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how far our findings can be generalized for other typefaces and situations. What is left to summarize is: (1) different typefaces need different amounts of leading to allow the composition of most appealing printed pages; (2) sans-serifs and italics may need one point more leading than roman types; (3) unjustified composition requires neither more nor less leading than justified composition, and (4) neither of these two styles of composition is considered more attractive than the other.

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Designing the Initial Teaching Alphabet in Five Typefaces

Arleigh Montague

Although use of i.t.a. (Initial Teaching Alphabet) in schools is growing, its use in printed materials is handicapped by inadequate adaptation to typeface designs. This study involved designing the i.t.a. alphabet for five well-known typefaces: Century Schoolbook, Baskerville, Melior, Helvetica, and Optima. The process is briefly described and the new alphabets are illustrated.

The Initial Teaching Alphabet, or i.t.a., is an interim alphabet designed to improve the learning of reading. Based on the phonetic alphabet, the i.t.a. consists of 44 symbols. This new alphabet was developed in England about ten years ago by Sir James Pitman and researched by the University of London Institute of Education in association with the National Foundation for Educational Research. The research work was carried out under the direction of Dr. John Downing; see also his report in this Journal, "Methodological Problems in Research on Simplified Alphabets and Regularized Writing-systems," April 1967, pp. 191–198. Sir Isaac Pitman, Sir James' grandfather and creator of the shorthand system which today is most used worldwide, had in the mid-nineteenth century developed the basis for the i.t.a. with an alphabet, called fonotypy, based on the phonetic alphabet which was tested in American schools between 1852 and 1860. Sir James in the middle of this century, with the help of the Monotype Corporation, went further to create i.t.a., an extended version of the roman alphabet which still claimed a phonetic base, but eliminated the learning of a completely new set of symbols when the child advanced to traditional orthography.

There are now 59 British, American, Canadian, and Australian publishing houses who have published literature or texts in the i.t.a. in fourteen beginning reading schemes. Yet among these can be found only three different faces of the alphabet: the original face,

Monotype Ehrhardt, which is in the Caslon family another serif face, an improvement over the first, which seems also to be a member of the Caslon family; and one sans-serif face generally used in workbooks which is not uniform and may be a hand-lettered or constructed form since I have not been able to locate its source. In addition, the IBM, Imperial, Olympia, Remington Rand, and Smith-Corona typewriter companies are producing various sizes of the alphabet. Before i.t.a. will be used generally, it must be available in a variety of well-designed typefaces so that designers will consider using it.

Before beginning the selection of typefaces or actual character creation, the alphabet was examined in the original and most used typeface, Monotype Ehrhardt (Fig. 1). Of the 44 characters, 24 are retained from the regular 26-letter roman alphabet. The q and x are dropped because the sounds associated with these letters can be accomplished using other letters. Twenty "new" symbols complete the alphabet; of these, 14 are direct combinations of present letters, six are new characters.

There are many inconsistencies in the alphabet. Where letters were directly combined to form a new symbol, little or no visual correction was made to bring the thick and thin relationship of the face back into balance. In some cases the new letter form created by the juncture of two others, or the completely new symbol, was simply inconsistent to the basic alphabet itself.

There are no capital letters as separate symbols in i.t.a. Instead, capitals are enlarged lower-case letters which are placed with the body of the large letter centered vertically with the body of the regular lower-case letter, thus slightly below the line. And the "capital," because of its enlargement, is obviously more bold.

For my research five typefaces were chosen, each totally different from any other, but all recognized as good faces and in wide use in publications. The original i.t.a. is a serif face, and I felt that an emphasis on serif faces was necessary to demonstrate alternatives to the present face; I chose a schoolbook face now frequently used in non-i.t.a. books for children, Century Schoolbook. Baskerville was chosen because of its proven flexibility to style through the years.

Melior was selected because its uniformity contributes to its legibility. In addition, it holds up visually in the wide range of type sizes used in educational publications and materials. Helvetica was

the choice for a sans-serif face because of its good visual correction and its wide popularity among designers. As an intermediate between serif and sans-serif, Optima was included.

Once the typeface choices were made, the procedure was briefly as follows: the faces were set in traditional alphabets in lower-case in the numbers of particular letters needed for combinations and generation. Also, several letters were "flopped" for this purpose. Through paste-up of these I arrived at general characters, or in some cases developed units to be used in formulation of characters at a later step. From this point the creation of characters was a process of making Kodalith negatives, contact prints from these, touching up at both stages, and repetition of this procedure many times enlarging the faces for easier manipulation and for more crisp final reductions. There were 21 symbols created for each alphabet (20 for Helvetica because its g conforms as it is to the i.t.a. form).

I could not pretend to correct all faults of the alphabet in the new typeface versions, for some of these inconsistencies are inherent with the nature of the letterform itself. Correction could not be made without creating and substituting a completely new symbol. In the forms where this was the case, correction was made to improve its appearance as a part of the face.

Once all characters were individually resolved, each was tested within a word or words in order to work out visual problems unforeseen when working with the symbols alone. Using words which contained one or more of the new characters, each of the new symbols was tested both in enlargement and in reduction. After making these corrections, I prepared clean photostats and turned the project over to the typesetter who photographically reduced the symbols to a point size commensurate with sizes in which the face is presently available. These were pasted up as full alphabets.

At this point i.t.a. became available in five new typefaces. At present these can be set photographically, and the design exists for development of the alphabet in other less expensive methods.

The new faces do not make allowance for capitals. Capitals under the i.t.a. system could be developed by redesigning each letter, enlarged but less bold than the same symbol actually enlarged. And the capitals should be placed on the base line of the regular type rather than vertically centered.

a n t e b s r i

d l ʃh œ ɤ o m c

v p æ ɛɛ f w u ɷ

ɾ ie h k au ŋg ʃh ω

g y ou ɕh ɑ j ʧh wh

ue oi ʒ z

Figure 1. The original i.t.a. typeface, Ehrhardt.

a n t e b s r i

d l ʃh œ ɤ o m c

v p æ ɛɛ f w u ɷ

ɾ ie h k au ŋg ʃh ω

g y ou ɕh ɑ j ʧh wh

ue oi ʒ z

Figure 2. The i.t.a. alphabet based on Century Schoolbook.

a n t e b s r i

d l ʃh œ ɤ o m c

v p æ ɛɛ f w u ɷ

ɾ ie h k au ŋg ʃh ω

g y ou ɕh ɑ j ʧh wh

ue oi ʒ z

Figure 3. The i.t.a. alphabet based on Baskerville.

a n t e b s r i

d l ʃh œ ɤ o m c

v p æ ɛɛ f w u ɷ

ɾ ie h k au ŋg ʃh ω

g y ou ɕh ɑ j ʧh wh

ue oi ʒ z

Figure 4. The i.t.a. alphabet based on Melior.

Figure 5. The i.t.a. alphabet based on Helvetica.

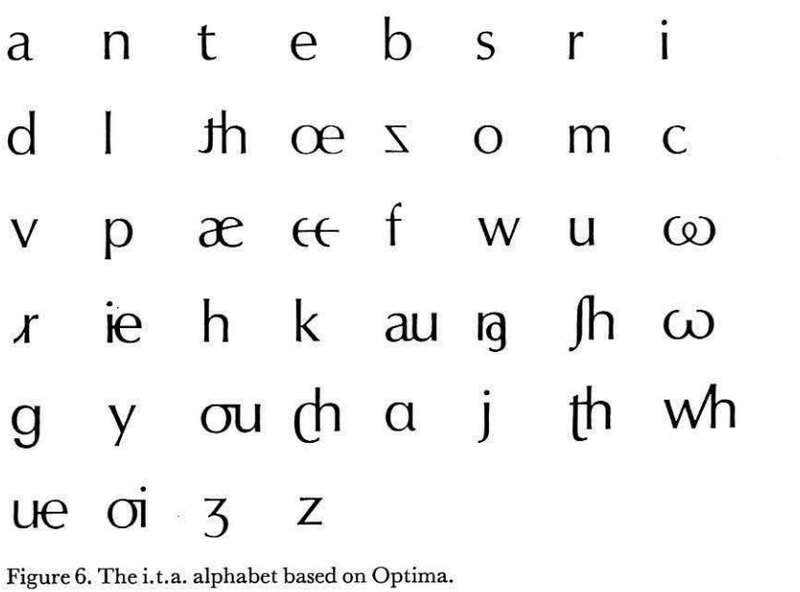

Figure 6. The i.t.a. alphabet based on Optima.

Speed-reading Made Easy

W. S. Brown

This paper advocates and illustrates an unusual typography, which promises to make speed reading easier, faster, and more reliable. It is suggested that computers be used to prepare text in this form.

Most normal readers move their eyes across the page from left to right once for each line of text. In this mode the brain is sometimes able to process the information more rapidly than the eyes are able to transmit it. As a result the mind may wander, and there may be a significant loss of comprehension.

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The key to speed-reading, as taught in certain popular courses, is to take in several lines of text during each pass across the page. When this is done, the words are not transmitted in the proper order, and therefore the brain must either rearrange them or understand them out of order. To achieve still greater speed, the eyes pass from left to right with a downward slope, and the omitted regions are picked up on the return. Normal readers who receive training in speed-reading are often able to improve their reading speeds by factors of four or five, with equal or greater comprehension.

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Poulton[1] contends that speed-reading is accomplished not by storing information

faster, but by seeing it faster and storing less of it. In his view the skill is in selecting the appropriate information to store.

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Whatever the explanation for its effectiveness, speed-reading ought to be facilitated by any typography which permits the reader to absorb more words per fixation while reading them in their natural order. Many nonstandard typographies have been proposed,[2] including the vertical arrangement of words in columns as illustrated in the next sentence.

This
is
an
example
of
vertical
typography.

The present proposal is an apparently original compromise between the vertical and horizontal typographies.

—

A complete $8\frac{1}{2}$ inches by 11 inches page of conventional single-spaced typewritten text contains about four thirds as many words as a complete page of text in this form. However, in the former case the page consists of 48 lines of length $6\frac{1}{4}$ inches, while in the latter case it consists of 5 columns of length 8 inches.

Thus the potential gain in words per fixation is a factor of

$$\frac{3}{4}\cdot\frac{48\cdot 25/4}{5\cdot 8}$$

or approximately 5.6.

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To test whether this new typography really does improve visual efficiency, comparative studies of speed, comprehension, and eye motion will be required. The negative results of Coleman and Hahn[3] concerning vertical typography may or may not be relevant, but in either case they are inconclusive since experienced readers may require considerable unlearning to profit from the new typography, while beginning readers (children) may not be able to read more than one word per fixation, no matter what the typography.

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It is important to realize that the possibility of using computers in the preparation of typed and printed documents has transformed the study of alternative typographies from an amusing diversion into an important practical undertaking. In many situations there are other potent reasons for involving the computer, and the advantages of speed-reading may well provide a decisive push in that direction.

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