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Dedicated to finding the causes of difficulties in learning reading and spelling.

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1. Announcements

Simplified Spelling Society announcement, by S. S. Eustace, S.S.S. Secretary:

We are very sorry our 1977 International Conference has had to be cancelled. The reason is that responsibility for making arrangements was delegated to someone who was unable to accept the responsibility; this person referred the responsibility to me; I too was unable to accept. By this time it was too late to find anyone else, and so the conference had to be called off. We apologise to those who hoped to contribute a paper and hope they will hold over contributions to a future occasion.

This trouble is really the symptom of a deeper malady, the fact that the SSS suffers internally from a long-standing conflict of interests. On the one hand, our investments were bequeathed to us, between the wars, on the understanding that we were to press for reform of the conventional spelling, which would abolish spelling difficulties, and the need for international conferences on the teaching of reading. On the other hand some of our principle officers from the early 1960's onward have had a very substantial money interest in a system for teaching the conventional spelling, and

would of course stand to lose heavily if the aims of the SSS were ever achieved. This conflict of interest is a continual brake to progress. The mystifying semi-paralysis of the SSS becomes easily comprehensible in the light of it, as everyone will know who has had experience in voluntary societies.

In any case we should not expect rapid alphabetic changes. Thus the last major improvements in our Latin alphabet (the differencing of I from J and U from V) began in the 3rd century A.D. and became generally accepted in England by about 1640. But still after 17 centuries they have not spread everywhere: in the catalogue of the British Library for instance U and V are treated as a single letter to this very day. Compared with such immensely slow changes, a few years hold-up in the affairs of SSS are not significant.

The Spelling Circle

In as much as the *Spelling Progress Bulletin* does not offer the service of displaying various alfabeteers' systems, we call your attention to a group that does.

Membership in *The Spelling Circle* is invited for the purposes of comparing spelling systems in detail. A monthly newsletter began in June; subjects discussed so far: soft c and soft *g; w* vs. *wh*; plurals; bending pronunciation, the schwa; the schwa before final *n* as in "giv*e*n, comm*o*n, mount*ai*n, Afric*a*n." Topic for Oct.: "Vowel before *r*" respell these words in your system: *care, beer, fire, more, pure, poor, marry. merry, mirror, borrow, hurry; aural, war, warm; our, power*. See *SPB*, Summer, 1977, p. 16.

Enclose stamped return envelop (two stamps) for U.S.A. members for June, July, Aug., Sept. 'Circular Letters'
Barnett Russell, M.D., Plainview, N.Y.

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[An omission from "Vowels followed by /r/" in *SPB*, Summer, 1977, p.16. noted here, was inserted in the pdf version.]

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[Spelling Progress Bulletin Winter 1977 pp2–5 in the printed version]

2. Readability, by Emmett Albert Betts, Ph.D., LL.D.*

*Winter Haven, Fla.

Since 1920, there has been an increasing interest in the reading difficulty of books, magazines, directives and other printed material. Cut down to simple terms, the concern of publishers is with the author's getting his story across to his readers.

How readable a book, magazine, or newspaper is depends upon (1) who does the reading and (2) what is being read.

Readability factors

Many factors contribute to the readability of writing:

1. Typographical (legibility as measured by size of type, type face, line length, leading, interlinear spacing and illumination)
2. Orthographical; e.g., percentage of regularly versus irregularly spelled words, especially for beginners in reading
3. Language structure; e.g., sentence length in letters or syllables, number of different words, number of function words, etc.
4. Vocabulary; e.g., number of common words, polysyllabic words, etc.
5. Idea density and abstractions (complexity of concepts)

These and other variables are considered in developing readability formulas and other indexes to "reading ease" of written materials.

Differences in Abilities and Interests

There is ample evidence that the differences among people are highly significant. It is clear, for example, that a fifth-grade book is entirely too difficult for the lower 25% to 40% of the pupils in a fifth-grade class. At the same time, this same fifth-grade textbook may be too easy for the upper 10% to 20% of the class. In other words, the range of differences among children in a fifth-grade class makes it impossible to give children equal opportunities for learning when the same textbook is used for all of them.

From a recent census, it appears that at least one in ten adults 25 years of age or over did not get to the fifth grade in school. These are the people who tend to have difficulty in learning to read. For practical purposes, they are functionally illiterate.

On the average, adults have completed about 9 years of schooling. Only one in three has completed high school requirements; about one in twenty has completed college requirements.

There is an increasing awareness on the part of both high school teachers and their students of the need for reading improvement courses. Many college graduates – especially men – are enrolled for reading improvement courses. In short, graduation from a high school or college does not guarantee satisfactory reading skills.

In general, people with the most education do the most reading. Professional people do more reading than wage earners; skilled workers do more reading than unskilled workers. About eight or nine people out of ten read a newspaper more or less regularly; six or seven out of ten, a magazine.

But less than one out of four reads one book a month.

There are wide differences in the reading interests as well as the reading interests of people. Most boys pass through the fairy tale stage of interest by the age of nine but some girls carry this interest into adolescence. From the age of nine, reading interests become increasingly diverse.

These wide differences in the reading abilities of children and adults pose real problems for publishers of books, magazines, and newspapers. A child in the fifth grade, for example, may have an interest in biography but only primer-level skills. At present, books with a high interest level for poor readers extend downward only as far as second-reader level. This same problem of high interest and low readability level of materials is a serious one for poor readers in the adult population.

The question of how readable a selection is depends upon who is doing the reading. For example, compare two people with second-reader level in reading ability: a bright seven-year-old and a below-average twelve-year-old. The seven-year-old may not have a concept of brave (as an Indian brave) or war drums, but the twelve-year-old may take these terms in stride. A ten-year-old may be able to read a selection on meteorology which would challenge the average high school' senior, because he is interested in and has read widely on this topic. This shows the need for reading materials which appeal to people with different interests and different reading abilities. No one publication makes this appeal as well as a home and school encyclopedia.

Rating the Readability of Materials

In recent years, many studies have been made of people who read and the difficulty of what they read. The readability of materials have been studied in terms of:

1. Typography, including size of type, type face, spacing, length of type line, and page arrangement
2. Illustrations, including size, color and legends which accompany them
3. Language, including vocabulary, word frequency, sentence length, and sentence structure
4. Concepts, including number, relationships, use of definite and indefinite terms, and levels of abstraction
5. Orthography, including spelling patterns, spelling anomalies, punctuation

Many of these elements of readability are highly related. For example, the type can be smaller when the line is shorter and the type face is highly legible. On the one hand, the best journalist cannot explain Einstein's highly abstract and generalized concept of relativity so that everyone can understand it. On the other hand, an inept writer can present elementary ideas about pioneers or frogs in long, involved sentences, which make understanding very difficult for everyone.

Typography. The size and kind of type, the spaces between lines and words, and the width of margins influence the reader's attitude toward the material. Crowded pages set in very small type look "hard" and often lack appeal. Furthermore, people with poor visual skills or eye defects may find the material not only uninviting but also just too much of a struggle to read.

If the type size is too small, reading may be slowed down. Type size, however, is. considered in relation to type face, leading, and line length. Smaller type, for example, is called for when the line is short, as in a newspaper, magazine, dictionary, or encyclopedia. For efficient reading, there must be a certain number of words in a line. Large type in a short line would not only look unacceptable but it would slow down reading by having too few words in a line.

Illustrations. Pictures of a condor, buffalo, canal boat, cathedral, or a strawberry cactus make the reading material easier to visualize, to understand. So does a map, or a diagram of how a paddle propels and steers a canoe. All of these and other visual aids to learning are important considerations in selecting a dictionary, encyclopedia, or a school textbook.

Vocabulary. Many studies have been made of the words used by children and adults in their writing and conversations. Other studies have been made of the words used by authors in school textbooks, magazines, newspapers, fiction, non-fiction, how-to-do-it books, the Bible, and the like. The chief purpose of these studies was to identify the most commonly used words as a basis for writing textbooks.

Many of these studies were done before 1920, but the most widely quoted study is E. L. Thorndike's *Teacher's Word Book,* published in 1921.

This identification of the 10,000 most commonly used words paved the way for the first published formula (1923) 'for measuring the readability of children's books. To use this measuring stick, it was necessary to select 1,000 words and take two steps to get at the reading difficulty:

1. Count the number of different words. For example, a sample of 1,000 words may include 300 different words. This sample is easier for the child to understand than one with 400 different words.

2. Count the number of words not listed in Thorndike's book. A book, for example, using 100 words beyond Thorndike's 10,000 commonest words is harder for the child to understand than a book with no words outside Thorndike's list.

On page 156, Volume B, of a home and school encyclopedia, this information is given:

> What is the largest living bird? The ostrich is the largest, but it does not fly. Of the flying birds, the wandering albatross has the greatest wingspread; the condor is the heaviest and largest in other respects.

There are 37 words in this selection:

albatross 1	does 1	in 1	ostrich 1
and 1	fly 1	is 3	other 1
bird 1	flying 1	it 1	respects 1
birds 1	greatest 1	largest 3	the 8
but 1	has 1	living 1	wandering 1
condor 1	heaviest 1	not 1	what 1
		of 1	wingspread 1

It is readily seen that this selection is easy to understand. Of the 37 words, only 18 are different words. One word, *the,* was used 8 times.

On page 160, Vol. A of the same encyclopedia, this information is given on algebraic operations:

In general, in order to divide two expressions having the same base, subtract the exponent appearing in the denominator from the exponent appearing in the numerator. This rule holds for numbers only as long as the exponent in the numerator is larger than the exponent appearing in the denominator.

In this selection there are a total of 49 words; 28 being different:

appearing 3	for 1	larger 1	same 1
as 2	from 1	long 1	subtract 1
base 1	general 1	numbers 1	than 1
denominator 2	having 1	numerator 2	the 9
divide 1	holds 1	only 1	this 1
exponent 4	in 6	order 1	to 1
expressions 1	is 1	rule 1	two 1

One word, *the,* used nine times, accounts for almost one third of all words. But three words, *denominator, exponent,* and *numerator,* used eight times, are not common words. Furthermore, the word *expression* is used in a mathematical sense.

One of the big differences between the two above selections is the concept difficulty. For example, in the selection on birds, three names were used: *ostrich, albatross,* and *condor.* Most children have some idea of an *ostrich,* having seen them in zoos and in picture books. They can find a picture of an albatross on Page 140, Vol. A; of a condor, on Page 176, Vol. B and on Page 432, Vol. C.

With these helps the average eight-year-old can understand the selection on birds. Accordingly, the author wrote it with commonly used words because he was not dealing with complex concepts.

On the other hand, the author of the article on algebra was dealing with highly abstract concepts. Even though the operation of dividing two expressions is a fairly simple one, it is still necessary for the reader to bring to the paragraph concepts of *expression, base, exponent, numerator,* and *denominator.*

The vocabulary, or words, used in writing a selection depends largely on the ideas and concepts to be put across to the reader. The author of the article on algebra was not writing for a child. In the first place, children rarely are *interested* in how exponents are used in division. Secondly, they would have to be unusual geniuses to understand the operation.

The illustrations cited above demonstrate that complex concepts require highly abstract terms. No author can tell his reader about a highly abstract concept in common words. On the other hand, an inexperienced writer an overwhelm the reader by telling about an elementary concept with uncommon words.

The little words *a, I, the* make up 10% of all the words used by adults in letters -whether they are unskilled laborers or world-famous physicists. Six little words – *a, and, in, of, the, to* – make up about 20% of all words used in writing. For example, in the selection on birds, the words *and, of, the* were used ten times in a total of 37 words. In the selection on algebra, the words *in, the, to* were used 15 times in a total of 28 words.

Over the years, the number of common and uncommon words in a sample has been used as one way to estimate the readability of it. In one formula, the words outside a list of 769 common words is used to indicate the difficulty of the material. In other formulas, lists of common words include 769, 1,500 or 3,000.

Whether a selection is readable for a child or an adult depends upon how easily he can understand it. The higher the percentage of common words, the more easily he can understand it. The higher the percentage of uncommon words, the more difficult it is for him.

Different kinds of vocabulary measuring sticks have been used. For example, the number of syllables in words has been found to be an indicator of "easy" or "hard" reading. Very common words – e.g., *a, and, in, it* – have one syllable. Words used less often – e.g., *object, fallacy, overcast, sacrificial* – tend to have two or more syllables. This fact has been used in formulas to estimate readability. The lower the number of syllables per word in a selection, the easier it is to read; the higher, the more difficult.

In some formulas the number of one-syllable words in 100 words is used as an index to easy reading. In others, the number of three-syllable words is used as an index to difficulty.

Sentence Length. Studies have indicated that the number of words in a sentence is another index to readability.

In the selection on birds, cited above, there were three sentences of 6, 10 and 21 words. In the selection on algebra, there were two sentences; one with 23 words and the other with 26 words. Both selections were well-written but one was easier for a child to read; the other for an older student. The selection on birds was written in shorter sentences with more monosyllables and fewer abstract words than the selection on algebra.

Sentence Structure. Another index to the readability of a selection is the structure of the sentence. Here are some examples of well-written sentences in an encyclopedia:

> "Lizards are reptiles." (Vol. L. page 281)
> "One of our most precious minerals is coal." (Vol. C)
> "This member of the cat family [lynx] is found in the northern regions of both the New and Old World." (Vol.L, Page 355)

Each of the above is a simple sentence. But each sentence differs in the number of ideas, represented by prepositional phrases.

The first sentence takes the reader from a low level abstraction (lizards) to a higher level abstraction (reptiles). This higher level abstraction puts lizards in the same class with snakes, turtles, alligators, and crocodiles.

The second sentence takes the reader from a higher (minerals) to a lower level (coal) abstraction. In addition, another phrase is tucked in to give the reader the idea that coal is not only a mineral, but also one of our most precious materials. To get two ideas from this sentence requires more of the reader than getting one idea.

The third sentence is also a simple sentence like the first two, using the verb *to be (is, are)* to identify one thing (lynx) with a class (cat family) of things. But the reader is given much more to think about:

(1) the northern hemisphere
(2) the New World
(3) the Old World

Each of the above sentences may be classified by grammarians as simple sentences, but each varies in the number of ideas. Therefore, each sentence varies in readability. In these instances, the number of prepositional phrases gives a clue to readability. For this reason, the number of

prepositional phrases is used in some formulas for estimating readability.

The number of simple sentences in a sample of 75 sentences gives another index to readability. These sentences from an encyclopedia are examples:

> "Palms grow in tropical or subtropical climates." (Vol. P, Page 47)
> "Shutters are spring driven, and speed is regulated by adjusting the spring tension." (Vol. P, Page 222) "When an infrared ray warms it even one-millionth of a degree, the bolometer gives a clear electric signal." (Vol. IJ, Page 149)
> "Other treaties which have influenced the course of history are those which have formed alliances or leagues, such as the alliance by which France agreed to aid the United States in its war for independence in 1778." (Vol. TUV, Page 177)

The first sentence is a simple statement telling where palms grow. The second sentence gives the reader two ideas about a camera shutter. The third sentence tells about the cause-effect relationship between heat and a signal given by a sensitive thermometer, called a bolometer. The fourth sentence gives the purpose of a treaty and illustrates it. From these examples, it is clear that compound and complex sentences tend to be more heavily loaded with ideas and concepts than simple sentences are.

Interest. There is some evidence that the number of colorful words (e.g., selected adjectives and adverbs from Thorndike's list) is an index to ease of reading. This interest index is obtained by counting the number of colorful words (e.g., *agile, brown, chummy, sticky)* and determining the percentage of colorful words in the total number.

For example, here is an illustration from an encyclopedia, Vol. C, Page 137:

> The catbird is the mockingbird of the north. Like its southern relative, it mimics the other birds with many musical flourishes. Its name comes from its success in imitating the plaintive mewing of a cat. It is a bird of the thickets. One usually sees it slipping quietly through the garden hedge or the heavy shrubs of roadside and field.

In the above example, the author has made the catbird come to life, made it easy for the reader to visualize. He was presenting information of general interest, but he used analogy (*musical flourishes, plaintive mewing* of *a cat*) and takes in the reader as a companion viewer of the catbird.

Another index to interest can be obtained for some selections by counting the number of "personal words" in each 100 words. These personal words include (1) pronouns, (2) words that have masculine or feminine gender (e.g., *Mary, sister, doctor*), (3) *people* and *folks.*

Here is an example of this type of interest taken from Vol. P, Page 159:

> Here is how such needs can motivate the learning of a personality trait. Suppose a father believes that boys should be fighters and that to be a "sissy" is a disgrace. Such a father will not generally give his son affection, approval, security, or status when the boy runs from a fight or is not a leader. On the other hand, the boy is rewarded when he wins a fight, stands up for his rights, plays aggressively at football or baseball, or speaks his mind forcefully in an argument. The boy's needs are satisfied when he behaves in a certain way but they are actually made more intense when he behaves otherwise. These satisfactions, or their lack, are a powerful aid in the development of traits. If a trait continues to help satisfy needs where other children and other adults are concerned, it grows stronger and tends to dominate all behavior.

In Summary

The readability of publications has been studied by many kinds of workers-vision specialists, psychologists, educators, and lighting engineers. Much more needs to be done. For example, much more research needs to be done on how to estimate the idea and concept burden of material. Counting the percentage of uncommon words, complex and compound sentences, interest words, and the like is an indirect way of estimating the complexities of concepts.

Many readability formulas using a number of indicators have been devised. But these formulas are often misused. For example, a formula used to estimate the readability of a selection for adolescents and adults is not suitable for estimating the readability of a selection for children. A child takes less experience with language and facts to a selection than an adolescent or an adult does.

For this reason, the readability of an encyclopedia cannot be evaluated by one formula. In the first place, an adequate encyclopedia presents authentic information on a wide range of topics, varying from the elementary concepts of a *circus* to the complex concepts of Einstein's theory of relativity. Articles on these topics are written for readers who are poles apart in interest, experience, and mental maturity. It would be as ridiculous to try to measure the readability of these two articles by means of the same readability formula as it would to try to weigh both an envelope and the earth with a postal scale.

Secondly, the same readability formula cannot be used to estimate all parts of the same article on a given topic. For example, consider an article on refrigeration in an encyclopedia. It is introduced by some easy reading which a fifth-grade child can understand. Further along the author gets into concepts which would challenge a high school student. Many other articles on *color*, *moon, sound,* and so on give the inexperienced reader information he can understand before going deeper into technical data needed by an adolescent or adult.

Different parts of an article in an encyclopedia serve different purposes for different readers. Here again it would be as ridiculous to use the same measuring stick for parts of the same article as it would be to use a twelve-inch ruler to measure both a sheet of paper and a 60-acre farm.

In short, readability formulas have been devised to evaluate the readability of primary readers, upper-grade textbooks, magazines, etc. But the same formula cannot be used to measure the readability of materials written for all age levels. To try to use the same formula to do all jobs is something like trying to measure potatoes, water, and a man's height with a gallon bucket.

Readability formulas sometimes are misused in quite another way: use of short sentences, common words, simple sentences and other factors in the formula for writing. Studies have indicated that the mere shortening of sentences does not necessarily make the idea or concept easier to understand. Furthermore, the substitution of common words (e.g., *said*) for the less common but more precise words (e.g., *proved, opined*) may actually convey a hazy or erroneous idea. Shortening sentences, substituting words, and inserting "interest" words may make the article rate easier on a readability formula but they don't make it more readable.

If a person is taught to memorize the meanings of words on a vocabulary test of intelligence, he will make a better store on that test but he is not made more intelligent. In like manner, shortening the sentences and using some other writing tricks do not simplify the law of gravity.

The term *gravity is* defined in a dictionary but these condensed (abridged) ideas are not offered as substitutes for an authoritative elaboration of the concept in an article in the encyclopedia. Phrases

and short sentences are used in a dictionary, but these very condensations of meaning make the definitions less understandable, or readable. Uncommon words representing highly generalized and abstract ideas often are presented in sentences containing many modifying clauses and phrases. Even when the best craftsman tries to hew down the language used to communicate a concept, he finds himself mutilating the concept for the reader.

Expert writing of articles giving authentic information begins with a serious consideration of the concepts for a given reader. For example, an article on bees may be written for kindergarten children, a sixth-grader, a high school senior, or an apiarist. The child is satisfied to know a few simple facts about bees, but the older person or specialist wants more technical information. An expert craftsman writes to the level of his readers, selecting those concepts in which the readers may be interested and which they can understand.

Since the younger person is interested in elementary ideas, he need not be burdened with big words and long sentences. But more complex concepts usually require longer sentences and more precise use of terms.

It should be clear, then, that readability formulas can be misused. Cautious judgement and intelligence is required for selecting formulas to estimate articles or parts of articles. To make an article more readable, it is necessary to start with the evaluation of these concepts. Writing from a readability formula fools only the writer. Or, the mechanical shortening of sentences and the substitution of "easy" words for hard words may make an article fit a readability formula but it may still be outsize for the reader.

Recently parents have been asking more questions about how reading is taught in schools. They have a right to honest answers and they are getting them.

During the last forty years, more research reports, books and articles have been published on reading than on any other school subject. As a result, instructional materials and reading methods have been improved. But too often, parents have not been informed of these changes.

One of the major changes in schools is the understanding of individual differences in readiness for reading, in rate of growth on reading, and in the ways different children can learn to read. Most parents have been at least vaguely aware of differences in personality, in ages of walking and talking, and the like, but they have not been helped to understand these differences in capacity, aptitude, and achievement in reading. This fact which accounts for a major change in educational practices must be understood by parents as well as teachers.

Parents play a major role in the reading achievement of their children. For example, reading pupils tend to come from homes where reading is high on the list of recreational activities. And they tend to come from homes where appropriate reading material is available.

Parents can go a long way to help their children (1) acquire the reading habit and (2) learn to think straight about what they read. These attitudes are started in the home and fostered in the school.

Both parents and teachers are asking for more information on the readability of materials for children. Their questions call for (1) the consideration of wide differences of achievement, (2) the familiarity of the young reader with a given topic, and (3) how complex and abstract the concepts are.

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[Spelling Progress Bulletin Winter 1977 pp5–8 in the printed version]

3. Readability: Linguistic Factors, by Emmett Albert Betts, Ph.D., LL.D.*

Presented at the International Reading Assoc. 22nd Annual Convention, Miami Beach, Fla. May, 1977.
*Winter Haven, Fla.

Considerable research has been done by Miles Tinker and others on typographical factors in readability. Some studies have been made to obtain indices to semantic and pragmatic facets of readability: abstract versus concrete vocabulary (ideas), idea density, morphemics, content (concept) versus function (structure) words, figurative language. Most of the studies, however, have been focused on linguistic factors: vocabulary, form class, morphemic structure, and sentence structure. More recently, some attention has been given to the orthographic dimension of readability: phoneme-grapheme consistency, perceptual learning (category, cue, probability, alternation). Bridging linguistics and orthography are the contributions of both structural and transformational schools. Psychologists, linguists, and orthographers are continuing to expand concepts of readability at different levels of reader maturity.

Readability Formulas

In general, readability formulas are designed to sequence a series of books or to provide some index to the "ease" of reading material. Their authors are concerned with objectivity and practical application. The formulas are based on indicators of reading "ease" via an indirect approach. For example, one index to linguistic complexity is sentence length measured by syllables or by words; an index to concept burden, by the number of polysyllabic words. Combinations of these and other weighted factors provide indixes to readability. Within these limitations, the following generalizations may have some validity.

1. Readability formulas, based on language variables rather than reading behaviors, *predict* the influence of *linguistic* factors on *comprehension.*
2. Readability and comprehensibility are used often as synonyms.
3. Application of readability formulas requires attention to a specific need based on the reader's achievement level, maturity of interests, and other facets of motivation, and cognitive development.
4. Readability formulas are used (a) to predict sequence (rank ordering) of books and/or to estimate the "reader level" of a book expressed in terms of grade or age level.
5. Readability formulas, and standardized tests, do not differentiate between the instructional and independent reading levels.
6. Readability formulas do not differentiate among the reading materials that capture the motivations of (a) high achievers in reading or (b) low achievers in reading with widely differing maturities.
7. Readability formulas do not differentiate among purposes far reading: literal, critical, creative.
8. Readability formulas do not differentiate among skills and attitudes required for a given activity: skimming to locate ideas, rapid reading to know what the author says, and study-type reading leading to conclusions (related facts, cause-effect, analogy).

9. In general, readability formulas are based on different types of vocabulary studies to produce variables associated with vocabulary diversity, "difficulty," "burden," "interest," and the like.
10. Vocabulary "difficulty" has been measured in terms of lexical word lists-short lists of easy (common) words far lower levels; longer lists for higher levels. (But a short list of words embracing a high percentage of function words and irregular spellings has not been investigated in depth.)
11. Various readability formulas provide indexes to comprehensibility of materials but there are many caveats for writers. For example, short sentences and "simple" vocabularies may interfere with rather than facilitate the development of concepts.
12. Idea "density" or complexity of concepts has been estimated via number of prepositional phrases and clauses, and number and proportion of different content words (e.g., nouns and verbs), but this approach to measurement of concept burden has serious limitations. (The assumption is made that *easily accessible* facets of language structure may be indicators of concept complexity.)
13. Readability formulas tend to give some weight to *syntactic* signals (clues) to meaning and to semantic constraints (e.g., shifts of meaning, classification and indexing ideas) and pragmatic cues (e.g., behavioral effects).

Readability: Variables

For pupils in sight-saving classes, one factor in readability looms large: *legibility* as measured by size of type, type face, line length, leading, interlinear spacing, and illumination.

For students in upper-elementary grades, *high school,* and college who are lower achievers in reading, two interrelated factors in readability are highly significant: *interest* (a facet of motivation) and *linguistic* elements as indicators of concept complexity.

Beginners in reading are confronted with a dual problem: (1) decoding the geometric forms of letters, words, and punctuation into speech (perception), and (2) decoding the message at the semantic-pragmatic level (cognition). In addition, the beginner becomes aware of speech sounds and words which he uses automatically. Furthermore, he learns that the orthographic code uses the same letter to represent more than one speech sound (e.g., *c* in *city* and *candy,* or *oo* in *look* and *moon),* uses different letters to represent the same speech sound (e.g., *Go, go*; /e/ in *me, bee, seat*), and uses irregular spellings for common words (e.g., *one, you, was*).

For beginners who are naive regarding the phonemic and/ or morphophonemic bases of writing, orthographic factors may need much greater weight than for more mature readers who have mastered some of the numerous and complex rules of graphotactics. For those beginners, "easy" words, for example, may not be the commonest wards with their variability in spellings.

Variables in readability formulas range from orthographic elements through vocabulary to concepts and personal interests. Some of these variables are listed below with the names of a few investigators.

1. Concepts yield vocabulary.
    a. Complex concepts tend to be expressed via higher level abstractions. (Dolch, Flesch)
    b. The number of words within a basic word list promotes "ease',' of reading. (Washburne and Vogel, Dale)
    c. Use of common words promotes "ease" of reading. (Lively and Pressy, Washburne and Vogel)
    d. The number of "hard" words increases reading difficulty. (Gray and Leary)
    e. The number of different words increases reading difficulty. (Lewerenz)
    f. Use of polysyllabic words tends to increase reading difficulty (That is, word length influences readability.) (Lewerenz)

2. Concepts yield language structure.
    a. Length of sentence (word- or *letter-length);* sentence complexity (Large)
    b. Number of syllables per one-hundred words (Flesch, Fry)
    c. Number of prefixes and inflectional endings (Flesch) d. Number of different words (Washburne and Vogel, Gray and Leary, Flesch)
    e. Number of pronouns per one-hundred words (Gray and Leary, Coleman)
    f. Number of prepositional phrases per one-hundred words (Large, Coleman)
    g. Number of vowels per one-hundred words (Coke and Rothkopf)
    h. Number of one-syllable words (Farr *et al)*
    i. Number of words with three or more syllables (Fog)
    j. Average number of letters per word (Carver)
    k. Number of characters per space and per sentence; i.e., letters, numbers , character spaces (Edgar A. Smith, Danielson and Bryan)
    l. Words per paragraph (Morris)

3. Orthography of printed materials, a loose fit between graphemes and phonemes (segmental and suprasegmental), influences readability, especially for beginners.
    a. Spelling irregularities, especially in beginning reading materials, increase accuracy of predicting reading difficulty. (Milton Jacobson)
    b. A close correspondence between letters and sounds tends to increase reading "ease"- (Jacobson)
    c. Contractions tend to be spelling "demons" and may significantly influence reading difficulty in beginning reading materials. (Betts)
    d. Punctuation has serious limitations for indicating pitch, stress, and juncture-intonational patterns. (W. Nelson Francis)

In Conclusion

After discussing *Syntax and Readability* (IRA, 1975), John Dawkins commented: ". . we will be wise to remind ourselves that we know very little about readability." And we might add: short cuts to estimating readability via formulas have serious limitations because the individual reader is given only tangental consideration.

Although research on readability is still in its infancy, it has come a long way historically. In 1878, Javal's research on eye movements during reading paved the way for a spate of research on typographical features as factors in readability (legibility). Edward L. Thorndike's studies of reading

vocabularies (1921), Ernest Horn's study of writing vocabulary (1926), Madeline Horn's study of speaking vocabulary (1927) triggered other researches and have served multiple studies of both are opening new in readability. Readability is uses in readability formulas. Finally, structural and transformational grammar vistas for research on linguistic factors a fascinating facet of psycholinguistic research, meriting serious consideration by graduate students in different disciplines. In this respect, the future is before those who pay the price of scholarship and enlist the best efforts of producing scholars in cognate fields of endeavor.

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[Spelling Progress Bulletin Winter 1977 pp8–10 in the printed version]

4. *L I F E*, a Practical Course in Communications for International Use, by Harvie Barnard
Lojical International Fonetic English

The objective and design of this program is to present English, as it is spoken and written, in a simplified form so that anyone who can speak this language can also read and write it with a minimum of difficulty. By the use of standard Roman typography in the form of the present English alphabet, no unfamiliar or strange characters are introduced which might confuse persons already literate in traditional English.

The overall purpose of presenting English in a logical, fonetic form for widespread international use is fourfold:

1) to provide for persons of all nationalities a "Second language" in a form which is logical, simple and nearly fonetic;
2) to so ease the difficulties of learning English that it will be readily learned by everyone with a need or desire to learn English;
3) to simplify, extend, and encourage communication in the English language, and
4) to offer all English speaking people, regardless of nationality, a standardized form of spelling which is consistently related to the spoken language.

An explanatory definition of "L I F E", *Lojical International Fonetic English.* This form of English is spoken essentially as in present normal acceptable English speech, employing the pronunciations given in standard English dictionaries (Such as *Webster's New Collegiate Dictionary*). Altho spellings vary, pronunciations tend to be quite regular for most dictionaries published in the English language. Two general differences are to be noted:
1) Dialectal deviations are avoided;
2) slang and regional colloquialisms are shunned.

One basic rule of spelling is followed as closely as possible. The basic principle to be applied is based upon a regular and consistent relationship between sounds and symbols (between fonemes and grafemes). The 43 basic sounds of English are represented by 43 essential "fonograms." A fonogram is a symbol, or a combination of symbols taken from the standard Roman alfabet (a, b, c, d, etc.). Note: Presently used spellings use 70 fonograms, and these 70 are not employed in a consistent manner. In practice, these 70 symbol combinations are used to represent 112 or more sounds (including duplications) rather than just the 43 actually needed.

"L I F E", as presented here, is a standardized written form of fonetic English in which there is a dependable and consistent relationship between the spelling and pronunciation of commonly used words. (**See note 1**).

In the interest of world-wide communication and understanding, which constitutes the basis of peaceful co-existence, commerce, and cooperative society, it is believed that international literacy in a common tongue would be of in estimable usefulness to mankind. **[1]**

The fact that our "Tower of Babel" has expanded to more than a hundred written languages in addition to at least a thousand dialects, indicates the urgent need for a universally useful means of written, as well as verbal, communication. The logical question becomes, "Should a new, easily learned, reasonably simple international language be invented and taught, or is there any language presently in use which readily lends itself to adaptation?" For at least a century this charge has hung fire. The problem has been addressed, weighed, studied, researched, analyzed, considered and reconsidered.

Three thousand years or more have been required to evolve our modern languages to their present useful state. None of them are claimed to be linguistically perfect, even by those who thru years of diligent study and application have learned to employ their chosen medium more or less effectively. Several highly developed languages have evolved in diverse parts of the world. A few have flourished for hundreds and even thousands of years, only to be eventually merged with other later modes of expression or forms of speech. Such early languages were the Aramaic, Hebrew, Greek and Latin, many parts of which exist today within the structure of many modern tongues. Much of the latter-Greek and Latin constitute the principal roots of Spanish, Italian, French and English. Thus thru borrowing, blending, revising and recombining, the languages of the ancients have merged as "new" languages, all of which have common roots.

It is significant that the only ancient languages which have survived thru the centuries are those which were developed into written forms, thereby being communicated in a lasting form to succeeding generations. Yet none of these early symbols persisted without some degree of change or evolution into simpler or more convenient forms. The present English alfabet is a very obvious example of this evolutionary change, as is evident from its beginnings with alpha, beta, gamma, delta, epsilon, chi, psi, zeta, and finally becoming the familiar A, B, C, D, E, . . . X, Y, Z.

It is unlikely that any widely used modern language could lay claim to linguistic purity. Quite the reverse description could be given to our present English which is used either partially or en toto by 300 to 400 millions of both literate and semi-literate persons thruout every continent of the earth. In spite of its polyglotism, in the words of Dr. Abraham Tauber, "English would serve ideally as the world's best hope for an auxiliary language, this for many reasons according to linguists Jacob Grimm, Otto Jesperson, and Mario Pei." [3]

John I. B. McCulloch, Editor, in stating the aims of the English Speaking Union, said, "We believe that of all languages, natural or artificially constructed, which exist at present, English has the best chance of assuming such a role, and to this goal we are firmly committed." [4]

A Proposal for a Course of Study in International English*

A Practical Course in Communication for International Use Objective: To encourage and extend, by simplification and logical consistency, communication in the English language, both domestically and internationally.

Definition:* International English is *spoken* essentially as in presently used English speech, except that dialectal and slang expressions are avoided as much as possible. Precise pronunciation of 43 basic sounds (fonemes), expressed in 43 consistently related basic symbols (grafemes), is

emphasized. Essentially, international English is a standardized fonetic form of printed or written English in which there is a reliable and consistent relationship between the spelling of English words and the most acceptable pronunciation for those words. ("Most acceptable" would follow that expressed as in standard English dictionaries as the "respelled" or fonetically respelled form of the word in question, e.g., See the Merriam-Webster *Third New International, or* for a condensation, see *Webster's Seventh New Collegiate Dictionary,* Preface, pg. 5a, under "Pronunciation.") (Other 'collegiate' dictionaries should be equally acceptable.)

Symbols and Spellings:
The symbols (grafemes) used are those of the standard Roman alfabet. The significant changes employed will be in spelling, which will be essentially regularized to the extent that virtually all words will be spelled in conformity with their correct, precise pronunciation according to an agreed standard. (See note 2) In simple terms, "If you can say it, you can spell it." Therefore, clarity and accuracy of speech will be stressed, practiced and encouraged. Obviously, as in learning *any* language, speech precedes writing and reading, and is dominant over the printed form. That is:the compromises in spelling for dialectal or regional differences should not indicate an incorrect pronunciation nor fail to indicate a reasonably correct pronunciation.

Note 3: The agreed standard can be a compromise between the *NBC Handbook of Pronunciation* and the *BBC Standard Handbook of Pronunciation.*

Also it should be understood that differences between the printed word, the manuscript form, and cursive form are to be expected as in present or traditional orthography. While present differences introduce a moderate degree of confusion for the beginning student, in order to avoid further confusion in translitteration between traditional and International English, no effort will be made to bring present modes of script, cursive writing or standard print into closer agreement than it is at the present.

General Outline for Course in International English

Description of Courses
Objective:
Definition and Text material:
Symbols and Spellings used:

Introduction and Foreword.
Need for better international communication and literacy
Discussion: Methods and Materials needed to achieve literacy
Present language situation – a tower of Babel – many dialects and languages
Origins of present languages: Roots of English, Spanish, French, Italian
What language best suited for world-wide implementation, or a new language?

A Survey of presently used modern languages:
Table of present usage
Considerations in choosing an international language:
An outline of 6 basic factors (Sir James Pitman, ***SPB*, Spring 1977**, Item 2)
Analysis of 6 modern languages with references to the usage table and related factors:

International radio broadcasting
Communication between ships and aircraft
World-wide communication of all kinds for all emergencies

Reasons for and logic upon which International English is based:
General literature, historical and present
Technical materials: Science (Physics, Chemistry, Engineering, Mechanical, Electronic, Biological, Medical,etc) Commerce (Manufacturing, Agriculture, etc.)
Professional publications: All sciences and industries
Educational publications: Schools and private
Business publications: Trade journals and related pub.
Governmental pub.: Reports, Bulletins, Dept'l and Commission reports for all departments of gov't.
Legal and Justice: Dep't. reports aside from annual and similar periodic issues
Patent Office and Trademark journals and bulletins
General monthly, weekly, and daily publications for all types of services: advertizing, promotions, etc. Corporate reports of all kinds: Annual, quarterly, and others; the total "Media" for public and private info.
Recognition of the *sum-total of printed material in the English language;*
Compare with the sum-total of printed information in any other and in all other languages combined, including fiction and non-fiction
Consideration of the factors of:
1) TIME,
2) Volume of material in relation to time,
3) Typographical and reproduction equipment and costs.

Consideration of other factors besides Time, Costs, and Equipment capability:
Psychological: Human capacity for learning and comprehension, including requirements concerning:
1) Training of instructors,
2) development of student concern and motivation,
3) facilities for instruction (schools)
Governmental and political: Development of governmental and political cooperation
Probable need for legislation and/or fedral aid
Academic problems: Need to persuade academic administrators that:
1) Present languages will not be abandoned
2) An international language will be useful
3) International English will not be too difficult a) to teach, b) to learn
Industrial and Economic: Necessity of convincing industry of the economic advantages of improved international communication for business expansion and profit, as:
1) further expansion of the typographical and printing industries
2) development of educational materials: texts and related academic and teaching aids
3) development and production of new audio-visual materials in the revised and simplified forms
4) training of personnel in all aspects of the new and simplified form of English for international use

Recognition of the tremendous possibilities for conservation of

TIME required for teaching and learning one language instead of two or even three languages besides the native tongue;

MATERIALS conserved in printing international materials for general world-wide uses-such as in programs, plans, designs, detailed instructions for projects having world-wide application in aviation, shipping, commerce, science, government, and the arts (including broadcasting, T.V., and other amusements);

ENERGY conserved in printing and distribution of these materials;

COST savings due to unification of several means (tongues) of communication into one universal, worldwide system with savings in time and materials needed to learn and utilize only one second language.

Recognition of the overall advantages of a logical, consistent spelling and a dependable relationship between pronunciation and spelling of virtually all words in International English.

Practice in the use of the basic 43 symbols (letter combinations-fonograms) used in relation to their correct sounds (fonemes) for all spellings, thereby reinforcing the learning of symbols with correct speech and proper symbols for standard speech.

Stabilization of pronunciation and the gradual elimination of dialectal variations by the use of a reliable fonetic spelling.

Conclusion and suggestion for continuance and future action:

The preceding outline is only the essential skeleton for a course of study for introducing L I F E and suggesting a plan for implementing its teaching.

By developing and conducting such a program of studies in our colleges and universities, four major developments of great value may be achieved:

1) A rational, practical and more useful English orthografy would be initiated which would greatly encourage the use and understanding of English thruout the world;
2) With L I F E as a beginning, a gradual departure from the archaic Johnsonian dictionary of 1755, (as the bible for all English spelling), can be achieved thruout all English speaking nations;
3) With a logical, simplified English orthografy available for international use, we would have the realistic means for general world-wide communication;
4) The establishment of a logical international fonetic English program would provide a sound foundation for improved international relationships as well as a practical basis for better understanding, friendship, and progress toward a more peaceable world.

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2. Tauber, Abraham, "Simplified English Spelling for International Usage," *English Around the World,* No. 14, May, 1976, and No. 16, May, 1977.
3. Tauber, Abraham, *Ibid.*
4. McCulloch, John I. B., Editor, *English Around the World,* No. 14, May, 1976.

Note 1: There will be some exceptions, depending upon which would be the least controversial and better retained unchanged in order to bridge the gap between existing spelling and the new, more nearly fonetic spelling.

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[Spelling Progress Bulletin Fall 1977 pp11–14 in the printed version]

5. The Italian "a" Controversy, by Helen Bonnema Bisgard*

*Denver. Co.

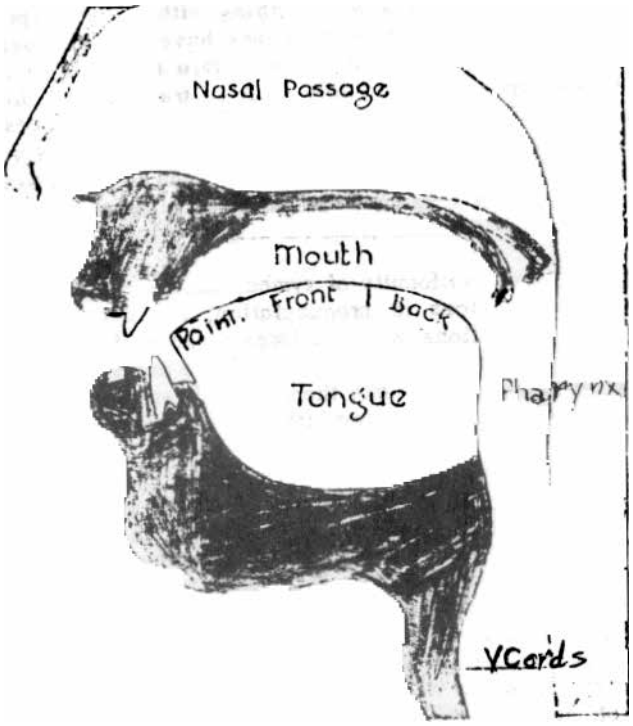
In General American speech, the *o* in *bother is* pronounced like *a* in *father.* The *o* in *doll* also is like *a* in *father* when spoken by some people, but like *aw* in *shawl* when spoken by others. The first vowel in *almond* generally sounds like *a* in *father* except in the speech of New Englanders and California nut growers, where the *alm* is sounded like the word *am.* Which of the variant pronunciations shall be represented in a reformed spelling? After the preferred pronunciation is agreed upon, shall it be symbolized by *a, o,* or by some other character?

The answers will depend upon the purpose for which a new orthography is to be used. If the system is designed for voice-activated typewriters, it will be different from one intended as an initial learning medium for pupils who are to master traditional orthography later.

The Speech Sounds in Question

In order to show some of the problems facing orthographers, their differing specifications are applied to one small segment of speech sounds: [a] and its contiguous phones as set forth in the International Phonetic Alphabet (IPA). The IPA diagram shows tongue positions for articulating these vowels:

Location of I. P.A. Sounds



[ɔ] *fall* higher low-back round

([ɒ] *hot* low-back round)

([ɑ] *calm* low-back)
[a] *ask* (New England) low central advanced

Disregarding the 46 other English speech sounds included in the complete IPA charts this discussion will concentrate upon only four: [a], [ɑ], [ɒ], and [ɔ] to show how they might be represented in orthographies designed for two different purposes: computer use, and initial learning.

Phonemic vs. Phonetic Writing

Reference is made herein to the IPA symbolization because it offers an established basis for understanding the vowels under consideration. (Wherever IPA symbols are used they are enclosed in brackets [ ]). In itself, the IPA is not a spelling reform system. It is phonetic, whereas all practical orthographies for any language are phonemic; that is, if a reader sees a word, he can understand the meaning without knowing its exact pronunciation in the writer's ideolect. He need not know whether the phonetic pronunciation by the writer of *mask* is [mæsk], [mask], [mask], or [mɒsk]. However, these phonetic differences might be significant if the reader is an actor who wishes to imitate the dialect or ideolect of a specific character, but they are not heeded by the general reader. The latter notices merely those phonemes which change the meaning of *mask,* such as the substitution of /b, c, t/, for /m/: *bask, cask, task,* of /u/ for /a/: *musk,* /sh/ for /sk/: *mash.*

Vacillation of Vowels

Speakers of English thruout the world, regardless of their own dialect, are able to detect phonemic differences between words, the most significant of which are the consonants /p, b, t, d, k, g, f, v, s, z, h, m, n, 1, w, r/ and the seven or so consonant digraphs /ch, th, wh, ng, zh, sh, nk/ which represent recognized unit consonantal sounds. (In this paper symbols used in the World English Spelling initial learning version are enclosed in slashes / /). Consonants are enunciated practically the same everywhere because speakers of any nation control their breath channel to produce a phonemically similar result regardless of slight phonetic differences in "accent."

Vowel gradations produced by the tongue muscles are not of the same phonemic importance as consonants. One man's /baum/ means the same as another man's /bom/; /waush/ has the same meaning as /wosh/.

The relative significance of consonants and vowels in denoting meaning may be illustrated by omitting vowels in a paragraph. The message will be comprehensible to a person who speaks the language. He can recognize the following sentences which explain the purposes of the United Nations.

F-rst -bj-ct-v- -s th- m--nt-nc- -f -nt-rn-l p--c- -nd s-c-r-t-, th- d-v-l-pm-nt -f fr-ndl- r-l-t--ns -m-ng n-t--ns, b-s-d -n th- pr-nc-pl- -f -q--l r-ghts -nd s-lf d-t-rm-nt-n -f p--pl-s.

If the consonants were removed, no meaning would remain:
-i--- o--e--i-e i- --e -ai--e-a-e o- i--e--a-io-a- -ea-e a-

This is not to imply that the experienced and efficient reader of any orthographic system concentrates on individual letters or separate words. Rather, he takes in whole phrases at a glance.

He depends upon context to comprehend the meaning of a passage. In fact, he would not be inconvenienced if a blank were substituted for every tenth word. It must be admitted that for his *reading* activities the inconsistencies of English spelling are not a great barrier. It is when he *writes* that he is thwarted and frustrated, for even tho he may have had 12, 16, or 19 years of schooling, he still finds it necessary to consult a dictionary to ascertain the accepted spelling of many words.

Computer's Influence on Spelling Reform

The *Wall Street Journal* of April 13, 1977 describes voice-recognition machines being marketed by half a dozen companies. One type is used at the United Parcel Service in Baldwin Park, California. A person at the arrival dock unloads a package onto a conveyor belt and utters a coded destination into his wireless headset. This spoken code becomes a command and the computer channels each parcel to the correct outgoing truck area. A similar machine is being used at the Chicago Mercantile Exchange where an employee calls out prices on trades as they are being completed on the floor. The computer which "hears" him instantly flashes the prices on the screen.

Voice-system technologists see the future application of their product to the typewriting of spoken messages. An executive will dictate to a computer which will type his message. The machine will write one symbol for each of the approximately 44 speech sounds or phones it hears. For a few years this computer system of spelling is likely to be limited to only a few industries. But as its efficiency is welcomed by an increasing number of organizations, more and more employees will be taught to read it. High school secretarial classes and commercial schools will require their graduates to read it. Television broadcasters and periodical publishers will spread its popularity thru their commercials. Because of its efficiency, no one will stop to consider that the new code is gradually supplanting Traditional Orthography (T.O.). People will get used to the idea of using the new streamlined code as a speedy supplement to T.O. for certain tasks. They will not think of it as a replacement. As with anything which becomes familiar, the users will become attached to the system. As they read it with increasing rapidity, they will assign inherent meaning to its forms and insist that the spelling is also attractive.

The machine code will be understood in all English speaking countries thruout the world because it is based on spoken English. To accomodate the diversities in pronunciation, the machine will likely be directed to respond with only one symbol for the four IPA sounds [a, ɑ, ɒ, and ɔ].

The one-symbol solution to variant pronunciations of the *ah* related vowels is one which Leo Davis and other orthagraphers support as most practical. They realize that altho a few new homographs would be formed, e.g. *cot, caught; knotty, naughty;* this is not a cause for confusion in a language in which the majority of words are already homonyms. (See table accompanying "Just for the Pun of it", *Spelling Progress Bulletin,* Winter, 1973, p. 5.) Of the 70,000 entries in *Webster's Seventh New Collegiate Dictionary,* at least 40,000 have three or more distinct meanings each (thus are triple homonyms).

Elementary schools will find the computer code helpful in showing young children what it means to read. Within the next fifty years, primers will be written in computer spelling. The pupil will be able to quickly figure out the sound of any word in his lessons. He will not spend the endless hours his parents did in *learning to read* but instead can use that time in *reading to learn* about the many

aspects of the subjects he will need to know to become educated: science, literature, mathematics, health, and other subjects now delayed until fourth grade or junior high. Because the frustrating inconsistencies of the traditional spelling system have been eliminated, the child will experience less psychological stress and have less need for remedial assistance. His creative writing will be colorfully descriptive thru the use of polysyllabic words.

Words as spoken by whom? By whose standard of pronunciation shall the computer spelling be established?

By the same standard now used by a dictionary when it indicates the generally accepted pronunciation. For example, Random House now shows *watch* as (woch). The pronunciation in parenthesis is a broad transcription and does not represent regional or individual practice. If, perchance, a person says /wauch/, he will assign his own sound to the dictionary's /o/. Today travelers find English spoken comprehensibly by native people everywhere, whether in Asia, Europe, Africa, Iceland, Texas, or the Bronx. *Voice of America* broadcasts are understood thruout the world. The speakers use the *Special English Word Book* published by the United States Information Agency. Already there is a "world accent." As Emmett Betts explains, "great pains are taken to coach 'stars' and leading speakers in order that their speech may be recorded in an acceptable world accent. Moreover rejection is strongly at work on those whose speech is not generally acceptable."

The computer code will undoubtedly use the Roman alphabet now in use not only for English but also for most European and many Asian languages. Since its aim will be phonemic rather than phonetic writing, it will require only one symbol for the "Italian a" vowel and its companions. Upon hearing the word *hod,* the machine will write /hod/ – also for *had* and *hawed.* Its response to the sounds in *wad* will be /wod/. Similarly *knowledge* will be /nolej/, *ensemble* will be /onsombl/ and *lingerie,* /lonzheri/.

Code for Initial Learning

Since it is not likely that the benefits of voice-activated typewriters will be felt for a number of years, it seems only fair that something be done in the meantime to ease the burden placed upon young children when learning to read the difficult traditional orthography (T.O.). They can be started with an orthography such as World English Spelling enabling children to read about anything within their understanding and to write about anything within their experience. After a year or two when they have become fluent, confident, happy, and well adjusted thru their use of the WES code, they will gradually shift to traditional orthography. In order that the transition to T.O. may be successful, it will not be feasible to have perfect consistency within the initial system. Certain concessions to T.O. would seem wise. To illustrate the nature of allowances made, Godfrey Dewey's instructions for writing the *ah* sounds are given:

> "To maintain uniformity of symbolization in the face of regional differences in pronunciation, the code should maintain distinctions which a large number of cultivated speakers do make, even tho another large number of cultivated speakers do not make them, e.g.: Distinguishing the vowel of father and calm /*aa*/ from the vowel of *bother* and *comma*, /o/, as in most British pronunciation altho general American pronunciation does not make this distinction. This has

the added advantage that it follows quite closely the T.O. spellings. Uniformity in symbolizing lesser divergencies will be greatly facilitated by the tendency of each region to attach its own values to the symbols." *(English Spelling: Roadblock to Reading*, Teachers College Press, New York, p. 58).

"In general be guided by whether T.O. has *a* or *o*." *alms, father, ah* in WES are written /aamz, faather, aa/; *on, not, bother* in WES are /on, not, bother/. (*World English Spelling Dictionary*, Simpler Spelling Association, Lake Placid Club, N. Y., p. 18.)

If the initial learning medium were to become a permanent system of reform, the advantages in following Dewey's rule for being guided by T.O.'s use of /a/ or /o/ would be in persuading the general public to accept the new code.

Many new spelling systems have been devised. They differ according to their purposes. The preceding examples showing how a computer system, and an initial learning system might handle the "Italian a" and its neighboring vowels illustrate some of the considerations involved in the choice of symbols not only for these, but for each of the forty or more speech sounds.

Possible homographs in Computer Spelling which can be distinguished by their different meaning or by syntax:

ah (interjection)	awe (noun)	mal, mol	maul
odd	awed, aud	mockin'	mawkin, malkin
on (preposition)	awn (n)	mod. (abrev.)	maud
otto	auto	moll	maul
ox	auks	not, knot	naught
balm	bomb	knotty	naughty
body	baudy	otter	ought'er
box	baux (ore)	pa (n)	paw (n & v)
chock (adj.)	chalk (n)	'pon	pawn
cock (n&v)	caulk (n & v)	poll (abrev.)	pawl
cot	caught	pond	pawned
don	dawn	popper	pauper
dotter	daughter	rah	raw
fond	fawned	rot	wrought
hod	hawed	stock (n & v)	stalk (n & v)
hah (interjection)	haw (v)	tot (n)	taught (v)
hock	hawk	tock	talk
la (n)	lau, law (n)	yon (adj.)	yawn (n & v)
ma	maw		

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[Spelling Progress Bulletin Fall 1977 pp13,14 in the printed version]

6. In Defense of Continental Sound Values for English Vowel Letters, by John E. Chappell, Jr.

Most of us who urge spelling reform do so largely in order to consolidate the position of English as the world's premier international language. Tho it already holds this position, it might some day lose it simply because of its difficult spelling, which constantly irritates and discourages foreign learners, as well as many native users.

For motives utterly unconnected with hopes for political and economic domination (the U.S., at least, would be better off with lesser ambitions in these areas), I believe it would be good if English were to continue as the primary *lingua franca* of the world. It is already the only language which virtually girdles the globe in terms of both primary and secondary speakers, and its literature, both humanistic and scientific, is unexcelled in quantity and quality (tho the newsstands have obviously lowered today's average quality considerably). It is practical and feasible to keep using it for international communication. Its relative lack of case and verb endings, and long complex words (as in German) makes it easy to use, and gives it an advantage over such a competitor as Spanish, which in terms of ease of pronunciation and spelling clearly excels English – as well as other competitors such as French, Russian, Chinese, and Arabic. English cannot feasibly drop its "th" or other sounds that prove difficult for most foreigners; but it can at least rationalize its spelling system, which would greatly improve its advantages as an international language.

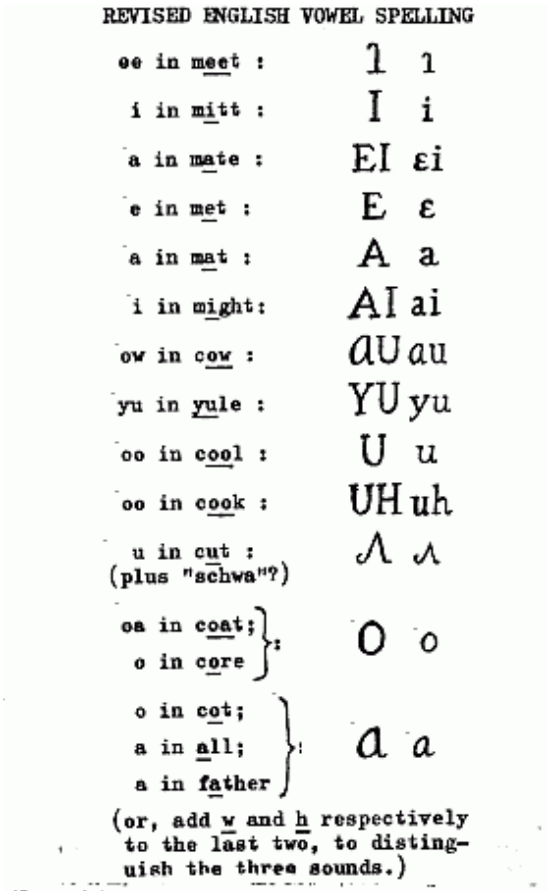
What I recommend in this article, primarily, is not to reform English spelling in such a way as to continue to hamper its being learned and used by foreigners. It would surely diminish the world-language advantages of an English spelling reform if we adopted a new and internally logical system which did not, in turn, fit with the systems of other languages already using Roman alphabets. The potential conflict, of course, is found chiefly in the vowel symbols, whose pronunciations already depart rather widely, in their most common English usage, from those in continental European languages. Nearly every other language using 'e' pronounces it like the 'e' in 'mesa' – that is, like we say the letter 'a' when reciting the alphabet; or like our short 'e' in 'met.' Our long 'e' sound, the one in double-e in 'meet,' is usually symbolized on the continent by `i'; and our `i' (as in 'might') is for foreigners a diphthong, spelled by a digraph such as 'ai.' The letters 'a', 'e,' and 'i' provide the chief differences; differences regarding 'o' and 'u' are relatively minor.

Now, we *could* avoid trouble if we went to a fully phonetic alphabet using one symbol for every sound. This would give us something like 40 letters (about 38 to 43, allowing for differences of interpretation as to just how many individual phonemes there are in English) – about 12 to 16 of them being vowels. For 'a', we could use the italic form '*a*', and perhaps still another letter as well as the usual Roman symbol, a, to cover the commonest pronunciations of the one symbol now used: a total of three symbols instead of one. The continental value, like the 'a' in 'father,' could be covered by either the Roman or the italic symbol, and either would be familiar to European users of English. The remaining one of these two familiar symbols could be used for, let us say, the 'a' in 'mat.' A third symbol, designed to be not greatly different from the other two (perhaps 'a'), could be used for our diphthong-like 'a' in 'māte.'

It would be next to impossible to achieve the same result if we stayed within our current 26 symbols, which would yield at most 3 extra symbols, such as 'c', 'q', and 'x', to be reassigned to vowels. Such reassignments would be a source of additional confusion to all users, and thereby unwise, I think. Better would be a compromise with the longer alphabet: adopting 4 to 6 new symbols, mainly for vowels, and letting a few individual phonemes (for example, 'th,' 'dh,' 'ng') still be covered by digraphs. This would enable us to achieve most of the same advantages for vowel sounds as in the longer alphabet, as discussed above. (See my article "The Role of Superflous Letters in Minimal Spelling Reform Systems," *Spelling Progress Bulletin, v.* 5, no. 1, Spring, 1965, pp. 11-12.)

Actually I would recommend going even further towards continental vowel values: e.g., in bluntly re-assigning our phoneme 'long a' (as in 'mate') to the letter 'e,' without trying to fool around with a symbol reminiscent of 'a.' Enough vowels would remain to give plenty of work for 3 or 4 extra symbols anyway.

And we must be careful not to add too many symbols; keeping the symbol load within the capabilities of existing typewriters and typesetting machines is an important practical consideration in any system of reform which one realistically may hope to put into effect. I believe that adopting the full system of continental vowel values would minimize the number of new symbols needed; for example, if we insist on a symbol looking like 'a' for the long 'a' in 'mate; and adopt 'a' for this, we will still need to use another letter for the short 'e' in 'met.' Letting 'e'-type symbols cover our current 'long a' sound, as the continental Europeans do, will require only one symbol instead of two; this symbol, that for short 'e', can be combined with short 'i' or 'y' (as it is phonetically) to create 'long a': e.g., 'ey' or 'εi', (More space could be saved by having separate symbols for all these sounds, including the diphthongs, but I am assuming there are too many practical problems with typewriters, etc. to go to a 40-letter scheme, and that about 10% of current space can be saved with a 30- to 32-letter alphabet anyway.)



(Some of these are close to octhe same as the International Phonetic Association symbols for those sounds: ai, ɪ, ɛ, ɑ, u, ʌ, au.

Developing a script for the new symbols might be solved as follows:

ɪ ɪ = 𝓁 𝓁; A a = 𝒜 𝒶; ʌ ʌ = 𝓊 𝓊.

The symbol ɛ (ℓ) might be replaced by ℰ(ℰ), already its variant in some type faces, so as to minimize confusion with the new small script letters ℓ (ee) and ℴ (a in *at*), as well as with *c* and *o*, as already happens sometimes. Possibly, however, ℰ would be confused less than ℰ, with the new letter ℓ. At any rate, considerable thought should be given to scripts, in any system of spelling reform involving new letters, so as to minimize time of writing and to avoid confusion between symbols. (Further reforms might involve eliminating the dots from 'i' and 'j' and the cross from 't', or perhaps by writing it 𝓉; eliminating the confusion between the numeral 'one' (1) and the small 'l' (l), and between the numeral 'zero' (0) and the letter 'O', etc.)

Skeptics may complain, of course, that native users cannot adapt to a "strange" system like this. They may not be able to, if indeed it were *totally* new to them. But for two reasons it is not. First, the multiplicity of vowel values already recognized in English *includes* the entire continental vowel value system, mainly from words anglicized from continental languages, but

not thereby any less familiar than words of Anglo-Saxon derivation (and these too match the continental system in at least a few cases). We are so flexible already that we need not learn entirely new associations between sounds and symbols, but instead merely concentrate on already-known minority usages: the 'a' in 'father,' the 'e' in 'mesa' and 'they,' and the 'i' in 'machine' and 'kiwi.' We could easily enough add a 'y' when we want to say 'yule' and then drop it for the vowel in 'cool' (probably to be spelled 'kul'); then an 'h' could be added for the vowel in 'cook' ('kuhk'). As for 'o', the shorter 'o' sound in most continental languages, than in English 'long o', is a minor difference perhaps not worth reflecting in our spelling.

Second, despite their cultural isolation, a goodly minority of Americans (and even more Britishers) already know something of continental European languages. Spanish, as used mainly by those of Mexican and Puerto Rican descent, is coming to be spoken more and more widely in nearly all sections of the U.S., as the flow of immigrants from south of the border seems to exceed the rate of cultural assimilation of previous immigrants from this region. Radio programs, signs in supermarkets and in government offices, etc. in Spanish have proliferated greatly in the last 10 or 15 years, even in areas such as New England which previously were far from any large Spanish-speaking populations. My own youth was spent mostly in Southern Calif., where commonly-used Spanish place names alone, without real knowledge of Spanish, were enough to teach continental vowel values to nearly every English-speaking resident (I lived in the city of Montebello, in the district of Bella Vista, near a street named Via San Delaro, and of course in Los Angeles county – words which, despite some degree of anglization, retain several continental vowel sounds). Beyond this, French, German, and Russian, the most common languages for scholars, all employ continental vowel sound-symbol associations, which thus become familiar to most students in universities, moreso than if they knew only English.

Therefore I believe that we do have the *ability* and the *willingness* to make the kind of change that it would be *wisest* to make on logical and diplomatic grounds. If the mood for reform exists, then some degree of ambition to do new things is by definition there. We may have a hard time imagining this now, in a very conservative, even reactionary, period of the nation's mental outlook; but I believe it will prove so: that 5 new letters and the adoption of a new (but already known and slightly used) system of vowel-symbol associations can be accomplished easily enough. Also let us not forget that any spelling reform will benefit chiefly our children, not us; and their minds are more flexible than ours – able to go further from present patterns without strain.

I don't want to suggest a complete system of spelling reform in this article, or to be rigid and dogmatic about my suggestions for the spelling of vowels. We need a degree of flexibility, it seems to me, right up to the time of the final decision on a new spelling reform system. I suggest, therefore, the following *tentative* system of spelling English vowels employing 3 new letters, one of them the familiar italic 'a'; in addition to the 5 (plus 'y') already in use. (I recommend both capital and lower case letters continue to be used.)

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These are just suggestions. The same principles might be put into practice in another way; at perhaps modifications in the principles are in order. What are your suggestions?

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[Spelling Reform Anthology §15.4 p216 in the printed version]
[Spelling Progress Bulletin Fall 1977 p15 in the printed version]

7. A Saen Balans Between Tradishun and Lojik, by Edward Rondthaler*

**Co-inventor of the first photolettering machine in the early 1930s, Edward Rondthaler is chairman of the board of International Typeface Corp. He lives in Croton-on-Hudson, N.Y.*
*Reprinted from *Los Angeles Times,* Aug. 12, 1977.

In America, those of us who can read and write English have built a society that depends on widespred literacy. We offer broad educational opportunities to all – to all, that is, who can read and write. Those who cannot are left out. We've provided no role for illiterates and have done nothing to make reading and writing simple.

What's basically wrong is this: English words are made up of 43 different sounds, but we have only 26 letters. If we had used certain letters in regular pairs to represent the additional 17 sounds, reading and writing would be easy. But we haphazardly spell our sounds in several hundred different ways – it's all very iffy. Juggling the different spellings and struggling to learn which one goes with which sound in which word makes spelling much more difficult than it should be.

In spite of this, most American adults can read and write – but 20 million cannot. Their frustrations show up in greater-than-average inclination to throw sand into society's gears. They're not the docile illiterates of yesterday. Unable to master our prerequisite to education, deprived of a significant role in society, many first become dropouts, then juvenile delinquents and ultimately full-fledged criminals. The alternative fate awaiting them: constant unemployment and poverty.

Commenting on a report that more than half of U.S. prison inmates lack functional literacy, Chief Justice Warren E. Burger called the number staggering, and added. "The figures on literacy alone are enough to make one wish that every sentence imposed could include a provision that would grant release when the prisoner had learned to read and write."

How can we get out of this pickle? We can go straight to the root of the problem and develop a painless way to make our spelling *reliably phonetic*, as it is in other Western languages. With 25% of our schoolchildren – the rising generation – facing life with serious reading and writing deficiencies, it's time for a frontal attack on what is, without doubt, the major barrier to education for all: erratic English spelling.

Simplifying our spelling has been a scholarly pastime, for centuries – a sort of parlor game not taken too seriously (except by a few cranks like Bernard Shaw and Bertie McCormick) because even the stupidity of our traditional spelling is no more absurd than hoping that hundreds of millions who read and write English will go back to school and learn to spell all over agen. But, thanks to recent typographical developments, we can simplify our reading matter *first* – before we change our writing habits.

Impossible? Consider this:

Typesetting methods are currently undergoing their greatest change in 500 years. This revolution is shaking the printing industry from top to bottom. Typesetting is turning itself inside out as it changes from a three-dimensional mechanical process to a two-dimensional photocomputerized process. Most of the printing you read today is a product of this revolution, this newspaper included. No layman looking at the printed page can notice a difference, but what goes on behind the scenes is another matter.

Today's new typesetter taps out words on a computer-compatible keyboard linked by magnetic or punched tape to a computerized phototypesetting machine. As the computer receives words from this tape, it combines them with coded signals that control the typesetting mechanism.

Now comes the connection with spelling reform: If the computer were a little larger, it could easily be programmed to accept traditionally spelled words from the tape, instantly simplify the spelling and combine the newly spelled words with the typesetting signals. Thus a keyboard operator would continue to spell traditionally, but the final product would be simplified – automatically.

There's nothing novel about this concept except its application: For years computers have unscrambled coded messages of far greater complexity. What's new is that the typesetting revolution makes it possible for computers to take over the hitherto impossible job of simplifying the spelling of English, and to do so as a routine – automatically, accurately, uncomplainingly.

So, without eny adult being urged to change his writing habits, without eny reschooling of authors, editors, copywriters, reporters or typesetters, we have arrived at the point where printed English can be simplified with just the flip of a switch.

We could make this charge in one big leap, but computerized typesetting lends itself equally well to a more comfortable step-by-step shift. Step 1 would be to spell with an "e" all words that have the clear "short-e" vowel sound: *eny*, *hed, frend, sed, redy, heven, brekfast*, and so on.

Throughout this article this first step is being demonstrated – and you can judge for yourself how painless it is. (As an adult, you need never change your own spelling unless, of course, you choose to follow some of the simplifications that show up in print. Computers will do the hard work – they will spearhed the change. You follow along if and when you want to.)

Step 2 might use "f" to replace "ph," or "k" for "ch" in words like *kemistry* and *skool.* There would be 50 or more steps taken gradually over as long a time as required. Unlike adopting the metric system, spelling reform could be ended at eny point – and leave us with a better spelling system than before.

If we jump ahed to the fiftyeth step, az printed heer, it mae seem a bit aukward and perhaps a litl dificult to reed, but it must be remembered that this step wil not cum until yeerz after th furst step haz bin taeken, and bi that tiem our reeding habits wil hav had ampl oportuenity to ajust to a lojical patern ov speling – simplified sound-speling.

The means for carrying out experiments, with this 26-letter "Soundspel" system are at hand. A computer at New Jersey's Ocean County College in Toms River is now programmed with 44,000 most-used English words paired in traditional and simplified spellings for automatic transliteration.

Serious attention to reform is growing as more and more of us realize its social implications at home, and its importance to the spred of English abroad as an international "second language." Thus an urgent need arises for those willing to accept even a small measure of reform to speak up for it, to talk about it, to build public awareness in the same way that environmentalists hammered home the air- and water-pollution story. Only when voters demand it will Congress require manufacturers to build typesetting machines that produce rational spelling – just as auto makers are required to build pollution -free exhausts.

This is a crusade that must be pressed. It iz th furst step tord spelling reform.

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[Spelling Reform Anthology §15.5 pp216–220 in the printed versionv]
[Spelling Progress Bulletin Fall 1977 pp15–19 in the printed version]

8. LIGHT AT THE END OF THE TUNNEL, by Edward Rondthaler

TINKERING with English spelling – simplifying it to make it easier – has been a scholarly pastime for centuries: a sort of parlor game not taken too seriously by anybody because even the stupidity of our traditional spelling is no more absurd than expecting the hundreds of millions who now read and write English to go back to school and learn how to spell all over again – or hoping that children with a brief exposure to phonetics will some day rise up en masse and demand spelling reform.

Such hopes, such utopian dreams do not square with the facts. Our human nature is not easily changed – even for so worthy a cause as better spelling. The big writing reform in Turkey fifty years ago did not spring from public demand. It came as a dictatorial decree rammed down the throats of millions. Where, in an English speaking democracy, will you find a leader powerful enough to issue such an unpopular edict, and make it stick?

Dr. Godfrey Dewey calls our erratic spelling the Roadblock to Reading. Let's put it more bluntly: the real roadblock to reading is the impossibility of persuading millions to change their writing habits. Were it not for this we'd have had spelling reform long long ago.

No amount of wishful thinking will push this roadblock aside, but thanks to recent typographical developments we can detour around it and simplify our reading matter *before* we change our writing habits!

Impossible? Consider this:

Traditional typesetting methods are undergoing their greatest change in 500 years. It is a revolution of giant proportions, shaking the printing industry from top to bottom. Typesetting is now turning itself inside out as it changes from a 3-dimensional mechanical process to a 2-dimensional photo-computerized process. Most of the printed matter you read today is a product of this revolution. No layman casually looking at the printed page can see any difference; but what goes on behind the scene is quite another matter.

Today's newly trained typesetter taps out words on a computer-compatible keyboard connected by punched or magnetic tape to a computerized photo-typesetting machine. As the computer receives words from the tape it digests them, relates them to pre-coded technical instructions, and sends amended signals to the photo-composing mechanism telling it what words to set and precisely how to set them. If, for example, the operator taps out the letters a-n-y, the computer will signal the composing machine to set a-n-y in a specific type style, size, width and spacing. It will also precalculate the justification, quadding, centering or indentation, and when a full word fails to fit on the end of a line it checks back into memory and finds out where the word should be divided! This sleight of hand takes place at astronomical speeds.

Now comes the key that unlocks the door to spelling reform. If the machine's computer were a little larger it could do even more. It could receive words in traditional spelling, simplify the spelling automatically, and pass them along for typesetting in the new simplified form! There is nothing

particularly novel about this concept except its application: for years computers have been unscrambling secret coded messages of far greater complexity. What is new is that the typesetting revolution makes it possible for computers to take over the hitherto impossible job of simplifying the spelling of printed English – to do it as a routine – automatically, consistently and uncomplainingly. Every time a keyboard operator taps out the letters a-n-y the computer will send out the signal e-n-y – or even e-n-i, depending on the system of simplification finally agreed upon.

And so, without any change in our writing habits, without any re-schooling of authors, editor, copywriters, reporters, or typesetters, we are on the threshold of being able to simplify the spelling of printed English with an instant flip of the switch. If spelling reform is ever achieved, automatic transliteration will spearhead the change. Indeed from this day forward we should look to the computers of the typesetting industry to solve a problem for humanity that will never be solved otherwise.

Computerized transliteration lends itself equally well to an instant change, or to a gradual "step-by-step" shift as currently proposed by Harry Lindgren of Australia. With automatic transliteration leading the way, the "50 steps of change" that Mr. Lindgren suggests could probably be covered in far less time than the fifty years he foresees. Fifty steps in 50 or 100 months might be a better estimate. If after taking a few of these steps we found it advisable to go no further we could end reform at that point and be considerably better off than we were before. Which, incidentally, is one of the reasons why spelling reform is less of an all-or-nothing commitment than the change to Metric.

But what about personal or business letters and handwritten notes that never get into print? What about Aunt Sophia, and Grandmother, and Uncle Amos? What about all the retraining? Lose no sleep over such matters. When computers lead the way the rest of us can follow at our own pace – if we want to. Many of us will pick up the new spelling from the printed page. If it makes sense we'll adopt it, as fast or as slowly as we wish. Others will continue to write traditionally. No matter. We need no drive for converts. No one should ever be urged to update his spelling. Those who from childhood have spelled traditionally will always be able to read both ways and to write traditionally – until our quaint orthography dies a natural death. That's how it's been in Holland, Germany, Norway, Denmark, Russia, France, Turkey, Korea and other countries where improvements in spelling have taken place.

So much for spelling and writing. How about reading? Readers cannot be computerized.

Here we come face-to-face with long established habits, and we may meet big resistance. We won't know how much until we try, but since we can end the reform steps at any point we have nothing to lose by making a start. To minimize reading resistance we must do everything possible to make reformed reading easy. The changeover must be so gradual, so inconspicuous, so natural, so logical and sensible, so comfortable for the reader, and introduced so subtly that he is hardly aware of being wooed away from his childhood spelling. And this is precisely where computers rise to the occasion. They can slowly but surely feed new spellings into the mainstream of printed matter, feeding them in so gently that the man-in-the-street should have little reason to be upset. He should be given every chance to adjust comfortably. Month by month we will monitor public acceptance through a series of opinion polls, enabling us to introduce each new step from coast to coast or worldwide with the very best of timing.

There is, of course, a good chance that acceptance will come much faster than we anticipate. Graphic change is now quite commonplace. You can test this for yourself by comparing typical posters, magazines and advertising today with a similar sampling from a decade or two ago. You'll be impressed at how quickly we've adjusted to new visual presentations without even knowing it. Or look back at the late '20s when printers introduced a rash of typefaces with newly designed g's and a's based on a single circle. The new shapes of these two upright lowercase letters changed about 40% of our "word-pictures" as traditionally printed and read by successive generations. Yet the change brought no whimper of public protest. It is worth noting that typesetters of the '20s willingly accepted the newly shaped letters because, as far as they were concerned, the shift was purely mechanical – as it will be with computerized transliteration. These examples of graphic change are not as formidable as those of spelling reform. Nevertheless the public may take it in stride and surprise us.

But before any of this can come to pass the ball must be started rolling. That will take a big push from a big giant. Who is the most likely giant?

We're told that reading and writing failure is the chief cause of school dropout. We're told that youthful dropouts are, to a large extent, the fuel of our anti-social problems: juvenile delinquency, crime-in-the-streets, hard core unemployment, poverty and, to some extent, drug abuse. Yet nobody with a big voice is saying that we should attack these titanic social evils by reforming our haphazard, frustrating spelling – the major cause of dropout. Why not? Why aren't our social agencies, our police, our prisons, reform schools, "Head Start" programs, BOCES, our welfare workers, and our schools – why aren't they out in front fighting for simplification? A good guess is that up to now they've regarded the task as far too formidable. And up to now they were probably right.

But no longer. Our Federal and State social agencies could easily take the lead. Their problems are enormous, their work load is growing heavier every day, and in the long run they stand to gain a great deal from reform. Commenting on the fact that over half of the country's prisoners cannot write, Chief Justice Berger of the Supreme Court says! "The percentage of inmates in all institutions who cannot read or write is staggering . . . figures on literacy alone are enough to make one wish that every sentence imposed could include a provision that would grant release when the prisoner had learned to read and write."

When our social agencies begin to see how transliterating computers can be used to spearhead spelling change – so "we the people" can just fall in behind – they may speak up for reform. Their voice is big. It is big enough to get the job done. Their giant push could start the ball rolling.

Another big push might come from those engaged in areas where English has become a "second language": foreign trade and commerce, international communication, and negotiations between nations. A simpler spelling of English has much to offer here.

And finally we have the parents of our school children, 25% of whom are two to six years behind grade in reading and writing; the mothers and fathers of 700,000 dropouts each year, and the friends of 20,000,000 functionally illiterate U.S. adults.

While we're wooing concerned parents, social agencies, international business men, the U.N. diplomats and others, we should not overlook the importance of winning the printing industry to our

side. Printers – particularly graphic designers, type directors, and typographers – have spent their lives studying the legibility, and artistry, the graphics and mechanics of the printed page. They, better than anyone else, know what makes a page easy to read, what interferes with reading, what gives a page warmth, what makes it cold. They are experienced at cushioning the impact of change and know quite a bit, in a very practical way about reader psychology. If they cannot be won to reform, reform is not likely to be won without them.

What then, will the first transliterating computer be able to do, and when will it be doing it?

An experimental transliterating computer is now programmed with the 44,000 most-used words in written contemporary English. This collection of words comes largely from a study completed in 1961 by Dr. W. N. Francis of Brown University's Department of Linguistics. It covers a million-word sampling of running text selected from a wide variety of subjects: news, editorials, the arts, hobbies, skills, religion, science, biography, memoirs, general fiction, science fiction, humor, romance, mysteries, mathematics, humanities, natural sciences, annual reports, government documents, etc. Proper names and unusual technical terms have, for the present, been deleted from this list, but for each deletion a word has been added from the Merriam-Webster list of 35,000 most-used words or from the McGraw-Hill list of 20,000. The total is substantially a composite of all three lists. These 44,000 words have been transliterated into Soundspel, placed on magnetic tape (with traditional and simplified spellings in parallel) and programmed so that traditionally spelled input tape will generate a matching output tape in simplified spelling. The output tape is compatible with photo-typesetting machines. Complete typeset pages may now be produced without individual transliterating or manual re-keyboarding.

The Soundspel phonetic system used for the transliterating program is a merger of Ripman-Archer "New Spelling," Godfrey Dewey's "World English Spelling," and certain modifications suggested by the Typographic Council for Spelling Reform. The pronunciation standard is the broadcasting industries "NBC Handbook of Pronunciation," the "Random House Dictionary of the English Language." or "Webster's New International Dictionary," whichever sanctions the least deviation from traditional spelling.

As soon as the first series of tests is completed the Council will, if the need arises, make its program available for experimentation with other systems of English orthography. Such systems need not be limited to the conventional Roman alphabet since the program and typesetting facilities have enough flexibility to accommodate unique letters.

The project's computer facility is located at Ocean County College in Toms River, New Jersey. The phototypesetting and design facility is the combined equipment and resources of Photo-Lettering Inc. and the International Typeface Corporation in New York. Ed Lias is in charge of the former, Edward Rondthaler of the latter. The Council enjoys the confidence and support of the institutions just mentioned, it seeks to broaden its contacts with all who see the need for spelling reform or can in any way be influential in stimulating progress toward that end, and it hopes that the project will serve as the typographic industry's contribution to wider use of written English for the enlightenment and benefit of mankind.

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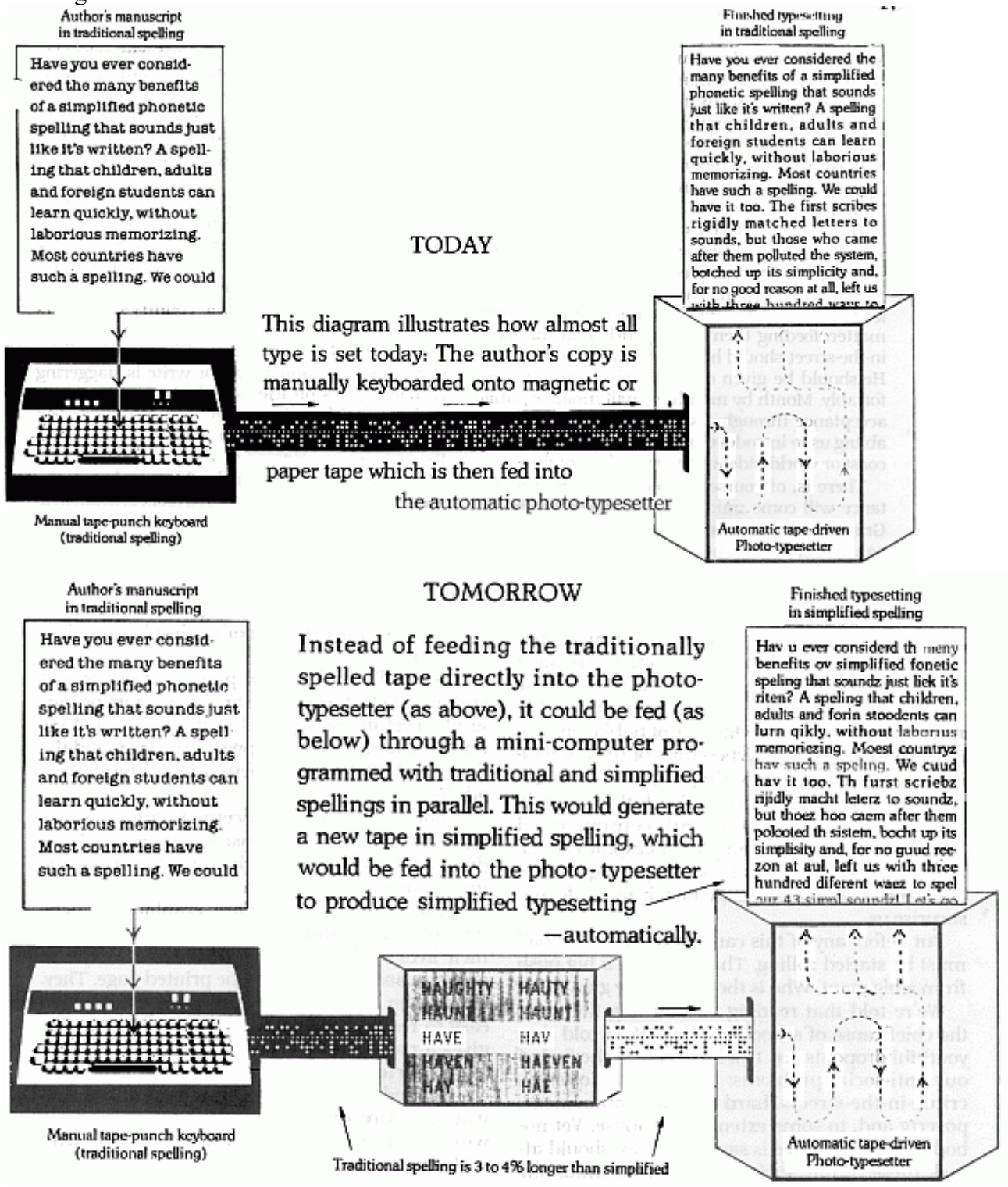
See diagrams below:



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[Spelling Progress Bulletin, Fall 1977, p20 in the printed version]

9. Our Readers Write Us

Editor, *Time Magazine,* **Harvie Barnard**

Dear Sir:

This is not simply a letter to the Letters Editor, but also to the Editor, Edwin Warner, who is responsible for the excellent 'cover story' article on Youth Crime.

First, congratulations for your expose and attack upon this serious situation, which has been largely ignored by virtually all of the intellectual 'high hats' who are largely insulated from the facts of life beyond their ivory towers and ivy covered hollow walls.

For some years I have attempted – largely in vain – to interest our know-it-all 'crime fighters' in the *causes of crime.* But all they are concerned about seems to be the limitless and expensive 'research studies' or criminal statistics, prison management, and the legal technicalities of 'fighting crime: In tote, these publications are apparently uninterested in anything which might uncover the *basic causes of crime,* or what we *can* do to ameliorate or eliminate them. Perhaps the explanation is that crime has become such an extensive and important part of the American economy – such 'big business' – that no one really wants to eliminate it – perhaps if crime were less of a major problem? I know that such a statement seems ridiculous, but there may be some truth to it.

I fully agree with your definition of crime as 'deviant behavior,' and your section on 'Steps Toward Cure' was well described. But your writers seem to have overlooked the most important part of the problem, which is the subject of BASIC CAUSES of crime. Perhaps you already realize that these basic causes are not only environmental and socioeconomic, but are primarily PSYCHOLOGICAL. Deviant behavior patterns, like education, begin very soon after birth, and continue thruout life. The human mind is *an organic computer,* which is programmed with input from the moment of first consciousness with input from the five basic senses. Unless the input is favorable, consistent, and fairly logical, there will be confusion, fear in all its hideous manifestations, and eventually a 'disturbed' or 'criminal' personality. A major part of the problem might be described as 'child abuse' and/or neglect, all of which *is Psychological child abuse!*

Would you kindly put me in touch with Edwin Warner who did such a splendid job of developing the story? Yrs, Sinc.

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The international aspects of spelling reform

Dear Harvie: **Abe Citron**

I am learning that many of us who are interested in spelling reform have our particular projects and approaches. While my approach is not simplification for international usage, I can certainly see its place and practicality. 'We are moving into metrification because U.S. corporations want to sell more goods on international markets. It may well be that we will move into simplified spelling from some of the same motives.

If U.S. business interests can see that spread of English will increase their markets they may become interested in making it easier to learn and use English. And so on.

Viewing the centuries of non-progress in spelling reform, I am trying to go at it using the most powerful social forces I know – and these are not the schools and they are not the educators, but they *are* the dollar and its motivations. Simplified spelling will not be instituted because it makes educational sense and international sense but because business finds that it makes dollars.

What corporations that do international business have offices in Tacoma? You might give it some thought. If you involve the Carter administration via big business, you might make more progress.

I do not want to discourage you but a couple of thoughts occur.

Even if the Carter people bring some organization out of the chaos of the 159 programs in 'international understanding' and even if a phonemic spelling learning aid for English is developed, this will only be a step toward teaching the foreign learner the traditional spelling. That is, the phonemic dictionary will remain only a teaching tool, nothing more.

This certainly will be progress, but in my view the leverage to change our spelling must come from the U.S.A. More people abroad are learning English than ever before because of our trade and technological dominance, not for friendship purposes. If any language is becoming international, it is English, and this despite our horrible spelling. It is quite true that if we simplified our spelling, the international popularity of English would be greatly stimulated. But I do not see any power except the wish for greater markets pushing this move. Yours truly,

* Wayne State Univ, Detroit, Mich.

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One Cause of Confusion

Dr. Godfrey Dewey, **Newell W. Tune**

Dear Godfrey:

You will probably remember that I strongly opposed having both the initial teaching medium version of World English and the system for a permanent reform being labled with the same name because of the confusion that was bound to result. Perhaps I was negligent in not offering a new name for the i.t.m. version. But I will do so now in perhaps futile hopes that at this late date a new name can be adopted.

How about World English Teaching Medium (WETM) or Alphabet (WETA)? These would still show a connection with 'World English and yet a new title which would avoid the confusion inherent in having the same name for two systems with different objectives. Yours cordially,

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Personal Experience with Our Spelling

The following is an excerpt from a letter to the Editor of *Spelling Action,* 77/8, p. 2. The writer wants to be un-identified.

"My own personal story regarding spelling – I feel – is tragic because it gave me so meny unnecessary hardships and a severe inferiority complex. For some reason I could never spell properly and was naturally led to believe that I was a backward person, so I decided to discontinue my education and do manual work where spelling would not be used. But I became so mentally frustrated that I nearly entered a life of crime.

"However, I had an I.Q. test when I was 18 and found to my amazement that I rated exceptionally high. I then had an aptitude test and was encouraged to study Product Design. I handled the course well and managed to top in some subjects. I graduated, and even though my spelling was still appalling I decided never to worry about it agen. I became fairly successful in the Business world and managed to retire at 45.

"I wonder how meny children have been *mentally* held back due to being unable to remember unphonetic spelling. Perhaps some people who have a certain type of mind that tends to analyse and remember logical things may not be capable of remembering illogical unphonetic spelling:'

There's no "perhaps" about there being logically minded people with spelling problems, some of them the salt of the earth. But there's no "perhaps" either about there being some who are the diametric opposite: that is, they find it easier to remember something parrot-fashion than by understanding it.

One instance, which I must say surprised me, was due to a requirement by some English university in the 19th century: to show the bredth of their culture, classical students had to know *Euclid* Book 1. Some of them complained that though they could remember the words all right, they couldn't remember the diagrams, and did it matter if the letters in them were wrong? That ment they could recite the following from memory *without understanding it:*

"Let *ABC* be an isosceles triangle, having the side *AB* equal to the side *AC*, and let the straight lines *AB, AC* be produced to *D* and *E:* the angle *ABC,* etc., etc.

This is part of Proposition 5, the so-called *pons asinorum.* The sed students could learn it all by rote, evidently finding this easier than understanding the simple arguments of the proofs and reconstructing them.

No denigration of memorv is implied. I once commented *(Australian Mathematics Teacher,* 21, 1965, p. 13) to the effect that one's mathematical I.Q. is greatly increased by having the bookwork at one's finger-tips, *if only one can keep it there.* But it's different if one's retentive memory is not an adjunct to enything else. Such a person is naturally a good speller, and not kindly disposed to a reform that would remove his sole claim to fame.

I've written at some length about such people. But we do need to realize how different people can be.

Harry Lindgren, Editor, *Spelling Action.*