaben störe. Eine Analyse der Buchstaben-Namen und experimentelle und erziehungswissenschaftliche Befunde gibt den Behauptungen über den Nutzen der Buchstaben-Namen wenig Rückhalt. In verschiedenen Ländern, einschliesslich der vereinigten Staaten, der Sowjet-Union und Israels, hat man gefunden, dass die Kenntnis der Buchstaben-Namen das Erlernen der Verbindungen zwischen Lauten und Buchstaben stört. Aber die Kenntnis der Buchstaben-Namen hat sich auch als einer der besten Einzel-Prädiktoren für den Lese-Erfolg erwiesen, und unabhängig von den experimentellen Befunden zur Nützlichkeit der Buchstaben-Namen sind sie doch wirkungsvolle Bezeichnungen für die Buchstaben und ein untrennbares Element der volkstümlichen Vorstellung vom Lese-Unterricht.

Radiale Planung in Wallace Stevens' Poesie von *Terrence J. King*

Einige frühe Gedichte von Stevens haben eine typografische Struktur, die ich "radial design" nenne, ein Verfahren, bei dem der Dichter eine zentrale Einheit wählt (zum Beispiel ein Wort) und dann nach beiden Seiten gleichmässig andere Einheiten anfügt. Das radiale Design ist kein Zufall. Man findet nicht nur eine eindeutige historische Konsistenz in der Art der Entwicklung der Struktur, sondern auch eine enge Verbindung zwischen ihr und Gedanken über Sprache und Wahrnehmung, die in den Gedichten selbst ausgedrückt werden. Stevens' allgemeines Ziel ist es, diese feste, räumliche Struktur dem Gedicht zu überlagern, um die Repräsentationsfunktion seiner Sprache abzuschwächen und uns dazu zu bringen, Wörter selbst als Gegenstände eigener Art zu betrachten.

Die Collagen von William Dole von *William Dole und Gerald Nordland*

William Dole's gemalte Collagen sind formale Kompositions-Erfindungen, in denen bildliche Elemente

und fein abgestufte Sättigungsgrade von Farb-Formen gegen unerkennbare Zeichen abgewogen werden - die Kalligraphie von Druckschrift, Symbol, Diagramm und Handschrift, welche unsere Augen verführen und uns zu ungewissem Lesen veranlassen. Der Künstler kommentiert auch sein eigenes Werk.

Die photographische Restaurierung von Buchstaben-Formen von *Robert A. Hauser*

Die Herstellung einer photographisch restaurierten Faksimile-Reproduktion einer Lithographie aus dem 19. Jahrhundert (zu Ausstellungszwecken) wird diskutiert, mit Schwerpunkt auf der Vielfalt der Zerstörungen, die Buchstabenformen zustossen können, und auf Prinzipien der Konservierung und Restaurierung. Der Aufsatz verfolgt den Ablauf des Zerfalls und der Konservierung des Kunstwerks, wobei er die typographische Restaurierung im Detail betrachtet. Einige Diskussionen über die archivarisches Natur des Druckes und Museums-Konservierung im allgemeinen sind eine notwendige Vorbedingung zum Verständnis der Entscheidung für die endgültige Wahl der letzten photographischen Restaurationsverfahren zur Rekonstruktion der fehlenden Buchstabenformen, welche das Hauptanliegen des Aufsatzes ist.

Forschung in Kürze: Formen als Hilfen zur Worterkennung von *Patrick Groff*

Die Theorie, dass die "Form" eine nützliche Lernhilfe für die frühe Erkennung eines Wortes bei Kindern sei, ist von verschiedenen Verfassern angenommen worden, aber noch nicht durch die Forschung bestätigt. Eine Analyse ähnlicher Formen bei häufig auftretenden Wörtern spricht ebenfalls gegen den Gebrauch der Form als Hilfe bei der Worterkennung. Ein breiterer Begriff der Wortform (oder des Wort-Umrisses) wird betrachtet, und eingehendere Forschung vorgeschlagen.

Vereinfachungen des Alphabets von *Jay Doblin*

Wie effizient ist das lateinische Alphabet? Nicht besonders, in einem Zeitalter, wo Wechselbeziehungen von Mensch zu Mensch und von Mensch zu Maschine so lebenswichtig für unsere Kommunikationsvorgänge sind. Die Effizienz des Alphabets wird im Zusammenhang mit der Informationstheorie besprochen, und ein neues System von Buchstabenform-Entwürfen - eine Erweiterung der bekannten elektronischen Sieben-Segment-Ziffern - wird vorgeschlagen.

Resumen de los Arículos

Traducción: Felix Beltran

El curioso papel de los nombres dados a las letras en las instrucciones de lectura *por Richard L. Venezky*

Durante dos mil años los educadores supusieron sin lugar a dudas que aprendiendo el nombre de las letras en su propio orden era un requisito previo para la literatura. Aprendiendo el ABC, se convirtió en sinónimo de aprender a leer. Pero hoy hay un desacuerdo sobre el valor de un aprendizaje temprano en el nombre de las letras. Algunos pretenden que ayuda a la discriminación de la letra ó la palabra; algunos pretenden que ayuda añadiendo sonidos a las letras; y otros dicen que ello interfiere con ambas de estas tareas. Un análisis del nombre de las letras y de la evidencia experimental y pedagógica presta poco apoyo a la utilidad de nombrar las letras. En varios países, incluyendo los Estados Unidos, la Unión Soviética e Israel, el conocimiento del nombre de las letras ha encontrado que interfiere con el aprendizaje de añadir sonidos a las letras. Pero el conocimiento del nombre de las letras también ha demostrado ser uno de los mejores pronosticadores del éxito en la lectura y no importa lo que se demuestre experimentalmente acerca de la utilidad del nombre de las letras, ellas son etiquetas eficientes para las letras y un elemento inseparable en el concepto popular de las instrucciones de lectura.

Diseño "Radial" en la poesía de Wallace Stevens
por Terrance J. King

En algunos de los primeros poemas de Stevens hay una evidencia de un modelo tipográfico que yo llamo "radial design," diseño en forma radial, un método en el cual el poeta selecciona una unidad central, (tal como una palabra) y a ambos lados coloca regularmente un modelo de otras unidades. El diseño en forma de radio no es un accidente. Uno encuentra no solamente una permanencia histórica definida en la forma en la cual el diseño se desarrolla, pero también una sólida coherencia entre él y las ideas acerca del idioma y de la percepción expresadas en los poemas en sí. El propósito principal de Stevens es imponer esta estructura fija, espacial, por encima del flujo en secuencia de un poema con el fin de suspender la función representativa de un idioma y así forzarnos a observar palabras como cosas por sí misma.

Los "Collages" de William Dole
por William Dole y Gerald Norland

Los "collages" pintados por William Dole son composiciones formales inventadas, que balancean elementos pictóricos y saturaciones sensitivas de formas colorísticas contra signos ininteligibles—la caligrafía de un tipo de letra, un símbolo, un diagrama y de la escritura a mano—local seduce nuestros ojos y provoca una lectura incierta. El artista también comenta su trabajo.

La restauración fotográfica de formas de letras
por Robert A. Hauser

La creación, con fines de exhibición, de un facsímil restaurado fotográficamente de una litografía dañada del siglo diecinueve es discutida, con énfasis en la variedad de deterioros que pueden afectar formas de letras y los principios de conservación y restauración. El papel sigue la secuencia de deterioro y conservación de la obra de arte, con vista a la restauración tipo -gráfica en detalle. Algunas discusiones acerca de la naturaleza del archivo del impreso y la conservación en el museo en general es un requisito previo para comprender las preferencias de escoger el último proceso de restauración fotográfica usado para restaurar formas de letras, el cual es el primer objetivo del artículo.

Investigación en resumen: Formas, como sugerencias para el reconocimiento de la palabra *por Patrick Groff*

La teoría de que "la forma" ofrece una útil sugerencia para que el niño reconozca tempranamente una palabra, ha sido mantenida por varios escritores, pero no ha sido comprobada por la investigación. Un análisis de formas similares de palabras de alta frecuencia está igualmente en contra de la utilización de la forma como sugerencia en el reconocimiento de una palabra. Se recomienda y se sugiere una investigación más profunda de un concepto amplificado de la forma (o del contorno) de palabras.

Extracto: Simplificando los ABCs *por Jay Doblin*

¿Hasta qué punto es eficiente el alfabeto romano? No mucho, en una era de intercambios, de hombre a hombre y de hombre a máquina, tan vitales para nuestros procesos de comunicación. Esta deficiencia del alfabeto se discute en términos de teoría de información, proponiéndose un nuevo sistema de diseño de formas de letra—extensión de los conocidos números electrónicos de siete trazos.

The Authors

Richard Venezky is professor of computer sciences at the University of Wisconsin (Madison, WI 53706), where he has been since 1965. He is also a principal investigator at the Wisconsin Research and Development Center for Cognitive Learning, where he works on problems related to prereading and early reading skills. Dr. Venezky is the author of *The Structure of English Orthography* (Mouton, 1970) and various articles and monographs in the areas of linguistics, education, and computing.

Terrance J. King is assistant professor of English at Wayne State University (Detroit, MI 48202). He has published on Stevens and is currently engaged in preparing a book, *Poetry of Words: A Study of Wallace Stevens' Theory of Language*, in which he explores the various ways the poet makes language talk about itself.

William Dole has been professor of art at the University of California, Santa Barbara (Santa Barbara, CA 93105) since 1949. He has had one-man exhibitions in various European cities as well as throughout the United States; his work is found in many major museums in this country. Gerald Nordland is director of the Frederick S. Wight Art Gallery at the University of California, Los Angeles (Los Angeles, CA 90024).

Robert A. Hauser is Conservator of prints and books at the Merrimack Valley Textile Museum (North Andover, MA 01845). He is a lecturer on the history of papermaking and a member of the association of International Paper Historians. His research has involved documenting the state of hand papermaking in Europe and America, and his survey of restoration papers used by conservators is currently being assisted by a Fellowship for Museum Professionals through the National Endowment for the Arts.

Patrick Groff is professor in the School of Education, San Diego State University (San Diego, CA 92115). He has been an elementary school teacher, and his research has examined the reading, literature, and other language learnings of children. He has recent articles regarding children's perception of words in such periodicals as *Elementary School Journal*, *Journal of Reading Behavior*, *Reading Teacher*, and *Academic Therapy*. Dr. Groff is co-author of *A New Look at Children's Literature* (Wadsworth, 1972); forthcoming is *Phonics: Why and How* (General Learning).

Jay Doblin (233 East Ontario St., Chicago, IL 60611) began work with Raymond Loewy Associates. In 1955 he assumed directorship of the Institute of Design at Illinois Institute of Technology; ten years later he became senior vice president of Unimark International. Since 1972 Doblin has been consulting directly with various firms, including JCPenney, Gillette, and Design Planning Group. President and chairman of the American Society of Industrial Designers from 1957 to 1959, he was elected to ASID fellowship in 1958.