Proceedings of the Third International Conference of the Simplified Spelling Society in Edinburgh, July 31–Aug. 3, 1981.

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Implementing English Spelling Reform

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Univ. of Victoria, Canada, Pres. Simplified Spelling Society, (in absentia).

"Simplified spelling: the real battle and the real battleground." Dr. Ayb Citron, formerly of Wayne St. Univ., Mich, Director, "Better Education thru Simplified Spelling."

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Authors' index of papers presented at the 3rd International Conference on Reading & Spelling, Jul.–Aug, 1981

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Summary.

The outcome of the conference has been three major developments in the direction for reform of English spelling: in theory, context, and implementation.

The emfasis has shifted from 'armchair argument' to multidisciplinary research that regards spelling as an aspect of communications technology, amenable to human engineering that considers the needs and abilities of its users.

The immediate consequence, from the research presented at the conference, is to query the almost universal assumption of earlier reform proposals, that one-to-one sound-symbol correspondence is the perfectly simple ideal solution. The i.t.a. (Initial Teaching Alfabet) and other experiments have proven that a consistent fonemic spelling is easier to learn than present spelling, but there are obvious disadvantages in problems of regional dialect, homofones, clumsy polysyllables and discontinuity with present spelling; and research presented by Seymour, Perin and Snowling showed the sort of disabilities it could still present for children with learning problems.

A different direction was pointed out by the congruent research and theory presented at the conference from the different stands of cognitive psychology, linguistics and electronic communication, and the almost unanimous resolution of those attending the final plenary session reads:

> *"In the long run we should aim at a perfectly consistent system of writing based on the general principle of foneme-grafeme correspondence; nevertheless due attention and research must be applied to the need to preserve uniform grafic representation of some morfemes and the written differentiation of some homofones, in the interests of semantic encoding strategies for learners, more. rapid visual reading by skilled users, more economical writing & greater access to the English language internationally."*

That is, the basic principle of alfabetic spelling is sound-symbol correspondence, but for better efficiency it needs to be modified in consistent ways to carry meaning concisely and clearly. It would be premature to give examples, but there is good hope that research-based solutions could be well advanced within three years, especially if funding can be found.

Such a spelling should look far more like present English spelling 'cleaned up' with a space-age appearance than the present image of reformed spelling looking like funny dialect in a novel.

Conference topics were:

- Cognitive processes in spelling (how we think when we learn and use spelling),
- teaching and learning spelling and the difficulties found,
- spelling internationally and international aspects of English spelling,
- designing spelling for efficient human and
- electronic communication,
- theory and research in English and foreign spelling reforms,
- implementing English spelling reform.

The pragmatic keynote of the conference was set from the beginning by the message sent by the patron of the Simplified Spelling Society, the Duke of Edinburgh. He had asked for a briefing about his message, but in the event disregarded it and wrote his own, which was characteristically to the point, criticising lack of progress in simplifying spelling due to the disagreement among the different reformers and wishing the conference the best of luck in having some achievements to its credit.

Cognitive psychology.

Dr. Uta Frith presented recent cognitive research on the operations, strategies and processes in spelling function and how they can fail, and showed there are conflicting needs of readers and writers, learners and users, so that a spelling designed solely to be easy to learn may not be the most efficient to use. She thought a future solution for incompatible needs might be a computer-translater that translated 'spell as you like' into 'reading that's easiest,' but one might comment that it might be possible to produce a spelling system that was accomodated to the different purposes, rather than to one only.

Dr. Philip Seymour's paper amplified Dr. Frith's introduction. He described the three ways by which we can read words: direct visual word recognition, indirect recognition via semantic decoding, and through `sounding out: His studies with dyslexics showed their difficulties in using fonemic processing (`sounding out') which seen related to general difficulties in analysis and sequencing found in problems with mapping time and arrays also. He concluded that greater foneme-grafeme consistence would not help these dyslexics if it eliminated other sources of structure that they can use as well.

Teaching and learning English spelling, and its difficulties.

Miss Barbara Smith presented a practical study of children's spelling in six schools and work with teachers to improve spelling instruction. She showed the different spelling strategies used by pupils who spell well or are still at the dependent level or still fumbling, and showed how what appears as 'lack of fonic knowledge' may actually be a major linguistic problem of auditory perception, and discussed problems of long-term and short-term memory, and transfer of spelling learning to actual practice. Weak spellers also have problems of omissions and sequencing, and remediation was described.

Dr. Maggie Snowling discussed the research showing that poor readers have more trouble with fonetic spelling rules than do good readers, and have more problems in spelling with longer words and more complex consonant clusters. (Again, spelling reform must consider more than foneme-grafeme correspondence if it is to really help the learning disabled.)

Dr. Dolores Perin showed the strategies by which good readers are better able than poor readers to use fonemegrafeme correspondences, but poor readers can often spell nonsense words better than they can spell real words, since they do not have to worry about lexical access to non-fonemic variations (that is, consistency would help them).

Two contributors to this section of the conference were unable to come.

Dr. Barbara Dodd was prevented by illness from presenting her research on spelling problems of children with phonological disorders who, unlike normal children, had no advantage in spelling when words had regular foneme-grafeme correspondence.

Dr. David Moseley's car breakdown prevented him from bringing his video and microprocessing equipment to demonstrate the effective methods he is developing for children who have been failing to learn to teach themselves basic spelling. (These techniques would make learning with a consistent spelling extremely easy and interesting.)

Spelling in other languages and international aspects of English spelling

Mr. Stuart Campbell's discussion of the principles of Esperanto spelling is worth observing as an example of a 'planned' spelling with an approach emfasising IndoEuropean grafic agreement, maximum simplicity and consistency, and designed so that the common people could use it without difficulty. Campbell drew moral lessons about English from what happens if one tries (as he did) to transliterate Hamlet's soliloquoy into as close to Esperanto spelling as possible. (It would be worth checking some of the claims of modern theorists about the advantages for readers of the redundancy in present English spelling, by using as subjects English-speaking, Esperanto enthusiasts who are skilled in both languages.)

Dr. Henry Niedzielski described experiments in Francofone Burundi in teaching English, including spelling, via French, or directly through the Kirundi language, with results favouring the latter. (At a reading conference earlier in the same week, Dr. Niedzielski had presented a proposal for teaching one language (French) beginning with meaningful text using maximum common vocabulary and sentence structure and gradually introducing differences from a native language-English; illustrating one advantage of international morfemes that could be further exploited.)

Dr. Iraset Paez-Urdaneta gave a history of Spanish orthografic change, a description of the Bello reforms in Spanish America, and of an experiment in Venezuela showing social class differences in attitudes toward spelling reform. He drew from his survey conclusions about the requirements for successful spelling reform, particularly the social and political aspects.

Dr. Jesús Mosterín of the Univ. of Barcelona emfasised the international need for English spelling reform, and summarised its goals as improving international communication, making reading and writing easier to learn, increasing the linguistic awareness of speakers, making learning of foreign languages easier, diminishing the burden of polyglot communities, offering a uniform and consistent system of transcription from other writing systems, allowing unified representation of nouns in cartografy, and permitting the design of universal word-processing machines. It should be made, he considered, in accordance with principles valid for all languages, such as the International Phonetic Alphabet.

Spelling for electronic communication.

Mr. Colin Brooks of the Univ. of Southampton demonstrated how television etc. can be accompanied by simultaneous transcription of speech for the benefit of the def. A computer transcribes Palantype or Pitman Shorthand, using a hundred or so 'rules' that take fonetic context into account to improve performance, into a script ideally like English spelling. The pros and cons of `algorithmic' spelling were discussed. (Clearly this task would be relatively easy with a consistent English orthografy.)

Dr. Edward Rondthaler, of Photo-Lettering, Inc. New York, sent as a display a computerised dictionary demonstrating how modern techniques made simple the task of printers to transliterate to or from a reformed English spelling and present English spelling — abolishing a nightmare that objectors to spelling reform have profesied eny change would bring to the printed media. Change could be gradual or absolute.

Development of improvements in spelling.

Dr. Neville Brown, of the Foundation for the Education of the Under-achieving and Dyslexic, discussed the significance of semantic considerations in English spelling reform, and the importance of developing direct linguistic encoding strategies for efficient reading and writing.

Dr. Walter Gassner of Australia described possible approaches to reconcile conflicting principles for a spelling reform, with particular emfasis on questions of pronunciation, including location of stress.

Prof. V. A. Vassilyev of Moscow sent in absentia the monograf by himself and Prof. A. C. Gimson presenting a fully developed fonemic spelling.

Valerie Yule took up the implications of research and theory that were presented at the conference to present an illustration of what a 'morfo-fonemic' spelling could be like, and proposed the sort of research that would be required to develop and evaluate the most efficient modern English spelling.

Mr. Chris Jolly, marketing manager, extended the discussion of spelling to other orthografic considerations, and presented research on the commercial confusion that is caused by alfanumeric symbols that can be confused by visual or auditory similarity, as part of a discussion of commercial aspects of orthografic reform.

Mr. George O'Halloran, formerly of the Gambia, sent in absentia a paper containing an overview of orthografies of other languages, including new planned orthografies of this century for non-literate African tongues. From discussing approaches to spelling in English (fonetic, fonemic, diafonic, shorthand, dialectic), Arabic without vowels, Mandinka and Mende syllabaries, Blissymbolics, the Japanese use of Chinese ideografs and the possibility of Eurowords with Eurospelling, he concluded that it is possible that the English expect too much definition of detail in their script, and it may be enough for most purposes that our writing signs should just stimulate the memory into the correct response with internationally recognizable word-shapes.

Experimental investigation of spelling reform.

It is to be hoped that this is the new growth area, to achieve practical results.

Dr. Robert Baker of the Univ. of Southampton asked literate adults to respell English words in ways they considered more rational and then asked them to explain the reasons for the changes they had made. The findings show popular opinion about what is important in spelling English, which is necessary information in designing and bringing in reform.

Dr. John Beech of the New Univ. of Ulster described an experiment in which adults learnt to read text in two proposed spelling systems, one on the single principle of sound-symbol correspondence (World English Spelling) that changed 67% of present spelling, and one that modified fonemic spelling with consistent principles to change only 30% of English spelling (designed by Beech). After reading 6000 words of text in Beech's Regular Spelling, adults were reading at their normal speed, but even after 8500 words of text in World English Spelling, subjects were only reading at 62% of normal reading speed. Both groups suffered no reduction in comprehension levels. Literate adults could therefore cope with a change to a more regular English spelling quite quickly — for these university students it was only a few hours — thus disproving the claims that it would be impossible. (Motivation would remain the key factor.)

Implementation of change in English spelling.

Prof. John Downing of Victoria Univ., Vancouver, President of the Simplified Spelling Society, sent in absentia his advice that printers and publishers were the key people to be involved in spelling reform, as the media were more significant than education for its introduction.

Prof. Ayb Citron, formerly of Wayne St. Univ. and now Director of the U. S. campaign 'Better Education Thru Simplified Spelling,' made an expose of the socially divisive purposes and results of complex elite spelling systems, substantiating the remark of the famous sociologist Thorstein Veblen (1899) that English spelling is a classic example of conspicuous consumption. Citron thinks that the time for simplified spelling has now come, because of economic needs for literacy, and that four institutional structures of power and prestige to support it are the business-industrial complex which seeks to maximise profits, the Department of Defence requiring literate recruits, the world of scientists,and the movement of democracy struggling to redistribute power and give more dignity to the common man. Citron outlines how all four can be involved in the movement for spelling reform, which goes so far beyond mere tinkering with the spelling of words in what it could achieve.

Mr. Harvie Barnard, a member of the editorial board of *Spelling Progress Bulletin*, sent in absentia his paper on how alternative spellings could be a practical means of transition from present spelling to a reformed orthografy, and four principles were recommended to commence with, which fit closely with other recommendations that are currently made by reformers.

From these papers, it is clear that it is now recognized that English spelling is a world problem. More people now speak English as a second language than as their first, and this majority is increasing dramatically annually. Thirty percent of the conference attenders were concerned with English as a second language in overseas countries, and the unanimous resolution of the plenary session was that "Because of the international importance of English in commerce and science, eny future spelling reform should take into account the international aspects and implications of the proposed changes."

Attendance at the conference and presentation of a paper implied no necessary commitment to reform or involvement in the plenary session, and some of those who are doing valuable research on the nacre of spelling and spellers are still conservative in attitude. However, the majority of those who stayed on at the plenary session recommended implementation of spelling reform from two directions: official and popular:

1. Working to provide a research basis for an official commission on spelling reform with international links, to give the subject the study that has been recommended by the U. K. Bullock Report on Reading (*A Language for Life,* 1975) which could give only eleven of its 609 pages to the subject of spelling.

2. Popular change by the existing route of 'permissible alternatives' in spelling to gradually remove the easily remediable and obvious difficulties in English spelling. The plenary session recommended:

   a) Public use of the letter f for ph in line with most international usage, and as is becoming familiar to the British public through multilingual notices and EEC labelling.
   b) Use of the letter e for the short e sound as in bet so that, for example, insted, sed, frend, gess, plesure would be used to replace instead, said, friend, guess, pleasure. This is 'Spelling Reform 1' advocated by Lindgren in Australia, and alredy in use in a variety of magazines and books published by different Australian publishers.

The Simplified Spelling Society thanks all participants in this noteworthy conference. It would be glad to receive reports of research relevant to English spelling reform, and of changes in spelling through public usage.

Yours gratefully, Valerie Yule, conference organizer.

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What the 3rd International Conference on Spelling, Research & Reform hoped to Achieve

Short term and now

1. *Changing the public image of spelling reform* to the modernization of another obsolescent piece of British technology that handicaps the country economically, politically and socially and away from the picture, until the last few year s not unjustified, of engaging eccentrics squabbling in armchairs about pet untested schemes.

2. *A public platform* for work that deserves publicity and discussion, e.g. John Beech's experiments are pioneering on the crucial question of how literate adults can adapt to changes in English spelling.

Experimental work, e.g. on how the human brain processes spelling, gives the bases for design of an optimum spelling that can be used by the whole population, not just limited to the clever half.

The combined impact of the work on the spelling difficulties of children, the perceptually-handicapped, foreigners, African schools using English as the media of education, and computers, can explain the question, "We did it, why can't everybody else?"

Few people in Britain know about the successful spelling reforms in other modern countries, nor the history of English spelling. (Since its present form is only 200 years old, why should another 100 be needed to change it?)

3. *A meeting-place* for cross-fertilising interdisciplinary research, to break down `tunnel vision' on spelling, and use the combined perspectives and knowledge of cognitive psychology, linguistics, electronics, and communications technology, sociology, history of language, marketing, education and infant-schooling.

4. *Set off the first simple steps in spelling reform* that can get going in the same way as changes in the living languages and fashions, through adoption by trend-setters and spreding into public acceptance because they are in line with existing trends towards efficiency and economy. i.e. Spelling Reform 1 (SR-1) "Use e for the short ein bet." This step includes publicising ways in which individuals, teachers, publishing, marketing, etc. can support trends, and arousing public interest and consciousness about spelling, i.e. with Spelling Day, Spelling Games, etc. Ordinary people must become aware that they are capable of questioning obscurantism.

6. *Stimulating better teaching of spelling in schools*, with methods that help students and teachers to discriminate between the basic underlying system and the extraneous and dysfunctional — so that they can realise how easy and necessary it is to clean most of it up.

7. *Stimulating effective research* on practical and constructive issues in spelling.

8. *Recruiting active support and financing for spelling reform,* particularly in the key situations of influence in commerce, politics, publishing, journalism and letters, computer technology, information agencies, and overseas affairs, including EEC, UN, UNESCO, and British Council.

Long range aims of the Spelling Conference

1. *Working to get a public commission*, such as that in the Netherlands, to make official decisions about research and implementation of further reforms.

2. *Ensuring that the research and experimental spadework is done* so that when politically and socially the more far reaching decisions on English spelling can be made, the necessary research foundation will be there — and prevent the sort of defects in practice that are now apparent in a theoretically ideal metricisation. (e.g. decisions about grammatical and linguistic markers and consistent modifying rules, a consistent rule about questions such as how to represent the long vowels, and later still, eny changes or additions to the 26 letters themselves.)

3. *Encouraging educational, social and political groups* to take official stands in favour of spelling reforms and to work and lobby for them, (e.g. teachers' unions, government officials, legislators, the UN, UNESCO, etc.)

The Spelling Exhibition at the Third International Conference on Reading, Spelling.

A dramatic feature of the conference was the comprehensive display of every aspect of spelling reform. Miss Mona Cross organized a display of publicity and correspondence from the Simplified Spelling Society, including reports about well known reformers such as Reg. Deans, and letters from all over the world.

Mrs. Kate Chapman of the *Scottish Curriculum Development Service* provided a display of spelling teaching materials and books in current use for the edification of all of us who had forgotten what a business it all is. *Holmes McDougal Ltd*. provided a publisher's display.

Spelling reformers who supplied material, monografs, and books for display included *Prof. Vassilyev* of Moscow, with the monograf on *Maximally Simplified Spelling* written in collaboration with Prof. A. C. Gimson of London; *Edward Rondthaler's Soundspel* computer dictionary and explanatory brochures from New York; *Harry Lindgren* of Australia sent copies of teachers, students and computing magazines, and books by well known Australian authors published by six different Australian publishers, all using SR-1, Spelling Reform One, *e* for the short *e* sound (demonstrating it is practical for printers) as well as copies of his book explaining his approach, *Spelling Reform, a New Approach*; there was *Frank du Feu's* Eurospelling, *Reg. Dean's* Britic, *Dr. Walter Gassner's* Consistent Evolutional Spelling; the *House of Lords Debate* on Language Reform initiated by Lord Simon, reported in *Hansard* in January, 1981, copies of *Spelling Progress Bulletin*, some S.S.S. literature, and recent as well as standard books on the subjects of spelling and spelling reform.

There were poster displays of spelling cartoons, on various aspects of spelling, amplified in seventeen topic brochures — Spelling Facts, Computers and Spelling, Teaching Spelling, Spelling Research, Popular Spelling, Spelling can be Fun, Society and Spelling, Ideas about Spelling, A Handbook of Spelling Reform Proposals, and so on. Available for sale (and still available) were booklets of Spelling Games, Spelling Action Calendar for 1982, Car Stickers for Spelling Reform 1, and a booklet of a 6000 word school spelling list set out in a Tonic analysis to make it easier to learn now, and easier to understand how easily the chaos could be reduced or avoided.

We want to thank everyone who contributed to this rather impressive sight, and also thank Fergus McBride, the man on the spot, who was responsible for selecting the excellent conference venue with its magnificent views of history and scenery (when we had time to look) and who provided invaluable assistance in organization of venue arrangements and transportation of materials. We also want to thank the University of Edinburgh for their cooperation and help with this project.

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Papers Presented at the Third International SSS Conference on Reading and Spelling

Message from the Patron of S.S.S., H.R.H. Philip Duke of Edinburgh:

To simplify the spelling of English has been the ambition of any number of reformers. A few successes have been achieved, largely in the United States of America, but otherwise little has happened. One very good reason for this lack of progress is the, not unexpected, inability of the different reformers to agree on a common system. It would be nice to think that the Third International Conference will have some achievements to its credit and I wish all the delegates the very best of luck.

Philip, Duke of Edinburgh

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Cognitive Processes in Spelling

"Cognitive Processes in Spelling and their Relevance to Spelling Reform." Dr. Uta Frith.*

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Abstract
Cognitive psychology has opened up some new and interesting ways of thinking about spelling and reading. In the past there have been innumerable studies investigating relationships between all sorts of psychological variables and visible language skills with often disappointing results. In contrast, the cognitive approach does not take any of these "skills" at their face value but attempts to analyse them into components. These components have a place in models that specify operations, strategies and processes suggesting how reading and spelling are acquired, *how* they function and *how* they fail.

This analytical approach has demonstrated that reading and writing are related in a complex way and that they both go beyond a letter-sound correspondence principle. It is useful for spelling reformers to consider reading (input) and writing (output) processes separately, in their own right. This is because the demands of the reader and of the writer are to a large extent incompatible. The writer might wish to use a sound-to-letter strategy, possibly on individual shorthand. The reader, on the other hand, finds phonetic or shorthand writing very demanding, since he rarely uses a letter-to-letter strategy. He tends to rely on a variety of cues present in conventional English orthography. These cues may relate directly (visually rather than phonologically), to the meaning, origin and syntactic function of words.

Seen from this point of view, a purely phonetic spelling reform would favour only the writer, but penalize the reader. An ideally efficient communication system for written language would have to allow for the different requirements of the writer and the reader. A no longer Utopian solution would be a device that is linked to a keyboard or writing pad and essentially transforms input written phonetically or in individual shorthand into output which appears on screen or in print as widely readable copy, and which could be programmed to give as much graphic and orthographic information as is desirable. (end of abstract)

Cognitive psychology has flourished on a highly effective, yet astonishingly simple model of how we perceive, remember, think and do things. All these are activities that involve cognitive processes, but most of all, cognitive processes are identified with communication skills. Information processing is the key phrase to characterize this simple model, and it is ideally suited to describe spoken or written language. The model distinguishes between INPUT processes — these could be listening to speech or reading – and OUTPUT processes, such as speaking or writing. In between input and output we have traditionally a "black box." Inside we imagine to exist our internal representation of language — and indeed our representation of the world.

This input-output model is also useful in order to consider what we mean by spelling. There are really three subtly, but importantly different meanings of spelling, which are easily confused. If seen in relation to input processes, spelling denotes orthographic structure. We can talk of spelling patterns, letter position, specific graphemic units, etc. It is clear that 6 year old beginning readers are already sensitive to orthographic structure **(Henderson and Chard, 1980) [7].** Even non-readers, for instance, can distinguish illegally spelled words (prtd) from legally spelled ones (prid). It is easy to observe this by asking them to sort out such stimuli into the categories "possible words" and "definitely not words."

If seen in relation to output processes, spelling means *word production*. In order to be correct, the word has to be correct letter-by-letter. It is this production process that has received least study and that yet gives rise to more problems than other aspects of literacy. Spelling also sometimes means *spelling knowledge*, which is represented inside the black box, as if in some internal dictionary. How this knowledge is actually acquired and how it is available for use is still largely unknown. An example would be the knowledge we bring to bear in spelling entirely new words by analogy and in detecting errors in our own writing.

If we go along with the model, these three meanings of "spelling" have to be kept apart, as quite different psychological processes are involved in the three functions. Spelling as on INPUT skill has most to do with *reading*. Spelling as on OUTPUT skill has most to do with *writing*. The third function of spelling is the least accessible to study and rests largely on inference, while input and output skills can be observed directly. Nevertheless, we cannot do without the assumption that a literate person has a vast store of knowledge about the written forms of words. There must be on internalized system of *visible language* just as there is of spoken language.

One very intriguing question is in what form is this knowledge represented? Is there 'really something like a collection of specific visual images for every word? That visible language has a "visual" component must be taken for granted. However, this component is *abstract-visual*, not physical-visual: structures that are not photographs, but like programmes that specify each letter in its correct position, whatever physical shape the letter may have.

The internal representation of spelling knowledge is not as speculative on assumption as it might appear. That the notion has a psychological reality can perhaps be shown by the existence of spelling riddles in folklore. A number of these have been collected and discussed by **Green and Pepicello (1980) [6]**. They classified spelling riddles into several types, two of which are especially relevant here.

The first type is like this: "What's black and white and red/read all over? (a newspaper)." This is concerned with the fact that the same sound can have a different spelling. The sound in context tricks you into thinking of the wrong member of the pair, namely (red) as colour rather than (read) as in reading. This type of riddle belongs to the vast class of jokes that are known as puns. Although puns can be understood without spelling knowledge, one wonders if their enjoyment is not enhanced by the fact that similar sounding words can be written differently.

The second type of riddle is as follows: "What tune does everyone like?" (fortune) "What ants are the largest?" (giants) "What age is served at breakfast?" (sausage) This type is concerned with the fact that the same spelling can have different sounds (e.g. *tune* sounds /tju:n/ in *fortune*). What is interesting about this type of riddle is that it really shows that letter strings are known or represented internally without respect to a specific sound. It is the same /t/u/n/e/ if it is pronounced /tju:n/ or /tʃən/.

These few examples suffice to show that there is some psychological reality to the notion of internal spelling knowledge and that this knowledge rests on a quite complex system of visible language.

Naturally, cognitive psychologists have elaborated the simple *input-output* model into highly sophisticated versions and excellent accounts are available (e.g. **Cohen, 1977 [2]; Morton, 1979 [10]; Seymour, 1979 [14]**). The findings that emerged from experiments based on a cognitive model are very relevant to students of reading and spelling. I believe that they have brought about a significant advance in our understanding of reading and spelling skills **(Frith, 1980 [4]).** The main advance compared to older studies probably rests in the microanalysis of reading and spelling. The black box has in fact begun to be unpacked.

A specific example is the analysis of reading and spelling skills in terms of two relatively independent strategies. We can read a word — to some extent at least — as if it were a Chinese symbol, that is, disregarding any relationships of letters to speech sounds. Hence this strategy has been termed "Chinese." This strategy is very fast, but the problem with it is that every single word needs to have a specific entry in an internal lexicon. If it is a short word, it can be recognized as a whole pattern straight away; if it is a long word, or is inflected, then it needs to be .broken down into proper meaningful segments first, each of which are then instantly recognized. The important point is that this is not letter-by-letter reading; the meaningful segments are groups of letters taken in at once. Furthermore, individual letters are not translated into sound. With this "Chinese" strategy it is therefore quite irrelevant, if the letter-sound correspondences are ambiguous or unpredictable from general rules. We can illustrate this with an example of "Chinese" reading that is familiar to all of us: seeing "12" or "XII" makes us say /twelv/ or /tsvɜ:lf/, or /du:z/ or /doditʃi:/, etc.

The other and truly alphabetic strategy has been termed "Phoenician." This strategy treats the alphabetic writing system as it was originally intended by its inventors, the Phoenicians. Letter and speech sound are intimately connected, but in such a way that the stream of speech is broken up into small artificial units which are designated phonemes and which are represented by particular graphemes. To use this strategy, one does not require specific word recognizers: any word can be read — in theory — by pronouncing each letter according to the rules. The problem here for English is that we need to put together the single letters into bigger meaningful units before we can really pronounce them, or to know where to put the stress **(Smith, 1980 [15]).** For the most part this is not the fault of the orthography, but the "fault" of the spoken language itself. Phonemes do change in context. Hence we have problems with, for example, *finite-infinite, active-action, courage-courageous*. Here the same vowel in the word pairs is pronounced very differently, but spelled the same. This orthographic convention makes transparent the underlying relationship of the words — in spite of the fact that our speech (at present) does not make such a relationship very clear. The examples also serve to illustrate that written language is not merely parasitic on spoken language rather it makes an independent contribution to communication. Indeed, it may itself affect speech and can be shown in numerous examples even to have changed speech over time **(Levitt, 1978 [8]).**

The two reading strategies, "Chinese" and "Phoenician" are well known to teachers by the labels "Look-and-say" and "Phonics." Both have been applied to reading as well as to spelling, but there is some indication that "Phoenician" has more affinity to spelling. One reason for saying this is that reading errors are usually not mispronunciations of component sounds, but an error is usually a

completely different word that is substituted. It seems that the wrong lexical entry was being activated, rather than that a string of sounds was laboriously and falsely marked out. On the other hand, spelling errors and slips of the pen are very often phonetic, that is, they do seem to be derived by an application of sound-to-letter rules. **Marsh et al (1981 [9])** compared errors in reading and spelling the same material in three age groups and concluded that the strategies were markedly different.

Even good spellers make spelling errors, usually by accident rather than by ignorance. Interestingly enough, many of their unintentional slips of the pen are in homophonic words, e.g. *their* for *there*, *to* for *too*, etc. Two aspects of these slips are important: that they are words themselves and that they sound similar to the target word. Since word is substituted by word, probably a confusion between two automatic spelling programmes occurred. Since the correct sound is retained, it appears that the spelling program was retrieved through sound. **Morton (1980 [11])** suggests that a phonological code could be used as a unit to access the letter-by-letter code for the word. The mental lexicon itself may be organized phonologically **(Fay and Cutler, 1977 [3]).** Thus the direct ("Chinese") or lexical route still may be triggered by a phonological code. However, its role would not be to provide phoneme to grapheme correspondences, only to retrieve an automatic spelling program for a whole word. Why should a sound code rather than a visual code take on this role?

A theory that is relevant to this notion has been proposed by **O'Connor and Hermelin (1978) [12].** According to their theory, there is an affinity of temporal-sequential processes (which include speaking and spelling) with phonological coding. Thus, while writing, sound is the appropriate code and would override a visual code, and, as in speech, does not distinguish for instance, *their* from *there* **(Frith and Frith, 1980 [5]).** In contrast, in reading, a visual code would seem highly appropriate. It is a very fast process, where sound enters at a later stage only. It can readily be imagined that if there was a race between "Chinese" and "Phoenician" word recognition, the Chinese one would win. On the other hand, in writing this speed is not necessarily an advantage as the writing process itself is slow enough for a sound code to catch up easily.

Evidence for the separation of reading and writing strategies is also available from another source. In young children just beginning to learn to read and write, **Bryant and Bradley (1980**) **[1]** observed that they would read words they could not write and write words they could not read. This odd discrepancy was explained by the fact that the children spontaneously preferred to read words by Look-and-say, but to write them by Phonics. The important observation that young preschool children may take quite readily to writing, given basic knowledge of letter names and sounds, was analysed by **Charles Read (1971) [13].** He also found that often such precocious children could not read what they themselves had written. To decode sound to letter seemed more "natural" than to decode letter to sound.

Discrepancies between reading and writing should not come as a surprise. Indeed, they are expected in terms of an information processing model, since input and output are not just the same process in reverse, but are in fact quite independent of each other. Using a computer analogy, the information typed in at the keyboard terminal bears only a superficial relationship to what appears on the print-out. The information that is typed in can be, but need not be, converted into signals that activate a printer. The speeds of the various operations involved also are independent of each other. The printing time is presumably limited by mechanical conditions specific to the printer. Similarly, writing or typing by hand cannot be faster than the motor system allows.

This notion of independence of input and output has important implications for teaching and for changing spelling. It implies that learning to read does not at the same time necessarily lead to learning to spell. Furthermore, as already mentioned, input and output processes seem to have specific preferences for particular codes. For example, a lexical recognition might rely on a "visual" code, a sound-letter translation system may well rely on a sound-based code. A sound-based

code, as **O'Connor and Hermelin [12]** have suggested, is essentially a sequential code; a visual code on the other hand is a spatial code that is not dependent on temporal sequence. In reading, we can imagine that a spatial code is efficient. In spelling, a sequential code might be especially advantageous, as it goes along with sequential programmes.

All this supports the idea that the requirements for input (reading) and for output (writing) processes are not only independent, but in some sense incompatible. It seems as if the Phonecian invention of the alphabet is tailor-made for writing, while the Chinese system is tailormade for reading.

One particular difference regards flexibility and rigidity of the processes. It seems to me that flexibility is desirable where processing of input is concerned, simply because the form of the input can vary so much. Material to be read does come in many different forms: prints vary, even given perfect legibility, but legibility also varies, depending on the conditions of, e.g. light, distance, state of the material, etc. The idiosyncracies of the sender of the communication may have to be taken into account, his handwriting and his spelling ability. It pays, therefore, for an input processing system to be flexible and adjustable to the situational demands. This is the opposite of having a pre-programmed system, where we would utterly depend on input material being reliably the same in every case. I would like to suggest that this sort of system is not viable for reading, but is very well suited for an output process, such as writing.

For output processes to function efficiently, pre-programming is needed. This requires a fixed sequence of actions. Preprogramming is evident in handwriting — which is characteristic of each individual. There may be a number of quite long automatic sequences for frequent words and frequent word-components. Studies are in progress that look at the exact timing of writing movements in order to discover the size of basic units as well as longer spelling programs. It is important, however, to realize that spelling programs do not reside in the actual writing movements. This would be absurd, since we can spell equally well if we type, or print, or write with our non-preferred hand, or spell orally. The spelling program underlies the motor program, but is not identical to it. It is true that we still know little about the nature of the output programmes, and we also know very little about the input programmes, but experimentation is following along quite promising paths. It is clear that what appears to be a superficially simple relationship of spelling and reading processes is in fact not at all simple.

What conclusions can we draw at this point that might have some bearing on spelling reform issues? It seems to me that any reform that is guided by a single principle, if it is an advantage to one process, it is bound to be a disadvantage to the other. A single principle cannot satisfy both processes. If we take the principle of unambiguous letter-sound correspondence, it may well be that spelling would benefit by a simplified sound-based system, but, inevitably, reading would suffer. Fluent reading is not primarily a sound-based process, but much more a visual one and could be simultaneous rather than sequential. Writing must always be sequential, in contrast.

In recognizing words we can actually benefit from an orthographic system such as the present one where information is presented at many different linguistic levels. There is a lot of redundancy in the conventional spelling of many words, which enables us, if we wish, to learn about, e.g. the word's language origin, the word's prior pronunciation, the word's form class, or its relationship to other words. Visible language, as I have already pointed out, is not just a derivative version or imperfect reflection of spoken language. Language is more than speech and has many more aspects than sound. Although there is slow but continuous change in both domains of written and spoken language, it is not clear who or what exactly controls the change. If we knew we would presumably be on the way towards an optimal orthographic system. Clearly, as an experimental psychologist, I would prefer to understand the psychological processes underlying reading and spelling, before trying to change them. Nevertheless, I would like to make a suggestion that is based on the study of cognitive processes. This study taught us that the ideal orthography is

different if seen from the point of view of the reader, and the writer. Instead of trying to achieve a compromise — which I believe is actually the continuous state of English orthography — we might look for a radical alternative with help from computer technology. All we need is a translator device (our "black box") that mediates between the ideally efficient sender and the receiver of the written message. The sender, if he likes the Phoenician style, could write in his own preferred system, possibly in shorthand. The reader (if he likes the Chinese style) could read the message in as non-phonetic and as redundant a way as he liked. The "black box" would have stored all necessary spelling programs.

As recent work by **Colin Brooks** and **Robert Baker** presented at this conference shows, such a solution is not as Utopian as it sounds. What makes this technological solution especially exciting to me is that it seems backed by theory and results from cognitive studies in spelling. I hope therefore that it can cut through the tangled controversy of pros and cons of spelling reform and provide a new alternative of communicating in visible language.

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[Spelling Progress Bulletin Spring 1982 pp9,1016 in the printed version]
[Philip Seymour, see **Media**]

"Psychological Processes in Spelling Recognition and Production"

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Abstract
English spelling is a complex system which signals information about meaning, grammatical function, and pronunciation. In order to read, a child must acquire a visual recognition system which is sensitive to these properties, and which can make contact with the systems involved in comprehension and production of language. It is likely that the visual recognition system is capable of dealing with words as wholes (not necessarily ideographs), and also of analyzing them into smaller units, such as morphemes, syllables, or vowel and consonant spelling patterns. Skilled reading is probably achieved by a direct whole word process, but the ability to segment and use grapheme-phoneme correspondence rules is important at the early learning stage. Spelling production similarly involves a capacity to segment speech and select corresponding letters or letter groups (phoneme-grapheme correspondences) in writing. This selection cannot be based on sound alone, but must additionally take account of grammatical conventions, and idiosyncrasies in the spellings of individual words. Thus, skilled spelling seems to depend on the establishment of a vocabulary store in which spellings of individual words are fully or partially specified. Reading and spelling disability (dyslexia) often seems to involve a problem in handling the correspondence between segments of written and spoken language combined with failure to establish a spelling vocabulary. These difficulties sometimes co-occur with problems in acquiring other sequentially structured forms of knowledge, such as the systems for labelling clock or calendar time, and possible reasons for this will be discussed.

Implications for teaching and spelling reform are not straightforward since it is still unclear whether disability reflects a general difficulty in comprehending correspondences between segmented arrays or a more specific difficulty relating to lack of perfect spelling-to-sound correspondence.

Corpus

The Logogen model **(Morton & Patterson, 1980 [1])** distinguishes three channels for reading words: (1) direct connection between visual word recognition (input logogens) and speech production (output logogens); (2) indirect connection between input and output logogens via the cognitive (semantic) system; and (3) a non-lexical grapheme-phoneme conversion channel.

Studies with developmental dyslexics **(Seymour & Porpodas, 1980 [2])** indicate that processing of grapheme-phoneme correspondences (tested by reading of regularly spelled nonsense words) is defective, especially with regard to rate of (letter-by-letter) processing. Processing time anomalies are also found in tasks involving analytic comparison of letter arrays, and internal scanning of spelling information. Older dyslexics appear to have developed a rapid and efficient word recognition system despite these anomalies.

An alternative model **(Shallice & Warrington, 1980 [3])** postulates a parser (word-form system) prior to semantic or phonological analysis which categories the letter string into familiar subsets (whole word, morphemes, syllables, spelling patterns) using an abstract graphemic code. Speed of operation of this stage can be selectively influenced by format distortion (e.g. $^{T}_{A}{}^{B}_{L}{}^{E}$), and the stage is sensitive to variation in word length, and orthographic regularity.

For spelling production there also seems to be an initial reliance on a process of phoneme-grapheme translation. This depends on segmentation of the speech code into appropriate units (analogous to operation of the word-form on visual graphemes). A lexically indexed spelling store (functionally distinct from a visual word recognition system is essential for achievement of normal competence. However, this is also dependent on phoneme-grapheme processing as is shown by strong effects of spelling irregularity on spelling error frequency in dyslexics and normal children (c.f. **Seymour & Porpodas, 1980**).

The structural coding hypothesis (Seymour & Porpodas, 1980) states that representation of segments in both the phonemic and graphemic domains, and the establishment of mapping relations between them, depends on a general capacity for coding properties of arrays, including

(a) approximate location of elements,
(b) inherent directionality, and
(c) precise locations and adjacencies.

A defect in some aspect of this coding system, will disrupt the development of the segmenting functions of the word-form system, and the phoneme-grapheme channel, with adverse consequences for lexical word recognition and 'sight vocabulary' development, and for the storage of structures defining the precise spelling of words.

It is argued that certain other cognitive systems, such the numbers, the clockface, the months of the year, and the days of the week, also constitute arrays which are coded with respect to approximate location, direction and precise location. The learning of these systems is often disrupted in dyslexia, as can be shown by retrieval time measurements.

The generality of this conclusion, and the exact basis of the relation between the time systems and spelling structure is being examined in current research. In these studies defects are noted in the coding of arrays in the absence of problems of phonemic segmentation or variability of mapping.

This would not support an argument to reform spelling to achieve more obvious phoneme-grapheme consistency. Written language already contains a great deal of structure at levels of letter frequencies, grapheme-phoneme correspondences, syllabic and morphemic structure, and it is unlikely that disability of this fundamental nature would be eliminated by improving structure at one level at the expense of the other.

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Teaching and Learning Spelling

"Spelling errors made by 8–11 year old pupils."

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Abstract
Survey of spelling errors:
1. Categories of error, using **Peter's Manual**, and arranging the results in grids.
2. Range and distribution of the number of errors.
3. Individual and class preponderance of error.
4. Further diagnosis from an Informal Writing Inventory.
5. Sample remediation, indicating changes in spelling behaviour.

TOPIC HEADINGS:
Spelling behaviour.
Spelling is a `tool' subject in the context of communication skills. The complexity of the continuous writing process has been considered in the Informal Writing Inventory.
Factors to be considered in learning spelling:
(a) Motivation,
(b) What is learning?
(c) Short term or long term memory?
(d) Transfer to writing vocabulary, how?
Establishing a method of self instruction.
Teaching spelling after diagnosis.
What to do in case of faulty perception.
School studies: Six are described, with handouts of scripts.
Conclusion:
Spelling behaviour can be altered by systematic remedial teaching, but there is the danger of remaining at permanent instructional level.
Factors needing exploration are:
(a) What constitutes learning to spell a word? Short term memory or long term, and how long term?
(b) How to transfer words learned in isolation to spontaneous use as part of the writing vocabulary?
(c) Remediation for faulty auditory perception.

Corpus
The points of view of multitudes of children who have to learn English spelling, of thousands of teachers who try to teach children how to learn spelling, and of lecturers who hold inservice courses for teachers on the teaching of spelling, form the background to the following thinking,

Spelling — a Communication Skill.
The complexity of the continuous writing process has been considered in "I enjoy writing. . . it teaches me," an article in *Teaching English*, Spring '79, vol. 12, No. 2, pages 38–43, **[6]** in which I stated:
"Informal Reading Inventories are teacher-structured reading situations. The teacher finds passages related to the pupil's interest or to the current class theme, selects the components for diagnosis according to her awareness of the pupil's needs, and uses the results in planning her reading programme."

Informal Reading Inventories differ from standardised tests which have the same prescribed passages for all, standard procedures and statistically competent norms. In The Reading Curriculum (O.U. 1973), the Betts levels of attainment in IRI are given

(1) independent,
(2) instructional,
(3) frustration.

The IRI uses the concept of readability in its wide sense, matching books to readers.

In view of a changing climate of opinion about excellence and failure in children's writing and the lack of standardised tests, I had to devise structured writing situations to give some degree of uniformity of procedure. I taught the P4, P5, P6 classes in the preliminary build-up and timed the writing to last twenty minutes. At the end of the experimentation, I had four pieces of writing from each child, written at six-monthly intervals. The preliminary teaching involved my reading aloud literary extracts on a theme and talking over possibilities with the children. For the children the learning situation was a listening one, with the opportunity to ask and answer questions.

On several occasions, to create atmosphere, I read the classes an introductory "horse" poem, "The Runaway," by Robert Frost. Excerpts about horses from a tape on "Dreams" prepared by a P7 Class were played. I read parts of "The Night of the Wild Horses" by G. Harrison (OUP), a long narrative fantasy poem. The fantasy element is in the notion of fairground horses coming alive and transporting their child riders into the past. There was some classroom interaction in discussion which ranged from cavalry charges in historic battles to the contemporary Grand National. The children were then invited to write their own dream ride for twenty minutes.

By dint of repetition, the teaching situations became almost standard procedures. With the current interest in Informal Reading Inventories, it might be not unfair to coin a parallel phrase and to call the procedures Informal Writing Inventories. The levels of attainment in the Informal Writing Inventories were tentatively named

(1) independent,
(2) instructional, and
(3) fumbling,

to match the Informal Reading Inventory with its independent instructional and frustration reading levels. An attempt was then made to isolate the skills involved in written communication and a paragraph devoted to "Handwriting and Spelling" suggested that action be deferred in these fields. The establishment of other categories in a detailed assessment instrument was further described in the article and the way was cleared for consideration of spelling as a "tool" subject in the context of communication skills.

Spelling-Learning Problems

Before experimentation began, thinking and discussion suggested the following problem factors:

(a) motivation to learn spelling?
(b) What constitutes learning? When is a word correctly spelled? Short term memory or long term memory? How long is long term memory?
(c) How transfer to writing vocabulary by spontaneous use in the continuous writing context of words learned in lists, in dictated passages, or inserted in contrived but meaningless sentences?

Spelling — Diagnosis using **Peters' Manua**l. **[4]**

Six schools were selected as available for diagnostic investigation, providing a wide range of ability in varying socio-economic environments. Schools A and C were city schools, schools B and D burgh schools, and schools E and F rural schools. 8, 9, 10 year olds in P4, 5 and 6 of these schools formed a total of 500 children. Peters' diagnostic dictations were given to class groups and the results were tabulated in grids which could be read horizontally for individual diagnosis and vertically for class diagnosis.

Table 1. Fragment of a Grid.

	I. Substitutions (a) Reasonable phonic alternatives	(b) Phonic not conforming to spelling precedent	II. Faulty Auditory Perception	III. Perseveration	IV. Analysis of structure Omissions
Pupil Y		satisfactshon sertinly	Dog (=dodged) dangeris		frightend were (=where)
Pupil Z	here (=hear)	stage fritend satisfackion traffick			brige troting
	1	6	2	—	4
	Insertions	Transpositions	Doubling	V. Unclassifiable	Totals
Pupil Y	tiyed	niosey			8
Pupil Z	noisey				8
	2	1	—		16

Table from Interim Report

My comments in the Interim Report were "Pupil Y's lack is in auditory perception as seen in "dog" for "dodged" and "dangeris" for "dangerous"; and "were" for "where" could possibly be entered here too. The pupil makes some use of phonics, e.g. satisfactshon and "sertinly" but the errors under "Analysis of Structure, e.g. Insertions "tiyed" and Transposition "niosey", suggest faulty visual perception. Pupil 2 uses phonic knowledge in 5 out of 8 errors satisfactorily but has not established word patterns to fit into the phonic knowledge. The same applies to "niosey", with its insertion of "e". In both cases, the omissions of single letters may well be single-occasion, usually called "careless" errors, but it could be argued that such errors are also symptomatic of the problems of imprecise visual perception of words.

What is noteworthy in diagnosis is that the two pupils should not be regarded as identical problems though they have the same number of errors. The preponderance of error may well be different and requites different remediation.

The detailed grid information was duplicated, distributed to and discussed with head teachers and class teachers so that the diagnosis should influence their teaching procedures. Later the same classes were given an Informal Writing Inventory, after which the spelling of the scripts was subjected to the Peters' diagnostic categories and the results, tabulated in grids, were compared with the results of the Peters' dictations. The number of errors and the patterns of error were compared. In the Interim Report, I commented on dual category errors and multiple errors:

> "When considering the categorisation of errors, there is need to call on knowledge of local accents and dialect usages to decide on categories. Ideally, the best judge of category is the child's teacher. Examples taken from P4, School are
> (1) were (=where), (2) certainlay (=certainly), (3) hores (=horse).
> (1) might be either "Faulty Auditory Perception" or "Omissions ',
> (2) might be either "Faulty Auditory Perception" or "Transposition."

Some words also have multiple errors within them, e.g.

(1) remode (= removed), (2) shage (= shaggy).

(1) might be either "Faulty Auditory Perception", or "Insertion" or "Omission", or "Transposition",

(2) might be either "Phonic Alternative not conforming to Spelling Precedent", or "Omission", or "Insertion", or "Doubling". Subjective judgement is exercised in categorising these errors."

Finally, the diagnostic dictation was administered again, and, at each step in the experimentation, copies of the detailed results were discussed with Head Teachers and Classroom Teachers. Topics which took prominence in discussion were

(a) the writing vocabulary overlapping but not identical with, the speaking, listening, and reading vocabularies of the children,
(b) use of the dictionary,
(c) subvocalization in recalling the spelling of a word,
(d) spelling, though a single skill at the independent level, remains a complex skill at the fumbling level.

School Studies
Teacher enthusiasm and effort did accomplish spelling development.

School C (City)
Blackwell's Spelling Laboratory was a systematic school compensatory programme. There were no "at risk" spellers (a phrase coined from the Tizard Report's kindly-phrased reference to children "at risk" in reading).

The preponderance of error was in the faulty auditory perception category for the diagnostic dictation tests. The Informal Writing Inventory gave a different distribution with equalised categories.

School D (Burgh)
Again, the preponderance of error was in the faulty auditory perception category, though School D is socio-economically different from School C. In the P5–6 classes, the omissions category catches up on faulty auditory perception.

School B (Burgh)
In P4, the faulty auditory perception category, though still the largest, was relatively much smaller than for schools C and D. In P5 and 6, omissions was the largest category. A socio-economic difference was also evident in spoken language, especially in articulation.

School A (City)
Again, the preponderance of error was in the faulty auditory perception category. The teaching was above average and as devised by individual teachers. The results were poorer than for School C with its systematic school compensatory programme.

Faulty Auditory Perception
Discussion of early results with teachers on inservice courses showed that most passed off the problem of faulty auditory perception, and therefore faulty sub-vocalization, on recall, as "lack of phonic knowledge" and failed to appreciate that a major linguistic problem had been isolated.

Remedial Teaching School E (Rural)
In addition to the testing as for Schools, A, B, C, and D, Arvidson's method **[1]** for self learning was taught. Short term and long term memory results were tested and there was incidental learning of dictation within a thematic situation. Two P4 pupils "at risk" were given individual tuition. The attached results, pages headed SCHOOL E, 1251, 1252, show improvement in long term memory for two boys who had been in danger of opting out of written communication.

School F (Rural)
As for School E, the method for self-learning was taught and short term and Iona term memory testing was given. The attached results for pupil 626, show development of:

1. The ability to use the self-learning method.
2. The ability to write words learned progress from 1/5 to 2/5 to 5/10 words correct.
3. The attempt at Peter's diagnostic dictation improved from four words correct, 96 wrong, to 29 words correct, 71 wrong. Systematic remedial teaching can alter spelling behaviour but there is the danger of remaining at permanent instructional level.

General Conclusions

Two problems need further exploration:

(a) What constitutes learning to spell a word? Short term memory or long term memory and how long term?

(b) How can teaching transfer words to spontaneous use as part of the writing vocabulary? The motivation-to-learn problem was to a certain extent solved but another problem is now revealed in:

(c) What is the remediation for faulty auditory perception?

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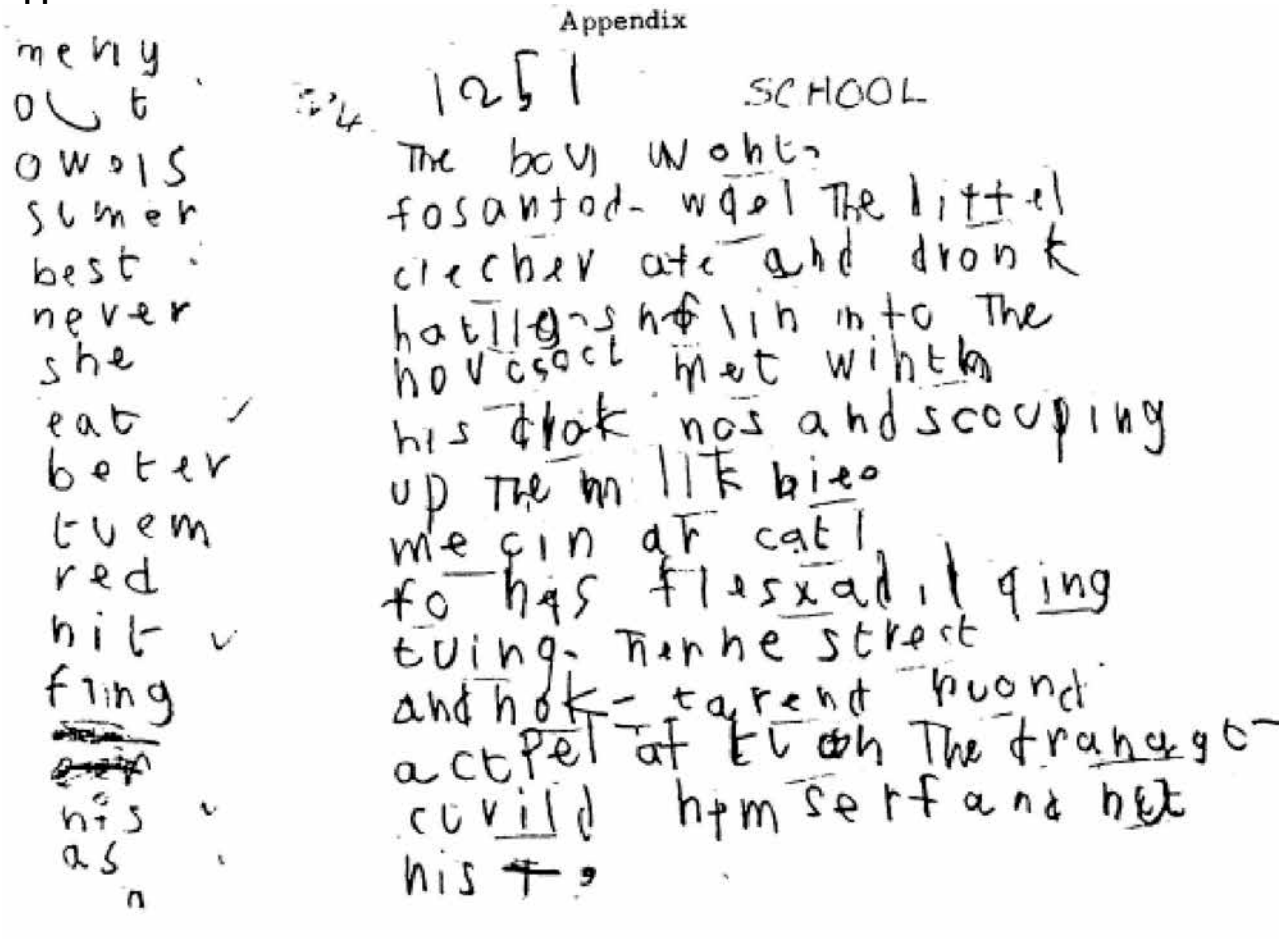
Appendix



[Spelling Progress Bulletin Spring 1982 pp13–18 in the printed version]

"The Spelling of Nasal Clusters by Dyslexic and Normal Children," by Dr. Margaret J. Snowling.*

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Abstract
The spelling of nonwords containing nasal clusters either in final position (*hent*) or preceding syllabic 'l' (*wemble*) was explored. Subjects from 6 to 14 years old heard the word, repeated it, and then spelled it in a word completion task. A tendency to reduce clusters when writing but not when speaking was evident in less skilled spellers. The nasal consonants 'n' and 'm' were often omitted when occuring in clusters with other consonants.

Acknowledgements
Thanks are due to Dr. Uta Frith and Dr. Dolores Perin for assistance and helpful discussions. Also to the dyslexic children who participated in the experiment and for the co-operation of the staff and pupils of Bromley High School, Kent, and Surrey Square School, Forest Hill, London.

Corpus
In recent years it has become popular to carry out qualitative analysis of spelling errors in order to throw some light upon spelling difficulties **(Peters 1975 [14], Cromer 1980 [3])**. It is customary to distinguish between a phonetic error which correctly preserves the sound sequence of a word (e.g. *speshull* for *special, trafick* for *traffic*) and a nonphonetic error in which the sound sequence is not preserved (e.g. *deter* for *doubt, heyou* for *hay*). This distinction is an important one which has been shown by many investigators to be of diagnostic significance. **(Boder, 1971 [1], Nelson & Warrington, 1974 [11], Frith, 1979 [5]).**

Phonetic errors are usually assumed to be less serious than nonphonetic errors because they are easily deciphered. A more liberal approach to spelling would regard these versions as acceptable. Furthermore, an individual who makes primarily phonetic errors shows evidence off the ability to segment the target words into appropriate speech units (phonemes) and of being able to translate these units into letters using phoneme-grapheme rules **(Frith, 1980 [6])**. In contrast, an individual whose errors are primarily nonphonetic may have difficulties at either or both of these initial stages. However, the available evidence suggests that these children have difficulty in organizing the speech sounds comprising words even before they begin to apply phoneme-grapheme translation rules to them. **(Bradley & Bryant, 1978 [2], Stringer & McKenzie, 1981 [20])**. Thus, it is important to distinguish these two basic error types because they might point to the need for different sorts of remedial intervention. Whereas individuals who make primarily phonetic errors may require only a systematic introtroduction to conventional spelling patterns and spelling rules, individuals whose errors are primarily nonphonetic may require more specialized auditory skills training.

However, the ability to spell by ear is still a little understood process and before any definite remedial recommendations can be made upon the basis of spelling errors, it is necessary to know how well any individual of a given age and intelligence could be expected to spell 'by ear.' Even the first step in phonetic spelling — the ability to analyse the speech sounds in the target word, depends upon a variety of perceptual, linguistic and cognitive factors **(Golinkoff, 1978 [7])**. It would be unrealistic to expect these to be available in equal measure to young children just starting school and to school leavers. Moreover there is growing evidence that the individual's ability to segment words into phonemes is partly dependent upon their orthographic knowledge **(Read, 1975 [17], Marcel, 1980 [10], Perin, 1982 [13])**

The importance of orthographic knowledge was first reported by **Read (1971 [15])** following a study of the writings of pre-school children who had received no conventional instruction. Their spellings could be regarded as phonetically acceptable although they represented speech sounds in a far less conventional manner than that used by older children who were familiar with the orthography. For instance, they wrote 'trouble' as *chrubl*, 'train' as *chran*. Evidently, in analysing these words for spelling, they regarded the consonant cluster [tr] as similar to the acoustically-similar [tʃ]. As children learn to read, they presumably realize that words beginning with [tr] and [tʃ] are marked differently in the orthography and this influences their subsequent perceptual analysis of words containing these sounds. Indeed **Read (1973)** [16] showed that whereas five and six year olds said that words beginning with [cr] sounded more like words beginning with ['t]than others beginning with [tʃ], seven and eight year olds: who were better readers, classified the words beginning with ['tr]' with those beginning with ['t]. Thus, it is undoubtedly important to take account of an individual's spelling knowledge when making a qualitative assessment of errors. Errors which at first glance may appear to be due to perceptual difficulties may in truth only arise because the individual is unfamiliar with the spelling convention being tested.

Read (1975) [17] also reported the tendency for pre-school children to omit nasals from their spellings of nasal clusters, e.g. they spelled *bent* as *bet*, *camping* as *capin*. While this type of error could well be classified as 'nonphonetic', its occurence in the early stages of spelling development may well be acceptable. Read argued that, although the young children did not mark the nasals in their spellings, they were nonetheless aware of their presence. They could distinguish between minimal pairs such as *camp-cap*, *bent-bet* and could provide rhymes for words like 'trunk' without difficulty. Therefore it was suggested that while the children were aware of the nasal, they regarded it as a feature of the vowel. Thus, in spelling, as long as they had printed the vowel, they believed that they had represented the nasal characteristic. It would be only after sufficient exposure to the written word that children would realize that the nasal sounds [m] and [n] have always to be represented by graphemes in the standard Orthography.

Marcel (1980) [10] observed the same tendency to reduce nasal clusters in the spelling of children who were poor spellers, in adult literacy students and in certain neurological patients. He argued from the nature of their errors that they were analysing speech in a manner similar to that used by young children. As they had not yet acquired spelling knowledge or, in the case of neurological patients, as they had lost this knowledge, they were making use of intuitions about the phonetic characteristics of words, uninfluenced by spelling conventions. The aim of the present study was to extend the findings of **Marcel (1980)** by investigating the ability of normal and dyslexic children of different ages to spell nasal clusters and to examine the contribution of spelling knowledge to this process. Furthermore the importance of perceptual factors was to be investigated. Both **Read (1975)** and **Marcel (1980)** reported that nasals were omitted more frequently from clusters in which they were paired with unvoiced consonants (e.g. *tent, bank, bump*) than from clusters in which they were paired with voiced consonants (e.g. *tend, fence*). They argued that this fits with the phonetic facts. In American English, nasals do not constitute true phonetic segments prior to unvoiced stops **(Malécot, 1961 [9])**. In standard English, a final unvoiced obstruent has the effect of shortening all preceding continuants. Thus, in most English accents, nasals are experienced as less perceptible in clusters where they preceded unvoiced stops and this may well be why they are omitted more frequently in these contexts. In the present study, by examining subjects' ability to spell all possible nasal clusters (nasals paired with voiced and unvoiced segments) the aim was to examine the role of perceptual factors in more detail.

Method

The method chosen was a completion-spelling task. Following auditory presentation of a target word containing a nasal ending, the subject was required to repeat the word and then to add the appropriate ending to an incomplete version of the target word. All possible nasal endings were

tested. In addition, stimuli endings in the sounds [m], [a] and [ʃ] were included to ensure that the graphemic responses for nasal sounds were available. Each of the nasal endings was tested in the context of a nonsense word to minimize the effect of knowledge of specific word spellings.

Two groups of subjects were tested and within each group, subjects of lower and higher spelling ability were included. There were three levels of task difficulty, the spelling of nasals (e.g. *blem*), final nasal clusters (e.g. *clest*), and medial nasal clusters followed by syllabic [l] (e.g. *stemple*). The number of spelling errors made by each subject under each level of difficulty was calculated.

Thus, there were two between subjects variables, Group (dyslexic and normal), Spelling Ability (High versus low), and one within subjects variable, Task Difficulty (nasal alone, nasal cluster, nasal cluster preceding [l,]). The dependent variable was percentage spelling errors.

Subjects
For the purpose of this study, an objective definition of dyslexia was adopted. Dyslexia is an impairment of the ability to read and to spell.

The children were all of at least average intelligence with reading and spelling ages which were significantly below the level to be expected given their age and intellectual ability. All had been referred for psychological assessment because of significant under-achievement at school. 23 dyslexic children were tested. They ranged in age from 7 years 8 months to 15 years. Reading ages (as measured by the Schonell Graded Word Reading Test) ranged between 7 years 2 months and 10 years 7 months and Schonell Spelling Ages ranged between 6 years 8 months and 9 years 7 months.

The normal subjects were selected from two schools in the London area to match the dyslexic children as closely as possible for reading and spelling achievement. They were selected by their teachers as being average for their age in reading and spelling. 19 children aged between 6 years 5 months and 9 years 6 months were tested. Schonell Reading Ages ranged between 6 years 3 months and 10 years 2 months, with Spelling Ages ranging between 6 years 8 months and 9 years 10 months.

Within each group of subjects (dyslexic and normal), subjects of high and low spelling ability were separated. Amongst dyslexics there were 15 children of lower and 8 children of higher spelling ability. Amongst the controls there were 12 children of lower and 7 children of higher spelling ability. The lower ability groups had Spelling Ages ranging from 6 years 8 months to 8 years. The dyslexics had a mean chronological age of 9 years 10 months. They were on average 18 months older than the normal controls whose mean chronological age was 8 years 4 months.

The higher ability groups had Spelling Ages from 8 years to 10 years. The dyslexics had a mean chronological age of 12 years 2 months, some three years older than their controls with a mean chronological age of 9 years 1 month.

There was no significant difference between the Reading Ages or the Spelling Ages of the dyslexic subjects and the normal controls. Normal children of Spelling Ages greater than 10 years were also tested but as they made no errors in the experimental task, they were not included in the analyses.

Stimuli
A list of all possible nasal endings was compiled using Rockey's Phonetic Lexicon (1973). A phonetic classification of the exhaustive list is presented in **Table 1**. A list of nonsense words, each composed of a CV or CCV structure followed by a target nasal ending was devised. Each nasal ending was tested three times in the context of three different nonsense words (e.g. *plankle, nunkle. minkle*). Thus, there were 48 stimuli altogether. The experiment was carried out in three parts, each nasal spelling being tested once during each part. The testing order of the various nasal endings was randomized once but then presented in that order for all subjects. This allowed each subject to be given the same three page booklet with 16 incomplete spellings on each page.

The order of presentation of the three parts of the experiment (pages of the booklet) was randomized across subjects.

Procedure
The experimental procedure was explained to the children and sufficient practice was given to ensure that they were familiar with the task. First of all, the experimenter pronounced the target stimulus in a clear voice. The subject was then required to repeat the stimulus. Only very occasionally was the stimulus mispronounced and in these cases further repetition was elicited before proceeding. Having pronounced the stimulus satisfactorily, the subject completed the partially spelled version on the page in front of him.

Scoring
Each subject's protocol was scored for phonetic accuracy. Provided that the subject's response was phonetically acceptable it was regarded as correct.

No account was taken of illegal spelling patterns (e.g. *nj* for [ndʒ]) and b/d reversal errors were ignored. Furthermore, no account of order of errors was made. So, if the subjects included both elements of a target cluster in their spelling, but the order was wrong (e.g. one subject added 'ten' to 'he-' for "hent"), their version was still marked correct. This type of error occurred only very occasionally.

Given the nature of the completion task, a maximum number of three errors per stimulus could occur. Errors could occur with respect to the nasal itself (e.g. ble*n* for ble*m*), with respect to the other consonant in a nasal cluster (e.g. hen*d* for hen*t*), or with respect to the syllabic [l] ending (e.g. stemp*er* for stem*ple*). In each case the target element could either be omitted or replaced. (The above gave examples of substitution errors — examples of corresponding omissions might be: *twage* for *twange*, *hen* for *hent* and *stemp* for *stemple*).

Examination of the total corpus of errors indicated that the nasal elements of the spellings provided the greatest source of difficulty (c.f. Marcel, 1980). Over all subjects 85.2% of errors were made with respect to the nasal segments. A much smaller proportion of errors, some 11.9%, occurred on the other consonants and a negligible 2.88% of errors were made on the syllabic [l] endings. Hence, a decision was made to concentrate primarily upon nasal errors in subsequent analyses. Furthermore, 87.4% of the nasal errors were found to be nasal omissions, i.e. reduction of nasal clusters. Nasal substitutions occurred in only 12.6% of cases. Nasal substitutions were made primarily by children with Spelling Ages of less than 9 years who tended to represent [ŋ] by 'n' instead of 'ng.' The phoneme [m] was never confused with [n]. Thus, since the main purpose of including nasal-alone spellings was to ensure that the graphemic responses 'm' and 'n' were available, it seemed justified to spend no further time in discussing the error category of nasal "substitutions."

Hence, the number of nasal omissions made by each subject at each of the three levels of difficulty was calculated. (Nasal alone, nasal cluster, and nasal cluster +[l]). These scores were divided by the total number of errors possible at each level of difficulty (9, 12, and 18 errors respectively) and the results were expressed as percentage errors.

Results
The data describing each subject's performance under each level of difficulty of the experimental task was transformed using a (log + 1) transformation. These data were then subjected to an ANOVA with two between and one within subjects variable (see **Table 2**).

The results of the ANOVA indicated that there was a significant difference between the various levels of difficulty of the task $F(2,76)=48.1$, $p<0.001$. For all subjects significantly fewer nasals were omitted from nasal-alone endings than from nasal-cluster items. Furthermore, significantly fewer nasals were omitted from final nasal clusters than from medial nasal clusters followed by syllabic [l] (F 0.5: $2,80=83\text{-}008$, $p<0.001$).

There was a significant effect of Spelling Ability, $F(1,38) = 5.925$, $p < 0.05$ which confirmed that subjects of higher spelling ability made fewer nasal omission errors than subjects of lower spelling ability. However, the Groups effect did not reach significance, which indicated that dyslexic subjects omitted no more nasals during the experiment than their Spelling Age controls. None of the interactions were significant.

Qualitative Analysis of Errors

Having confirmed that the Task Difficulty Effect was significant, it was of interest to establish the hierachy of difficulty of the various nasal cluster spellings within each level. (Nasal alone, Nasal + voiced stop, Nasal + unvoiced stop, Nasal + fricative, Nasal + affricate, Nasal + voiced stop + [l], Nasal + unvoiced stop +[l]. Thus, the percentage of error rate for each subject on each ending-type was tabulated (see **Table 3** for subject means). A Friedman two-way analysis of variance by ranks indicated there was a significant difference in error rate across the various nasal cluster endings ($\chi 2 = 13.26$, $df = 6$, $p < 0.025$). However, the variability of the data was such that none of the more detailed comparisons (e.g. nasal + voiced vs nasal + unvoiced stop) reached significance. Therefore it was only possible to discuss the apparent trends tentatively.

Thus, amongst nasal cluster endings, the endings, nasal + affricate caused most difficulty (*nch, nge*). The remaining endings, nasal + voiced stop (*nd*), nasal + unvoiced stop (*nt, nk, mp*), and nasal + fricative (*ns*), appeared to be of equivalent difficulty. Amongst nasal cluster and [l] endings, those in which the nasal was followed by an unvoiced stop *(-nkle, -ntle, -mple*) appeared to cause more difficulty than those in which it was followed by a voiced stop *(-ngle, -ndle, -mble*).

Discussion

The results of the experiment confirmed that there was a significant improvement in the ability to consistently represent nasals in spelling with an increase in spelling ability. The absence of a dyslexic-normal group difference suggested that this improvement was due primarily to increased spelling knowledge and was not dependent upon chronological age. Moreover the improvement could not be attributed to perceptual development because all of the subjects were able to repeat the stimuli accurately in all conditions.

The Task Difficulty Effect is of interest because it points to an important factor determining spelling accuracy, namely the number of phonetic segments in the target word. For all subjects, accuracy was greatest when only one phonetic segment had to be identified and transcribed as in the nasal alone endings. Performance in this condition also confirmed that graphemic responses for [m] and [n] were available for all subjects. Accuracy was less when two separate phonetic segments had to be identified and transcribed as in the final nasal clusters and least when it was necessary to deal with more than two segments as in the nasal cluster preceding syllabic [l] endings.

The observed order of difficulty cannot be attributed to a deterioration of phoneme-grapheme translation over time. This explanation would predict that the majority of errors on the nasal cluster + syllabic [l] spellings (e.g. *stemple*) would occur on the syllabic endings. However, the data shows that relatively few errors were made in these positions and the majority of errors were reductions of the medial nasal clusters. The Task Difficulty Effect also rules out the possibility that the accuracy with which a nasal is represented is entirely dependent upon its perceptual salience. If this were so, then nasals should be omitted as frequently from the final nasal clusters as from the same nasal clusters in medial position preceding syllabic [l]. The data show clearly that this is not the case, for many more reductions of medial clusters were made than of the same clusters in final position. A further argument against the perceptual salience explanation is that, although there was a tendency for nasals to be omitted more than when they were less "perceptible", i.e. prior to unvoiced stops (*tantle*) than when they were more "perceptible", i.e. prior to voiced stops (*dundle*), this tendency did not reach significance ($F(1,36) = 3.76$). Thus, while perceptual factors undoubtedly have a part to play in determining spelling proficiency, their role may be less important than previously suggested **(Read, 1975 [17]; Marcel, 1980 [10])**.

In order to provide a parsimonious explanation of these results, it is necessary to consider the various stages in the process of "spelling-by-ear." There are at least two possible ways in which

this process could proceed. The target word could first be segmented into phonemes. Following this, each of the segments could be encoded and held in short term store for transcription in a left to right sequence. However, introspection suggests that it is more likely that the transcription process begins as soon as the phoneme has been segmented. In this case, the content of the "working store" is the unanalysed target word. A detailed examination of the time course of phonetic spelling could possibly shed light upon these two alternatives. For present purposes, the important consideration is that the processing demands presented by the nasal cluster + syllabic [l] spellings are greater than those presented by the final nasal clusters. More phonemes have to be segmented and also more 'bits' of information have to be held in short term store. As already argued, medial clusters cannot of themselves be more difficult to segment than similar final clusters but they may be more difficult to analyse when an additional segment, (e.g. [l] has to be stored simultaneously. In such cases, less attention can be devoted to their analysis and subsequent transcription. Hence, the nasal clusters are analysed in a superficial phonetic manner guided by perceptual factors instead of drawing upon knowledge of conventional spelling patterns. As spelling knowledge becomes more automatic, these spelling patterns are utilized more easily.

If this theory were to be accepted, it could also explain a discrepancy between the present results and those of **Marcel (1980)** [10]. Marcel reported a strong tendency for nasals to be omitted from final clusters in which they preceded unvoiced stops. This effect was absent from the present results. A possible explanation lies in the difference between the two experimental tasks. Marcel required his subjects to spell complete nonsense words while in the present study, subjects had only to add the target spelling patterns to incomplete versions. Thus, Marcel's subjects had to deal with a greater number of phonetic segments than the subjects in the present study. It is interesting that a similar tendency to that reported by Marcel, i.e. the reduction of more nasal clusters preceding unvoiced than voiced stops arose in the present study when the clusters were followed by syllabic [l]. In these cases, processing demands were higher just as they were in Marcel's free-spelling situation.

If the theory is a plausible one, then nasal reductions should occur in other instances when information processing demands are high. For instance, nasals should frequently be omitted if other phonemes with which they occur are difficult to analyse or transcribe. There is at least preliminary evidence that this is true in that nasals were frequently omitted when they were paired with affricates, ([ntʃ], [ndʒ]). Affricates pose difficulty for several reasons. First, they are more complex sounds and each appears to be composed of features common to more than one other phoneme. Thus, /dʒ/ starts like the phoneme /d/ but is released with affrication common to /ʒ/. Similarly, /tʃ/ starts like the phoneme /t/ but is released with the friction associated with /ʃ/.

Secondly, the affricates /dʒ/ and /tʃ/ are not only similar to other phonemes but they also sound very similar to one another particularly in unfamiliar contexts (e.g. nonsense words). Thus, they are often confused by children **(Ingram, 1976**). In the present experiment, a significant number of substitution errors occurred in the nasal + affricate spellings (9%). These did not occur at any significant rate for any of the other final nasal clusters. The most common substitutions were [tʃ] for [dʒ] or vice versa, confirming their confusability. However, the substitution of [d] for [dʒ] and [t] for [tʃ] was noticed, which lends credence to the previous argument.

Finally, the affricates [dʒ] and [tʃ] also cause more problems for the speller than the phonemes like stop consonants because their orthographic representation is less straight forward. Whilst the phoneme /d/ can only be represented as *d* or *dd*, the phoneme /dʒ/ can be represented as *j, ge, gi, gy*.

Similarly, while the phoneme /t/ can be represented by a single grapheme *t* or by *tt*, the phoneme /tʃ/ is represented by a consonant digraph ch. Children usually learn digraphs later than single letters **(Perfetti & Hogaboam, 1975** [12]**)** and may confuse them with other digraphs e.g. *sh* for some time. Therefore there are several reasons why the nasal + affricate endings place heavy demands upon processing capacity. The difficulty posed by their analysis and transcription means that most of the speller's attentional resources are directed towards the affricate. This causes only superficial processing of the nasal and consequently it is frequently omitted.

Hence, it is proposed that children reduce nasal clusters whenever they have to deal with novel materials which place heavy demands upon their processing capacity. The simplifications which they make are systematic and rule governed and can be likened to 'phonological rules.' In the present experiment, the children were found to omit nasals from their spelling when a large number of phonetic segments had to be transcribed. However, it is interesting that a similar phenomenon is noticed at an earlier stage in child speech.

In the same way that pre-school children can distinguish minimal pairs such as 'cap' and 'camp' but spell 'camp' as *cap* **(Read, 1975 [17])**, young children have been shown to perceive certain phonemic distinctions but not to produce them **(Smith, 1973 [19], Dodd, 1975 [4])**. For instance a child may recognize that 'pay' and 'play' are different but may produce [pei] for both. Another analogy between spelling and speech can be drawn in that in the present study, nasal clusters would be spelled correctly in certain contexts but not in others. In child speech development, it is often the case that a given sound may be produced in one context but not in another **(Ingram, 1976 [8])**. For instance, a child may produce a correct rendering of the cluster [st] in *star* [sta]. However, the same child may resort to a less mature pronunciation when learning a new word, e.g. *stable* [teibl].

Thus, the explanation proposed may be a general one. Basically, each individual is assumed to possess a system of phonological rules. The status of an individual's phonological system is dependent upon several factors, including age, language experience and, as argued in the present paper, orthographic knowledge. When an individual has to process familiar verbal materials, either for speech or for spelling, automatic motor programmes are available so there is no reason to call upon the phonological system. However, when unfamiliar materials have to be processed, phonological rules are brought to bear. These are basically just simplification devices which allow the individual to handle processing demands which exceed their processing capacity. Examples would be [nt] → [t], [mp] → [p], and so on. While this hypothesis could offer an attractive explanation, it must await further evidence and remain highly speculative at the present time.

Conclusions

The present study has shown that the ability to consistently represent nasals in the spelling of nasal clusters is primarily dependent upon spelling knowledge.

The perceptual salience of the nasal has a part to play but its role is minor in comparison to that played by the overall phonological complexity of the target spelling. The study highlights the importance of taking Spelling Age into account when assessing the quality of spelling errors. For instance, had comparison been made between the spelling of the dyslexic subjects and normal spellers of the same chronological age, a preponderance of nasal omissions would have been observed in the dyslexic's spelling. These spellings would have been classified as 'nonphonetic' under some schemes or as arising because of perceptual difficulties under others. In turn, this classification may have led to the prescription of auditory skills training for the dyslexic children and such training may, in many cases, have been misdirected. First, there is evidence that children could already 'perceive' the nasal segments and secondly, perceptual salience has itself been shown to be of minor importance. The present study suggests that a more appropriate course of action might be initially to familiarize the children with the nasal spelling patterns visually (by analytic reading) or kinaesthetically (by copying or tracing). It may only then be reasonable to expect them to be able to organize spoken versions of words containing nasal clusters into the form required for accurate spelling.

Hence, the purpose of the present paper is not to suggest that a distinction between phonetic and nonphonetic spelling categories should be abandoned. Rather, it is meant to suggest that much more information is required about the development of the ability to spell-by-ear before this potentially fruitful approach to remediation can be pursued.

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TABLE 1

PHONETIC CLASSIFICATION OF NASAL ENDINGS

CLASSIFICATION	CONVENTIONAL SPELLING PATTERN
Final nasal [n], [m], [q]	-n, -m, -ng
Nasal + unvoiced stop [nt], [nk], [mp]	-nt, -nk, -mp
Nasal + voiced stop [nd]	-nd
Nasal + fricative [ns]	-ns -nse -nce
Nasal + affricate [nʧ], [ndʒ]	-nch, -nge
Nasal + unvoiced stop + [l] [ntl], [nkl], [mpl]	-ntle, -nkle, -mple
Nasal + voiced stop + [l] [ndl], [ngl], [mbl]	-ndle, -ngle, -mble

TABLE 2

Log percentage error rate of dyslexic and normal subjects of high and low spelling ability under three levels of task difficulty.

	Nasal alone (blem)	Nasal cluster (lound)	Nasal cluster + /1/, (wemble)
Low Spelling Ability (S.A. < 8.0)			
Dyslexics	0.627	1.181	1.539
Controls	0.294	0.898	1.264
High Spelling Ability S.A. 8.0-10.0)			
Dyslexics	0.	0.702	1.039
Controls	0.464	0.750	0.891

TABLE 3

Spelling of nasal endings by normal and dyslexic children.
Qualitative assessment: Mean percentage of nasal reductions errors.

Type of Ending	Dyslexics	Controls
Nasal alone	7.5	12.0
Nasal + voiced stop or fricative	13.5	16.5
Nasal + unvoiced stop	13.0	12.0
Nasal + affricate	28.0	20.0
Nasal + voiced stop + [L]	29.5	18.0
Nasal + unvoiced stop + [L]	37.3	25.5

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"Spelling difficulty in school leavers and adults," by Dr. Dolores Perin*

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*A fuller discussion of the research presented here is available in **Perin, Dolores (1982)**. "Spelling Strategies in Good and Poor Readers," v. 2: 1–14, Applied Psycholinguistics. **[12]**

Abstract
This study was concerned with the use of phoneme-grapheme correspondence rules in the spelling of sixteen-year-olds and adult literacy students of varying reading skill. A task was designed which was intended to be conducive to a phonological spelling strategy: this was a word completion task where gaps in words, representing a consonant and an adjacent vowel, had to be filled in to dictation. Two experiments were carried out using this paradigm. The first involved real words and the effect of "phonetic ambiguity" on spelling strategy was studied. The second task used nonsense words. The errors made in the real word task showed that the tendency to make phonetic spelling errors, i.e., to choose plausible graphemic options, increases with reading skill. The effect of phonetic ambiguity was not significant as a function of reading skill: subjects at all reading levels tended to make more errors on phonemes with relatively ambiguous relationships to graphemes. Nonsense word results supported the hypothesis that better readers are more able than poor readers in using phoneme-grapheme correspondences in spelling.

Corpus
Educationalists and cognitive psychologists have found it useful to examine spelling errors for the clues they give about processes underlying the production of written language. Early large-scale surveys **(Masters, 1927 [8]; Mendenhall, 1930 [9])** indicated that spelling errors tended to be "phonetic," that is, they retained the sound structure of the attempted word. Information processing models of spelling indicate how a phonetic error can occur: **Simon's (1976) [13]** model has a level where phoneme-grapheme correspondences are employed in cases of doubt as to a word's correct spelling and **Morton's (1980) [10]** logogen system allows for the use of phoneme-grapheme rules as an alternative to the retrieval of the orthographic structure of a word solely in terms of its component letters. **Frith (1980) [4]** has suggested that the development of spelling ability requires a stage where phonemes are translated into graphemes.

That most errors have been reported to be phonetically accurate appears to serve the movement for spelling reform. It could be argued that phonetic errors imply the use of sound, and spelling difficulty could be seen in terms of the complex relationship between sound and symbol in English. If our writing system were completely "regular," if each phoneme were mapped by one and only one grapheme, spelling problems would not normally occur at all. Spelling reform might possibly benefit the speller or some spellers, but the cost of such reform would probably be enormous for the reader who prefers the direct (lexical) route **(Frith, 1979) [3]** and would thus benefit from orthographic. relationships among words which are related in meaning but not necessarily in sound **(Chomsky & Halle, 1968 [1])**. The possible effects of spelling reform are not further considered here. The present concern is with the relationship of phonetic accuracy in spelling, and reading.

Reading and spelling are usually strongly associated **(Horn, 1969 [6]):** a good reader normally spells well and the poor reader is usually a poor speller. However, reading skill does not by any means guarantee perfect spelling **(Frith, 1978 [2])** and extremely good readers will occasionally be troubled by poor spelling skill. Studies of spelling error patterns comparing good and poor readers/spellers have not been entirely consistent. For example, **Nelson and Warrington (1974 [11])**, **Sweeney & Rourke (1978) [14]**, and **Frith (1980) [4]** have reported that spelling error patterns differ with reading skill while **Holmes and Peper (1977) [5]** found that good and poor readers differ only in quantity, not quality, of spelling errors. Studies of spelling have in general been concerned with children. In the present investigation, school leavers and adult literacy

students were studied in order to discover whether reading ability was related to the use of phoneme-grapheme rules in spelling in these older age groups.

In two experiments, real and nonsense words were spelled. In the first experiment, besides investigating the relationship between phonetic errors and reading ability, the effect of phoneme-grapheme ambiguity was studied.

The graphemc representation of four specific phonemes was examined. Two of these were relatively ambiguous as they could each be mapped by four separate graphemes. The other two phonemes were relatively unambiguous with only two plausible mappings each. Table 1 shows the correspondence rules for the four critical phonemes.

Table 1
Phonemes used in word completion task

Ambiguous:
/f/ → <f>, <ff>, <ph>, <gh>
/ʤ/ → < g> ,+ e, <g> + i/y, <dg>, <j>

Unambiguous:
/b/ → <b>, < bb >
/t/ → <t>, <tt>

It was predicted that higher reading ability would be related to the tendency to make phonetic spelling errors. Further, since better readers were expected to use phoneme-grapheme rules more than poorer readers, the former were expected to be affected by phoneme-grapheme ambiguity, a problem arising through dependence on rules.

Two samples were studied: young adults who were to leave school shortly, and adult literacy students.

The school leavers were 36 girls and 24 boys aged 15 and 16 who were in three middle-band classes in the 5th year of secondary school.

They were of working class background and were native English speakers.

The adult literacy students were 10 women and 24 men whose ages ranged from the early twenties to the mid-fifties. Almost all were working class and all had English as the mother tongue.

A preliminary test of oral reading was carried out for each subject individually as follows: School leavers read a 350-word passage from a previous year's reading exam which no subject had seen previously. A percentage reading score was derived based on 116 words (functors and repetitions were disregarded)

Adults read a 265-word passage from a brochure advertising English holidays. Since the poorer readers had considerable difficulty with the text, reading score was a dichotomous measure in this sample. Good readers read quickly and accurately, while poor readers stumbled through the first two paragraphs, at which point they were told to stop.

The experimental material was in two lists each of 44 low frequency words which appeared less than five times per million in the **Kucera and Francis (1967)** [5] corpus. Words were of one or two syllables and each contained one of the critical phonemes in a word-medial or final position. This was a word completion task. The printed form of each stimulus word was presented with a gap, always the same size irrespective of the number of missing letters, representing the critical phoneme plus an adjacent vowel and occasionally an adjacent consonant. Table 2 shows examples of stimuli.

Table 2
Examples of Word Completion Stimuli

Target	*Examples*
/f/	coughs, serf, sulphur, tariff
/ʤ/	pledged, serge, abject, baggage
/b/	tubs, lobe, hobble, proverb
/t/	stale, skit, potter, deceit

Subjects were tested in groups on the spelling task (each group spelling one list or the other) and were told to fill in the missing letters for the words, which were dictated, placed in sentences and then repeated. Guessing was encouraged in cases where subjects were in doubt as to spelling.

Spelling errors were analysed with respect to whether they were phonetically accurate and with respect to whether the ambiguous phonemes led to more errors than the unambiguous phonemes. For these error analyses, subjects who spelled four or fewer words incorrectly were excluded. This left 49 school leavers and 29 adults.

School leavers spelling the two lists did not differ in reading skill but there were different frequencies of spelling error for each list. Therefore, error analyses for this sample were carried out separately for each list. Adults' error frequencies did not differ by list and so the two lists were pooled for this sample.

Phonetic errors were productions where an incorrect choice of grapheme was made from the alternatives shown in Table 1. For each subject, phonetic errors were expressed as a percentage of total errors. Table 3 shows examples of phonetic and non-phonetic errors.

Table 3
Examples of Errors in Word Completion Task

Stimulus	*Response*	
	Phonetic errors	*Non-phonetic errors*
laughs	l *arf* s	l *arg* s
tariff	tar *af*	tar *ith*
suffrage	suffr *idge*	suffr *agge*
gadget	ga *jiet*	ga *ddi* t
drab	dr *abb*	dr *ag*
rabid	ra *bber* d	ra *pi* d
butane	bu *tta* ne	bu *bia* ne
pastel	pa *stt* el	pa *sc* el

To study the effect of phoneme-grapheme ambiguity, errors for each critical phoneme were expressed as a percentage of total errors for each subject.

In the school leavers, the percentage of phonetic errors were regressed on reading in both lists, the relationship was significant, with better readers tending to make a larger percentage of phonetically reasonable spelling errors. There were 18 good readers and 16 poor readers in the adult sample. The good readers made a mean of 71.8% phonetic errors, compared with the poor readers' 48.28%. An analysis of variance showed that this was a significant difference, and that the direction of difference was the same as for the school sample. Table 4 shows the results of the error analysis.

In both samples, many more errors were made on the ambiguous than on the unambiguous phonemes. The school leavers had 70% of errors on ambiguous phonemes, while adults had 75%. In both samples, there was a significant difference between error rates for ambiguous and unambiguous phonemes. A score was constructed for each subject representing the difference between percentages of error on ambiguous and unambiguous targets. These difference scores were regressed on reading scores in the 3 school sample and subjected to an analysis of variance

in the adult sample. In neither sample was the extent of difference on the two types of phoneme significantly related to reading ability. The results are shown in Table 4.

Table 4
Error Patterns in Word Completion

School leavers		*Phonetic errors*		*Non-phonetic errors*		
	N	Mean %	SD	F	df	p
List 1	20	70.52	23.35	16.05	1,18	<.001
List 2	29	76.27	20.50	11.22	1,27	<.002
Adult Literacy Students	29	59.41	26.67	4.74	1,25	<.05

Difference between errors on ambiguous and unambiguous phonemes

School leavers						
List 1	20	49.00	22.60	.367	1,18	n.s.
List 2	29	27.72	26.65	.802	1,27	n.s.
Adult Literacy Students	29	50.94	25.92	3.96	1,25	<.06 n.s.

The results of these analyses indicate that although poor readers are not as competent as good readers at using phoneme-grapheme correspondences, they are prone to error in a similar way to good readers, when there is a choice of which grapheme to choose out of a number of alternatives. This sensitivity to an effect of orthographic regularity suggests that poor readers are aware of phoneme-grapheme rules to some extent. They might prefer not to use a phonological strategy in spelling, or, on the other hand, they might be less able to use this strategy than better readers. To find out more about differences between good and poor readers in using rules in spelling, nonsense words were employed. This provides a stricter test of the use of rules in spelling since, by definition, there is no established orthography for such words.

In a second experiment, 57 of the school leavers (35 girls, 22 boys) and 32 adult literacy students (10 women, 22 men) were asked to complete nonsense words to dictation.

The stimuli were based on the real words used in the first experiment. Table 5 shows examples of the nonwords used.

Table 5
Examples of nonsense words

Target	*Examples*
/f/	grift, toaf, suffel, tebuff
/ʤ/	ludged, gerge, tigeon, nuffrage
/b/	dobs, frab, lebuke, tadverb
/t/	stob, grat, kotive, brottis

Subjects who had spelled the first list in Experiment 1 now spelled the second, and vice versa. The paradigm was the same, with the subjects filling in gaps left in each word.

The criteria for correct responses were those indicated in Table 1. Any grapheme listed for a particular phoneme was accepted as correct. Therefore, all errors were nonphonetic errors in this task.

In both samples, the better readers were significantly more accurate than poor readers in spelling the target phonemes. This was shown by the regression of nonsense word scores on reading scores in the school sample (who spelled a mean of 91.1% correctly) and by an analysis of variance in the adult sample (good readers spelling 94.11% correctly, poor readers 76.36% correctly). Table 6 indicates the main results. There were no list effects in either group.

The results of the nonsense word spelling task provides interesting information about poor readers. Although on the first task they had made significantly fewer phonetic errors than good readers, it

cannot be concluded that they cannot use phoneme-grapheme rules. Although they did not perform as well as better readers, poor readers in fact mapped a large number of the target phonemes correctly in their spelling o£ nonsense words. Therefore it is possible that poor readers avoid the phonological route in spelling real words although such a route is useful for generating plausible alternatives which could then be matched against word recognition memory **(Simon & Simon, 1973 [13]; Tenney, 1980 [15])**. The phonetic errors of better readers suggest their greater use of the phonological route. The nonsense word results show that although poor readers are not as able as good readers to translate phoneme to grapheme, they do have a sufficient rule-knowledge to employ a phonological route in spelling if encouraged to do so.

Table 6
Nonsense Word Completion

	N	Mean %	SD	F	df	p
School leavers	57	91.12	7.59	45.44	1,45	<.001
Adult literacy students	32	86.34	14.83	18.40	1,28	<.001

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"Spelling errors made by phonologically disordered children."

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Abstract

The spelling errors of eleven phonologically disordered children were compared with those of eleven normally articulating children. The groups were matched pairwise for age, sex, educational experience and reading ability. The subject pairs received spelling tests designed individually to investigate words pronounced correctly and incorrectly by the phonologically disordered children. The results indicated that phonologically disordered children make significantly more spelling errors, but that they made as many errors on words they pronounced correctly as they did on words they mispronounced. However, regularity of phoneme-grapheme correspondence was an important factor. Phonologically disordered children made as many errors for regularly spelled words as they did for irregularly spelled words. Their performance on irregularly spelled words equalled that of the control group. That is, phonologically disordered children appear to rely on orthographic representations of words, and have difficulty generating phoneme-grapheme correspondences.

Corpus

By the time children reach five years of age they should have acquired the ability to use all the phonemes, i.e. speech sounds, of their native language appropriately. However, about 5% of the normal school population have communication disorders, and well over half of these children present with an inability to produce consonant phonemes correctly in the appropriate context. Usually the children can produce all phonemes in CV syllables, e.g. /tʃə/, but /tʒt/ *church*; and they also can usually discriminate phonemes, e.g. /tʃ/ - /t/, *chip-tip*, but their spontaneous speech is marked by:

(1) reduction of consonant clusters, so that *train* becomes [teɪn]
(2) limited range of final consonants, e.g. all word final consonants may be omitted or signalled by a glottal stop so that *bed* becomes [bə?]
(3) a limited range of phonemes used contrastively, e.g. fricative sounds such as /ʃ/, /tʃ/, /s/ may be realized as /t/ so that *ship*, *chip*, and *tip* are all produced as [tip], and
(4) lack of a voice-voiceless distinction, so that *pin* and *bin* would both be realized as [bɪn].

Teachers often report that children with a spoken phonological disorder also have difficulty learning to read. Their most frequent comment is "Since I can't understand a word he says, I don't know whether he's reading, or making it up." However, teachers rarely complain about the children's spelling performance, and this is reflected in the literature.

Few studies have been directly concerned with the relationship between the mispronunciations and the misspellings of children. Schonell observed in 1934 that "if a child constantly pronounced inaccurately, he not infrequently spelt inaccurately, and the nature of his written errors have remarkable similarity to the nature of his spoken errors." However, **Carrell and Pendergast (1954)** and **Ham (1958)** found no such relationship. Thus the literature is limited, and the results contradictory.

The study I am reporting here was designed to answer the following questions:

(1) Do children with a spoken phonological disorder make more spelling errors than children with normal speech?
(2) Are mispronounced words more likely to be spelled incorrectly that words pronounced correctly?
(3) Do phonologically disordered children, like normal children, have more difficulty spelling words which have NO strict phoneme-grapheme correspondence, e.g. *night*, than regularly spelt words, e.g. *bit*?

Subjects

Eleven phonologically disordered children, who were all receiving speech therapy, but attending normal schools, were matched individually, with normally speaking children from their own class for age, sex, and their teacher's assessment of their reading ability. Note, however, that some teachers felt that the reading ability of some of the phonologically disordered children was the poorest in the class. The age range was 7 years, 1 month to 10 years, 8 months. Thus 22 children were tested, 11 in each group, for spelling ability.

The results showed:

(1) Children receiving speech therapy for a phonological disorder made more spelling errors than did the control, normally speaking subjects (351.2 plays 245.9).
(2) Children with a phonological disorder made as many spelling errors on words they pronounced correctly as they did on words they mispronounced (178.2 plays 173.2).
(3) Phonologically disordered children made the same number of errors on irregularly spelled words as they did on regularly spelled words (169.3 plays 181.9).
(4) Whereas the normally speaking control subjects made significantly more errors on irregularly spelled words than they did on regularly spelled words (98.3 plays 147.8).
(5) The phonologically disordered subjects made significantly more errors than the control subjects on regularly spelled words (169.3 plays 98.3). There was also attend for the phonologically disordered subjects to make more errors on the irregularly spelled words, but this was not statistically significant, i.e. both groups made similar number of errors on irregularly spelled words.

These results indicate that 7 to 10 year old children who have a spoken phonological disorder also have difficulties in spelling. This appears to be due to a particular difficulty in generating phoneme-grapheme correspondences, since they are much worse than normal children in spelling words that have a 1:1 sound/letter relationship; but are equally bad/good at spelling irregular words.

In one way these results are like those found for deaf children in a similar experiment. I found that profoundly prelingually deaf children also make as many errors when spelling regular words as they do spelling irregular words **(Dodd, 1980)**. This would seem to indicate that phonologically disordered children have a problem using auditory information, even though, of course, they have no sensory hearing loss. Thus, they would have to rely heavily on orthographic information when learning to spell, as do deaf children.

However, this cannot be the sole explanation for the phonologically disordered children's poor spelling abilities. Several studies have shown that deaf children can spell remarkably well; some experiments have indicated that deaf children spell better than normally hearing children matched for Chronological Age. One simple explanation for this surprising finding is that hearing may detract from spelling accuracy in languages lacking exact phoneme grapheme correspondence. It is possible to argue that there are so few invariant phoneme-grapheme correspondences in English orthography that being deaf may be an advantage in learning to spell.

However, it is obvious that phonologically disordered children's poor spelling abilities cannot be solely accounted for by an inability to fully use auditorally derived information, they would appear to have additional difficulties.

In hope of finding some clues that might indicate the nature of these difficulties, we examined the types of spelling errors made by the phonologically disordered children and their control group. Perhaps the most striking finding from the qualitative analysis was that normally speaking children's spelling errors were easy to classify, whereas the phonologically disordered children's errors were bizarre.

Table 1
Mean (%) Spelling Errors

	Phonologically Disordered Children			Normally Speaking Children		
	Regular	Irregular	Total	Regular	Irregular	Total
Mispronounced Words	84.6	93.6	178.2	45.9	77.9	123.6
Correctly Pronounced Words	84.7	88.3	173.2	52.4	69.9	122.3
Total	169.3	181.9	351.4	98.3	147.8	245.9

Thus, as you can see from these typical examples, classification of the phonologically disordered children's spelling errors was virtually impossible, since so many had to be labeled "Other Errors." We did find, however, that 25% of the control subjects' spelling errors were phonetic alternative spellings, e.g. *erth* for 'earth', whereas only 6.5% of the phonologically disordered children's spelling mistakes could be classified as such.

One further finding of interest was gained from comparing the errors of the two oldest phonologically disordered children with the younger phonologically disordered subjects. The older subjects made many more error phoneme/grapheme correspondences, e.g. if they said *leloo* for 'yellow', they were more likely to spell the word *yellow*. Thus, they seemed to have better use of a phonological strategy for using sound to letter spelling rules. Perhaps a longer period of reading and spelling practice and instruction had established the use of the strategy which had not yet been grasped by the younger phonologically disordered children.

In summary, the phonologically disordered children tested made significantly more spelling errors than normally speaking children, both in words they mispronounced and in words they pronounced correctly. They made as many errors when spelling regularly spelled words as they did for irregularly spelled words, but their ability to spell irregular words did not differ much from that of the control group. Thus, phonologically disordered children appear to rely on orthographic representation of words, and have difficulty generating phoneme-grapheme correspondences. The effects of their phonological disorder are not limited to speech, but also underlie a difficulty in learning to spell.

Table 2
Examples of Phonologically Disordered Children's Spelling Errors

frod	= thunder	zroor	= zebra
yomo	= yellow	rotabteot	= room
fmetaio	= family	tasinaclejath	= tortoise
acox	= hedgehog	seepper	= shepherd
tonked	= thought	calkael	= castle

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Spelling in other languages and international aspects of English spelling

"The Principles of Esperanto Spelling" by Stuart Campbell.

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Abstract
Esperanto is an artificial language devised by Ludwig Zamenhof in 1887. Other artificial languages have been devised but none has achieved the popularity of Esperanto. Some rules for pronunciation in Esperanto. This example of a planned spelling system has some important reminders for spelling conservatives and reformers.

Corpus
Esperanto is the international 'auxiliary' language devised by Ludwig Zamenhof, a Polish Jew, and published in 1887. He gave it no name, but pseudonomously called himself 'Dr. Esperanto,' a name which in Esperanto means one-who-hopes. He hoped that the new language would bring peace and understanding between nations and ethnic groups.

Some called such a language 'artificial,' implying the worst meaning of that word. Truly it was man-made. But I prefer to point out that normal languages have evolved naturally, but in an unplanned way. As a consequence, they contain irregularities, but artificial languages are 'planned' and do not contain irregularities. In this respect they are superior to the natural languages. In fact all language is the creation of mankind.

There have been many attempts to produce a planned language for international use, not to replace natural languages, but for use beside them. However none has achieved the popularity or penetration of Esperanto. It is spoken in all countries of the world by some several million people. It is the main competitor of English as an international language.

Now one thing is clear to the creator of a new language for international use. One of its attributes must be simple spelling. Such a language will be used not only by the common people, by those who can hardly spell their own language. Its orthografy must be simple and regular.

This is a cardinal rule in Esperanto. It is a totally *phonetic* language, i.e. the same symbol is always used for the same sound. It is also totally *phonemic*, that is, every word is pronounced just as it is spelt. Consequently there are no silent letters. As far as I know, such perfection is achieved in no natural language. Esperanto has a simplified spelling system par excellence. It was made with these characteristics in mind:

1. Simplified spelling is desirable, and the ultimate would be a language which uses *absolutely* phonetic spelling and whose grammatical rules are *never broken*. Esp. is the only known language that has these characteristics.

2. All language is artificial (i.e. man-made) but most are 'unplanned.' Esp. is a carefully planned language.

3. A brief account of the origin and purposes of Esp. (with emphasis on simple communication without misunderstanding) will follow. Its requirement that orthography and vowels should be unambiguous is explained. The Esperanto alphabet has 28 letters 21 consonants, 5 vowels and 2 semivowels. The vowels are all pure sounds, monothongal, and for this reason Esperanto has no dialects. Names of letters are their sounds.

Vowels:	a as in bad, have	
	e as in there, lend	
	i as in see, machine	
	o as in molest, glory	
	u as in rude, boot	
Consonants:	Plosives:	p, b, t, d, k
	Affricatives:	ĉ as in catch,
		ĝ as in hedge,
		c as in cats. a voiceless alveolor affricative.
(Derives from Polish, Russian and Czech, and often begins		
a syllable, e.g., cepo, unlike ts in English.)		
	Fricatives:	f, v, s, z, h
		ŝ as in shut
		j as in pleasure
		ĥ as in loch, a voiceless velar fricative
	Liquids:	l clear, as in leaf
		r should be trilled
	Nasals:	m, n.
Semi-vowels:	j, as in yes, a gliding, nonsyllabic i-sound.	
	ŭ (u), a gliding, nonsyllabic u-sound, postvocalic.	
	Both form diphthongs as follows:	
	aj, as in my. (Polish: strajk)	
	ej, as in play	
	oj, as in boy	
	uj, as in ruin	
	aŭ, as in how	
	eŭ, as in 'debutantes' ow.	

Notice the lack of letters q, w, x, y, which are transliterated: q = k, w = v, x (two sounds) = ks, y = j.

Esperanto does not contain the English 'th'-sounds, which are difficult for foreigners (except Spanish).

Overall, pronunciation is European, not English.

Comments on diacritics (supersigns):
For maximum internationality, Zamenhof chose word-roots that as far as possible combine international similarities of appearance and similarity of sounds. (The root is the basic part of a word before addition of prefixes or suffixes, or, if it is a verb-root, inflections.)

In fact, Zamenhof considered graphic agreement more important than phonetic agreement, e.g., the form 'teatro' (a theatre) is recognizable to the eye of the English reader, and gives the

European pronunciation. 'juna' (young) resembles the French 'jeune' and the German 'jung' in spelling, but is like German and English in sound.

However, letter and letter combinations (digraphs, trigraphs, etc.) are not pronounced the same way in every country, i.e. 'ch' in English has the sound c, in French s", and in German generally h. 'j' in English has the sound 0, in Spanish h, in German j, and in French, j.

Thus in Esperanto the word 'gardeno' looks like English 'garden' and German 'arten,' sounds like French jardin, and has similar sound and looks to Italian giardino.

Thus Zamenhof uses diacritics to unify international orthography and pronunciation, and to reduce variation and number of letters.

In fact, only two supersigns are used: ˆ and " (the latter only on u.) Thus Esperanto has only six diacritic marked letters compared with 15 in Czech, 13 in French, 10 in Portuguese and Roumanian, 9 in Hungarian, Polish and Lithuanian, 8 in Welsh, 7 in Spanish and 6 in Italian.

You can get a good idea of Esperanto spelling by trying to re-spell English in Esperanto. I will give you an example, which will also demonstrate the defects in English:

Tu bi, or not to bi: dat iz di kuestjn:
Oeto tiz noublo in di majnd to sofo
Di slingz and arouz ov autrejOa fortjun,
Or to tejk armz agejngt a si ov trobla,
And baj opouzing end dem? Tu dal; tu slip;
NoO mor; and baj a slip to sej Oi end
Di hart-ejk and di tauzand natjural s"oks
Dat fles" iz er tu, tiz a konsjumejs"n
Divautli tu bi Ois"t. Tu daj, to slip;
Tu slip! porcans tu drim; aj der'z di rob;
For in dat slip ov det Oot drimz mej kom,
Oen Oi hav sofld of dis mortal kojl,
Most giv us porz: der'z di respect
Dat mejks kalamiti ov sou long lajf.

1. d. Not in Esperanto. Used here to show voiced *th*. *[d with circumflex is not available.]*
2. ɐ. Used here for the indefinite vowel, which is needed.
3. oŭ. Used here as a diphthong.
4. Simplified pronunciation – no distinction between *slip/sleep*.
5. ŧ. Voiceless *th*.

This example shows that English has basic defects which make it unsuitable as an international language. It also shows how foreigners would prefer to spell English. This spelling, while odd to us, would look familiar to many foreigners.

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"Teaching English in Francophone Africa," by Henry Niedzielski, Ph.D.*

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Abstract
As many people know, English has replaced French as the main language used for international communication. One example of this gradual loss of French to English can be witnessed in Burundi. The ambition of the Burundi government is to make the country trilingual in Kurundi, French and English.

Presently, the country is officially bilingual. The academic, social, and administrative elites communicate in French; most other Burundi speak almost exclusively in Kirundi. However, much of the country's international trade must be conducted in English because Burundi is a landlocked country and its nearest ports of access are in Tanzania or Kenya, both English speaking countries.

Consequently, more and more people are studying English, officially or privately.

Obviously, not all Francophone African countries feel the same necessity to learn English. Many, however, find it useful in order to read scientific, commercial or technical publications. Most also find it nearly indispensable for traveling and for attending international conferences. These latter purposes require the teaching of spoken English. In this respect, a question comes to mind. Is it preferable to teach English directly in the learner's native language or through French, the general and official language of instruction? I have set up an experiment to discover the answer(s) to this question. Five areas of language learning and proficiency are being analyzed. A preliminary report on this experimentation is given in this paper. The findings could be generalized to most Francophone (or Lusophone) African countries.

(Comment by VY: This paper, on learning English in a polyglot African country, illustrates forcefully that English is an international language, spelling and all, and reminds us that spelling must be considered in the context of other aspects of the English language too.)

Corpus

1. *Introduction*

As many people know, English has replaced French as the main language used for international communication. This process of substitution, noted already in the first half of this century, has recently gained momentum in some "French speaking" African countries. One example of this gradual loss of French to English can be witnessed in Burundi. It was made clear on Apr. 22, 1981 when the Minister of National Education proclaimed , at the seminary for secondary school teachers of English in Burundi, that the ambition of the Burundi government is to make the country trilingual in Kirundi, French, and English.

However, the teaching of English in Burundi suffers from many problems, some of them inherited from the colonial days. Introduced in the late fifties by the Belgians, it was taught more or less like Greek or Latin. Slowly, after obtaining their independence, Barundi have come to realize its' importance as the language of communication both regionally and internationally. Presently, in the secondary schools it is given the same number of instruction hours as French, and at the post-secondary level, it is a compulsory subject in all institutions and in all departments. It is also taught on the radio, where it was first introduced with French explanations and now presented in Kiswahili. We thus observe the first problem. At least 95% of the Burundi population speaks Kirundi as the native language, yet English is taught through another language, mostly French.

This observation led me to conduct an experiment to check the question whether Barundi would learn English more efficiently if it were presented with occasional explanations in Kirundi rather than in French.

2. *The Problem*

Interferences caused by the linguistic background of the Foreign Language learner may vary with the skill being acquired. Therefore, five components were determined for this experiment: lexicon, structure, conversation, pronunciation, and spelling. Actually, this division was dictated partly by the fact that investigation was carried out by eleven students in psycholinguistics and that there were ten classes available in Bujumbura for the experiment. It was also influenced by the opinions collected in short essays written by 23 advanced students in the department of English on the topic of "Present linguistic and other interferences in the learning of English in Burundi." The following statements summarize these students' thinking.

2.1 *Lexicon*

Since some words are better known in French than in Kirundi and many are graphically and/or semantically similar, the class felt that vocabulary might be taught better through French rather than through Kirundi.

However, in some situations and because of cultural contexts, some lexical items are easier to understand through Kirundi than through French (e.g. small pox, petite variole, and akarandi). Another minor danger in teaching vocabulary through French is caused by the abundance of deceptive cognates (e.g. parents, parents', relatives).

2.2 *Structure*

English grammar might be better approached from French because both languages share many structures and classify their parts of speech in a similar manner. Kirundi, for instance, has no articles and no real relative pronouns.

On the other hand, the English tense system could possibly be taught more efficiently through a direct contrast with the two main groups of Kirundi auxiliaries of aspect **(Mategeko 1971: 123)**.

2.3 *Conversation*

Here again opinions were divided. Because culture shapes the way of thinking (Whorf's hypothesis), and since there are many more similar cultural contexts in French than in English, English conversational skills should be built on situations with which the students are already familiar in French.

Others felt that materials should be created and adapted from Kirundi by building on speech acts and speech modes equivalent to those familiar to Barundi in Burundi speech situations.

2.4 *Pronunciation*

Presently, the teaching of pronunciation is introduced through the IPA. Students suggested that the English phonological system should be introduced gradually through contrasts with the Kirundi phonological system which is much less complicated than the French. Phonetic notation could be introduced much later for reinforcement.

2.5 *Composition*

Most Barundi students perform on a much lower level in writing than in speaking. It might be due to the facts that eloquence is highly valued in Burundi culture and that, until recently, written literature did not exist. Therefore, developing and organizing techniques already acquired in French could be utilized.

2.6. *General problems*

A certain percentage of students speak Kiswahili instead of Kirundi. There is also a shortage of local teachers, and European teachers — mostly Belgians — do not know Kirundi nor Kiswahili. Ideally, the English teacher would need a working knowledge of English, French, Kirundi, and Kiswahili. It will still take a few years before a sufficient number of so qualified Barundi is ready to teach.

Finally, there are no texts in Kirundi because the language of instruction has been French, even to the extent that university courses in Kirundi literature or culture are taught in French.

3. *Previous Research*
A thorough analysis of various "memoires" (equivalent to U.S. M.A. theses) did not reveal any formal interest in the teaching of English directly from Kirundi. The general assumption has been that English could, should, and would be taught through French.

Interviews with various methodologists and program writers at the BEPES (Bureau d'Etudes Pedagogiques de l'Enseigment Secondaire=Planning and Programming Office for Secondary Schools) have confirmed this lack of interest in the teaching of English directly from Kirundi. Nobody had even thought of doing it. This may be explained by the fact that until recently both English and Kirundi were studied as an additional language by French majors. It seems therefore traditionally logical that the teaching of English should be based on a good knowledge of French.

The only notable exception to this state of affairs has been a M.A. thesis written in 1971 by a Burundi on a Fulbright grant at the UCLA. Zacharie Mategeko, the present chairman of the English department at the Univ. of Burundi, wrote in his introduction to *A Contrastive Analysis of Parts of the English and Kirundi Tense Systems* that Kirundi can be efficiently used in the teaching of the English tense system and of the English language in general.

Ten years later this statement had not yet been tested. This experiment is the first attempt at doing it.

4. The *Method*
4.1 *The Subjects*
Altogether 375 students distributed in ten different groups were taught in May 1981 some rudiments of English sounds, vocabulary, spelling, structure, or conversational skills. They were all first year students in Bujumbura secondary schools, who had studied French for about four years and would start studying English the next year. **Table 1** shows the number of people in each group. There were only 43 females, 42 in the two conversational groups and one in the French pronunciation group.

The age of the students ranged from 12 to 21 years, the average being 16 for the boys and 15 for the girls. Between 20 and 40% of them came from Bujumbura and some of them may know Kiswahili better than Kirundi. The remainder come from up country and are native speakers of Kirundi. Parallel Kirundi and French groups were chosen in the same schools in order to ensure that the socio-cultural background would be identical and that the only decisive variable would be the use of French or Kirundi in the experiment.

4.2 *The Instrument*
Ten short teaching programs were written, discussed and dry run in my psycho linguistics class. They lasted 45 minutes except for pronunciation and conversation classes which took 55 minutes.

All writing groups were tested within the same class period. The members of the conversation and pronunciation groups, which required oral testing were examined individually during the next class period under such conditions that no communication took place among the testees. Each one was questioned by the same experimenting university student with another one evaluating the answers.

5.0 *The Results*
A synopsis of results is found in **Table 1**. Higher performances were achieved in all groups taught directly from Kirundi, except in pronunciation where those who had been taught through French obtained better results.

The total number of errors and the average number of errors per student in each group are shown to give a quantitative indication of overall performance of the various groups and to provide a comparison between the Kirundi and the French groups for each skill under study. The average

score in percentile is not computed on the basis of the average number of errors subtracted from the perfect score. Rather it is derived from a formula multiplying a perfect score by the number of students in a group, then subtracting from this total perfect score the number of errors in that group, and finally dividing this remainder by the number of individuals in the group. It seems that this approach helps to spread the numerical results.

Conscious that for each group of individuals, statistics may be misleading because of a few unusually high or unusually low performers, all computations were redone after eliminating about 10% of the top students and 10% of the bottom students in each group. The results appear in the lower half of **Table 1**.

6. *Conclusions and Implications*

First of all, it is remarkable that all Kirundi groups performed better than the French groups except the pronunciation group. The results obtained can be construed as an indication that Barundi teenagers can learn English more efficiently directly from their native, home language.

In fact, we have seen that a serious attempt was made to reduce all socio-cultural and physiological variables by choosing each set of parallel groups in the same school. In addition, psychological factors influencing the teaching and/or learning processes were also given full consideration. The student teacher in each group was convinced of the superiority of his/her approach and tried to share his/her enthusiasm with the subjects. The latter reacted to the experiment in an overwhelmingly positive manner.

In the pronunciation groups, the results obtained were somewhat puzzling. A more thorough analysis has revealed several reasons which lead us [o] conclude that this section of the experiment lacks validity. We have seen that only consonants had been taught and tested. Out of 7 these consonants, the most frequently reported as mispronounced were [r] *89* times in Kirundi, *30* in French; [θ] *130* times in Kirundi, *52* times in French; and [ð] *130* times in Kirundi, *64* times in French. These three sounds do not exist in Kirundi nor in French, and they account for over half of the errors in both Kirundi and French groups. On the other hand, those sounds which exist in Kirundi were reported as mispronounced more frequently in the French groups. This suggests that greater differences in phonetic features cause greater difficulties. But why should the Kirundi group have scored lower than the French group on difficult sounds? At least two possibilities may have existed. The subjects may have been more attentive in French because they were working in a foreign language, and the student teacher may have been stricter. To control the latter factor, the experiment could be repeated with a jury of at least three better trained examiners, the same for both groups. It is, therefore, recommended that a new experiment testing phonetic acquisition be conducted. It should also contain vowel sounds because the tables show much greater differences between the French and English vowel systems than between the Kirundi and the English vowel systems. The hypothesis should be that the Kirundi group would perform better, based on the observation, reported above, that the greater the difference between the source and the target phonology, the greater the difficulty.

In the spelling section, the number of words which could have been influenced by French was reduced to the minimum in order not to favor either the Kirundi or French group. In addition, the word *school* was chosen because its cognate in Kirundi is *ishule*. *Professor* was mispelled more frequently in Kirundi, often with only one s; *exercise* was once misspelled in French as *exercice*; *coffee* was spelled with one *f* three times in the Kirundi group. There are no double consonants in Kirundi. A new experiment could use French cognates (of which there are over eleven thousand). Preferably, they would be introduced without contrasting English with French in the Kirundi group. In the present experiment, no similarities or differences were pointed out.

It is probably too premature to draw any definite conclusion or recommendation for a preferable teaching approach. However, the results obtained encourage us to suggest that more thought should be given to the teaching of English directly from Kirundi. Since the subjects in this experiment are going to begin learning English next year, a longitudinal study could be conducted over the year with parallel Kirundi-French sections in the schools where this experiment took place.

Table 1

Category	*Lexicon*		*Structure*		*Conversation*		*Pronunciation*		*Spelling*	
	Fr	Kir	Fr	Kir	Fr	Kir	Fr	Kir	Fr	Kir
Total number of students	38	38	40	43	20	22	44	41	44	43
Total number of errors	135	82	37	36	41	42	546	514	89	77
Errors per student	3.55	2.15	0.92	0.83	2.05	1.90	12.40	12.53	2.02	1.79
Total points possible	15	15	10	10	8	8	49	49	15	15
Average score in %	76.31	85.66	90.75	91.62	74.37	76.23	74.67	74.40	86.51	88.06
No. of students minus top 10% and bottom 10%	30	30	32	33	16	16	34	33	34	33
Total errors of 80% of students	110	53	19	15	28	20	331	417	60	51
Errors per student	3.66	1.76	0.59	0.45	1.75	1.25	9.73	12.63	1.76	1.54
Average score in %	75.6	88.26	94.1	95.5	78.12	84:37	80.14	74.22	88.26	89.43

Category	*Lexicon*		*Structure*		*Conversation*	
	Fr	Kir	Fr	Kir	Fr	Kir
Total number of students	38.00	38.00	40.00	43.00	20.00	22.00
Total number of errors	135.00	82.00	37.00	36.00	41.00	42.00
Errors per student	3.55	2.15	0.92	0.83	2.05	1.90
Total points possible	15.00	15.00	10.00	10.00	8.00	8.00
Average score in %	76.31	85.66	90.75	91.62	74.37	76.23
No. of students minus top 10% and bottom 10%	30.00	30.00	32.00	33.00	16.00	16.00
Total errors of 80% of students	110.00	53.00	19.00	15.00	28.00	20.00
Errors per student	3.66	1.76	0.59	0.45	1.75	1.25
Average score in %	75.60	88.26	94.10	95.50	78.12	84.37

Category	*Pronunciation*		*Spelling*			
	Fr	Kir	Fr	Kir		
Total number of students	44.00	41.00	44.00	43.00		
Total number of errors	546.00	514.00	89.00	77.00		
Errors per student	12.40	12.53	2.02	1.79		
Total points possible	49.00	49.00	15.00	15.00		
Average score in %	74.67	74.40	86.51	88.06		
No. of students minus top 10% and bottom 10%	34.00	33.00	34.00	33.00		
Total errors of 80% of students	331.00	417.00	60.00	51.00		
Errors per student	9.73	12.63	1.76	1.54		
Average score in %	80.14	74.22	88.26	89.43		

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"The history of Spanish orthography, Andrea Bello's proposal and the Chilean attempt: Implications for a theory on spelling reform", by Iraset Pdez Urdaneta, Ph.D.*

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Abstract
In this paper the history of Spanish orthography is briefly recounted and especially a focus is made on the role of the Real Academia Espanola de la Lengua in the simplification and unification of the spelling system of the 'Spanish language. Then, two spelling proposals of particular interest are discussed: one made by **Andrés Bello in 1826** [1] in London, and another supported by him in **1844** in Chile. The analysis of the obstacles, success and/or failure of these two attempts and some others made in the course of time (all of them described in **Rosenblat, 1951** [6]) allows the identification of a number of factors or conditions which may be regarded as likely to exert a direct influence in the implementation of a spelling reform (or codification) in this or other languages elsewhere. It is recognized however, that even if such conditions are met, the achievement of a spelling reform or codification also depends upon the idiosyncrasy of the community for which the norms are intended. This higher level of socio-psychological values is less easy to describe, but a satisfactory knowledge of it becomes necessary for planned orthographic changes.

Bello's spelling propositions are examined to determine their probable progressive adoption by the Academia. The paper closes by reporting about a small research project carried out to explore how certain Venezuelan students felt in relation to a modified spelling based on Bello's ideas. The results showed a general preference for current spelling, but also an interesting correlation between spelling mistakes and a desire for spelling innovation.

Corpus

In language planning, we can identify five activities: purification, revival, standardization, lexical modernization, and reform **(Nahir, 1977 [5])**. A look at the past reveals that some of these activities have been proposed and even carried out in different places, at different times, and with different degrees of success. Of these five activities, language purification has been the most common, and the one which has maintained a tradition still alive. Purification has been the main concern of language academies, which began to spread in Europe from 1582, when the Accademia della Crusca was founded. The academies can be regarded as true agencies of language engineering, although their interests have been essentially conservative and prescriptive. This is clearly put forward in the slogan of the Real Academia Espanola, — for example, founded in 1714 in order to *"limpiar, fijar y dar esplendor"* (to purify, to fix and to give splendor) to the Spanish language, an ideology also shared by the filial academies established in Spanish America since 1871 **(Guitarte and Quintero, 1968 [3]).**

The vast work of the Academia Espanola has been the target of many criticisms, not a few of them unjustified. The nonexistence of similar institutional bodies in the Anglo-speaking countries is, according to **O. Jespersen (1940/1964 [4])**, a proof that there is no need for such official or semi-official authority on language affairs. Taking a different point of view, and in favor of the Academia, we could argue that it is precisely because such a body has not existed for English that this widely used language presents today the spelling problems that we all know, problems that neither

Spanish nor any other Romance or non-Romance language show to the same extent. Of course, I do not mean to say that the condition for a language to have a satisfactory orthographic system is to have a strong or efficient language academy.

The evolution of Spanish orthography is well described by **Angel Rosenblat (1951 [6])** in his opening study to the fifth volume of Andrés Bello's *Complete Works*. The best way to refer to that evolution could be to consider two historical halves divided by the date of creation of the Real Academia Espanola. The first half is characterized by a diversity of unsuccessful attempts to regularize spelling, and the other, by a progressive increase in uniformity and the relative failure of all those proposals that were not sponsored by the Academia.

Rosenblat mentions as the first attempt at a spelling systematization, — one patronized by King Alfonso X, "the Wise", in the second half of the 13th century. The system proposed was not very consistent in itself. In fact, it was "flexible" on purpose, as Rosenblat notices, probably because of the large amount of phonetic and morphological variants that Castillian exhibited then. Together with this advantageous factor, there were others: the official backing and use of the system, the lack of an authorized set of spelling rules, and especially, the lack of a great number of people who could use the written materials.

The next attempt was an individual one by **E. A. de Nebrija in 1517**. In the meantime, Alphonsi spelling had become quite modified by ignorance and the Latinization of graphemes for the "visual pleasure" of it or the nostalgia for this classical language. In Rosenblat's opinion, Nebrija's effort at ordering and establishing the Spanish orthography was guided by the principles of *"escrivir como pronunciamos ly pronunciar como escrivimos"* ('write as we pronounce and pronounce as we write'), a persistent point of view in the discussion of the topic among Spanish scholars. Nebrija's proposal was not adopted because of the lack of an official support to counteract the arguments of a strong and erudite opposition, the unfavorable reaction of publishers, personal inconsistency in the use of the system, and inconsistency in the rules of the system itself — since some words were written in accordance with the phonetic principle, but others followed an etymological criterion — also a persistent point of view about spelling among Spanish scholars.

After Nebrija, all kinds of attempts were made by writers, obviously the people most in need of an orthographic system. Therefore, there were as many systems as writers. Some systems combined coherent propositions with representational flaws caused by wrong phonetic perceptions. Other systems included un-Romanic graphemes (we must say that no effort has been successful in any Romance language when graphemes different from those of Latin or those adopted by Medieval Latin were promoted), and other systems proceeded by the simplification of the phonology of the language, much in agreement with popular pronunciation.

In **1630, Gonzalo Correas** published his *Ortografía kastellana*, regarded as the most radical spelling proposal ever made in Spanish, not so much because it was very phonetic, but because Correas was meticulously consistent in using it. The phonetic extremeness of Correas generated an intense reaction from the etymologists. One of them, Juan de Robles, argued that it was not a lack of perfection that a single letter could be pronounced in different ways. Robles also argued that too many innovations would make it impossible for literate people to understand the new writing, and for those who learned the new conventions, to read old materials. Robles defended the etymological principles, but also accepted that, in some cases, popular usage could be admitted, particularly when the etymological basis was not evident or pervasive. This point of view has more

or less prevailed since then. By the time the Real Academia Espanola was created — and as Rosenblat observes — there were both an orthographic anarchy and a desire for regulation. To the criteria of pronunciation, etymology, popular usage, and conventional differentiation, a fourth criterion was added: academic authority.

Thirteen years after its creation, the Academia began to publish its *Diccionario*. The lexicographic work soon required a definition of the orthographic norms to be applied, and the Academia decided to follow a very rigid etymological criterion. **[Note 1]** This criterion was abandoned later on when the Academia realized the many difficulties fostered by such a point of view. In fact, in its *Orthographia*, published in 1741, the Academia wanted to reconcile the three criteria characterizing the making of Spanish orthography:

(1) write the same as pronounced when by pronunciation alone the letter is known;
(2) resort to etymology when pronunciation is not helpful, usage is diverse and origin is known; and
(3) follow to usage when it is general and constant.

In some homo-orthographic cases, the Academia suggested differentiation by means of stress marks, distinct graphemes or the duplication of them. From 1754 on, new editions of the *Ortografia de la lengua castellana* (notice that <th> and <ph> have been dropped) were published. In all of them, the Academia progressively incorporated changes in the tendencies of phoneticism and popular and consistent usage. Although outside the Academia, several writers attempted to promote systems emphasizing either etymology or pronunciation (or even their predilection for one grapheme over another because of its "Hispanic beauty"), the academic orthography was modern where it did not need to be conservative, and conservative where an innovation was difficult to adopt. The success of the Real Academia was ensured, little by little, by its official character, the effectiveness and coherence of its work, and, more important, by the popularization of its prescriptions.

If the situation in Spain was anarchic in regard to the spelling of the language, despite the efforts of the Academia, the situation in the Spanish New World was even worse, not because there were as many orthographers promoting personal systems, but because there was no discussion about the problem and because the diffusion of the changes adopted in the Peninsula was slower. To these facts, we must add another one: American Spanish exhibited particular phonological phenomena which were not as strong as in Iberian Spanish:

In the liberal intellectual environment of 1826's London, Andrés Bello and Juan García Del Rio, two Spanish American patriots who had come to England as representatives of republics recently born, published in *La Biblioteca Americana, o Miscelámea de Literatura,* Artes i Ciencias, a journal created to divulge in the Hispanic New World the progress of modern illustration, the article, *"Indicaciones sobre la conveniencia de simplificar i uniformar la ortografía en America"* ('Indications about the convenience of simplifying and uniforming orthography in América'). Bello's purpose was to suggest rather than to impose, and to simplify in order to make uniform. Bello endorsed the write-as-pronounced criterion, and justified it by arguing against the etymological and constant usage arguments. In his opinion, the perfection of a spelling system laid in the strict observation of the biuniqueness principle of *one grapheme for each sound, and one sound for each grapheme*; moreover, the task of applying such a principle wouldn't be too difficult in a language so simple in its phonology. He therefore offered for consideration a series of eight basic

changes, to be carried out in two distinct stages. **[Note 2]** For the first stage, Bello made proposals for:

1. the adoption of <j> in all cases where /h/ is pronounced (so eliminating the alternatives among <j>, 'strong' <g> and <x>, e.g. "general" and not "general");
2. the use of <i> whenever <y> sounds vocalic, e.g. "lei" and not "ley";
3. the supression of <h> when it is soundless, e.g. "onor" and not "honor";
4. the use of <rr> whenever /r/ is pronounced, e.g. "rrápi-do" and not "rápido";
5. the use of <ze>, <zi> instead of <ce>, <ci> (=[*θ*e], [*θ*i]), e.g. "zentral" and not "central", "zivil" and not "civil";
6. the supression of soundless <u> in <que>,<qui>(=[ke] [ki]) e.g. "qeso" and not "queso", "gieto" and not "quieto".

For the second stage, Bello proposed:
7. the adoption of <q> instead of "strong " <c> or <k>, e.g. "qolor" and not "color"; and
8. the supression of soundless <u> in < Sue>, <gui> (=[ge], [gi]), e.g. "gerra" and not "guerra", "ágila" and not "águila".

Bello did not replace <x> for <qs> for he was not sure the corresponding sounds were those of <ks> or <gs>, preferred to keep the etymologically based distinction between <b> and <v> (which sounds like [b]) and did not pay attention to the use of stress marks, capital letters and punctuation.

None of these changes were Bello's originally, inasmuch as all of them had been suggested, here and there, by different orthographers since Nebrija. The proposition on the use of <ze>, <zi> indicates that Bello really had in mind the whole Spanish-speaking world, and that he was backing a spelling norm that was not so much for America as for most of Spain. **[Note 3]** In general, his proposal did not encounter unexpected enthusiasm or rejection anywhere. Bello himself was not even consistent in using it, and he seemed very satisfied with most of the innovations introduced by the Academia periodically. The cultural situation of Spanish America at that time, the rather little need for orthographic norms in a continent still at war against Spain, without enough printing houses, and with the majority of its few educational establishments closed or dismantled, together with the unknown prestige of Bello could be taken as the most obvious reasons why such a spelling proposal was not significantly welcomed.

In 1844 Bello was in Chile and had become the arbiter of that nation's cultural and educational institutions, not to mention the legislative, and he presided over the Universidad de Chile, which had the responsibility of advising the national government in all matters relating to education. A year before, in 1843, the Ministry of Public Instruction had asked the Principal of the Normal School, Domingo Faustino Sarmiento, to prepare a report on reading methods practiced and known; in Chile. In the preparation of the report, Sarmiento was unavoidably led to the spelling problem, and, with Bello's approval and stimulation, he submitted to the School of Philosophy and Humanities his Memoria *sobre la ortografia castellana.*

The *Memoria* was very controversial, since Sarmiento, who was then notoriously anti-Peninsular, advocated a somewhat drastic reform, a spelling system exclusively for Spanish Americans. The coincidence with the proposal made by Bello in 1826 was almost complete. The University explained that the changes were not intended to promote a system so revolutionary that it would hamper the communication with other Spanish speaking peoples, or that would incite other

institutions or individuals to dare so.. It also believed that all changes were to be made by steps, and that modifications could be accepted if the ideas and habits of society allowed it.

The new norms were immediately made official by the national government. The educational authorities assumed the responsibility of using them. The system was taught in schools at all levels; it was used in new text books and even adopted by some local newspapers. **[Note 5]** However, the acceptance was not total, and Bello himself had to publicly defend the adopted norms. **[Note 6]** Soon the initial enthusiasm began to fade; the newspapers returned to the old spelling conventions after combining the two systems for a while; the government did not enforce the use of the official orthography among its bureaucracy, and the schools openly opposed it. In less than two years, the original proposal was reduced to three accepted rules: the use of <i> for vocalic <y>, the use of <j> for strong <g>, and the use of <s> for <x> (a simplification of [ks]). These three features constituted what is known as "Chilean orthography." It is not identical to what is known as "Bello orthography," since Bello only agreed with the first two changes, but rejected the third. **[Note 7]**

Bello's defense of the 1841 reform was not based on strong arguments: it resorted to criticizing the spirit of conformism concerning the preference for the old system, to criticizing the spirit of conformism lying beneath the preference for the old system, to criticizing the uselessness of etymological graphemes kept for the love toward the ancient times, and the "superstitious cult" to academic prescriptions. It is possible to understand these feelings, but there are reasons which are valid to the extent that they are matter-of-fact: the unacceptability of the University proposal indicated that people did not want innovation as much as they wanted uniformity, and that uniformity was achievable by the observance of the customs or by obedience to academic precepts.

Coincidentally, the Spanish monarchy, in 1844, decreed that only academic orthography could be taught in the kingdom. The anarchy in the Peninsula easily and rapidly submitted to the trend imposed by the Crown. America also compromised in an atmosphere of cultural rencontre. In 1927, a presidential decree ended the use of Chilean orthography in the name of Hispanic unity. The Real Academia has been, since then, the single and unchallenged arbiter of every move toward a simpler orthography of the language. **[Note 8]**

What I have recounted here is useful for two reasons: first, it provides a historical picture of the attitude of the Spanish speaking people to the spelling question (a picture to be taken into account if a total or partial spelling reform is to be suggested), and secondly, it provides us with a number of facts which could be incorporated within a theory on spelling changes. Thus, we may say that, for a spelling change to be successful (i.e., accepted by an important majority), certain conditions are needed:

(1) that the reform (or the orthographic codification) be really needed (and spelling reforms are not always needed as innovations per se, but for a pragmatic reason such as ensuring uniformity, or a sentimental reason such as keeping or reconstructing a bond with the past);
(2) that the reform (or orthographic codification) have an official character, and, in some cases, be the product of academic study and support (particularly in communities with a literary written tradition);
(3) that the new orthographic rules be consistently, fully and exclusively used from the moment they are adopted in the government, education, the arts, and communications;

(4) that the new orthography should be easily represented, to avoid its rejection by publishers on the grounds of being uneconomical, and difficult to learn by children and adults;
(5) that, depending upon the trend in the community, a consistent criterion for representation (whether phonetic or etymological) be exclusively followed, or a consistent combination of criteria be maintained, if that satisfies the needs and habits of the people;
(6) that the reform (or orthographic codification) be not in conflict with the phonological perception that the people (especially the learned) have of their language;
(7) that the reform do not include graphemes perceived as (too) foreign by their potential users. **[Note 9]**
(8) that the reform allow the users of older orthographic norms access to new written materials, and for the users of the new norms access to the old written materials;
(9) that the spelling criterion should be flexible enough to allow conventional differentiation of lexical items that would be homo-orthographic otherwise;
(10) that the spelling reform (or codification) should be popularized (though the emphasis may very in the case of people with either greater or less formal education);
(11) that the diffusion of spelling changes or norms be made as rapidly as possible; and, finally,
(12) that the adoption of spelling norms do not result in communicational or cultural isolation or unnecessary self-differentiation, particularly when the language or a version of it is shared by a number of nations.

It should be added that an orthography does not have to be completely phonetic or etymological to be perfect. Moreover, the biuniqueness principle of orthographic representation is not always possible to achieve in phonetic spelling, not is a phonetic spelling a sure indication of perfection. Likewise, an orthographic system does not always need to be so strictly phonetic as to include dialectal features which characterize only the variety spoken by a major subgroup.

Of course, much depends upon the idiosyncrasy of the community that wants or rejects spelling changes or orthographic codifications. The manifestations of that idiosyncracy do not have to be logical. For example, to Spanish speakers, yesterday and today, graphemes such as <k>, <q> and <w> may look "foreign" or even "ugly." Venezuelans will not give up "Venezuela" for "Benesuela", even though they know the latter is what they pronounce. The Hispanic mentality is open to innovation in points or aspects in which it could be equally negative. Although the Hispanic world is regarded as rather anarchistic, its anarchism is really a superficial one, for Hispanics are, in my opinion, *"centrifugal but not loose."* This explains the convergence of fascism and democratic monarchism in Spain today, and of dictatorship and permanent revolution in most of Spanish America. . . not to mention the distrust and, at the same time, compliance to the Real Academia Española de la Lengua.

In a complex world such as the Hispanic, the choice or implementation of an orthographic norm has, the same as elsewhere, widespread social and political implications. Any change will attract the attention of the gatekeepers of a great written tradition, and raise popular concern when the literacy level of its masses is high enough. The Ibero-Americans want a modern, easy orthographic system authorized by the Academia, and the Academia wants the same thing without messing it up.

The spelling proposals that Bello made in 1826 and supported in 1844 have been brought back for academic consideration on many occasions. Some of Bello's propositions remain valid, and the Academia seems to be aware that the present system still contains pseudo-etymological

representations, mixtures of phoneticism and etymology, and unneeded graphemes. There are 30 graphemes in Spanish: 5 vocalic (<a, e, i, o, u>) and 25 consonantic (<b, c, ch, d, f, g, h, j, k, l, ll, m, n, ñ, p, q, r, rr, s, t, v, w, x, y, z>). Except for <i> and <u>, there are no apparent important problems with the vowels. Bello proposed to use <i> instead of vocalic <y>, and this may be a likely change in the near future. In relation to the consonants, the digraphemes <ch, ll, rr> may remain unchanged. It is probable that the replacement of "strong" <g> for <j> will come about before the suppression of <h>, so advanced in modem Italian. More difficult seems to be the reduction of "strong" <c>, <k> and <q> into one grapheme (although soundless <u>, as in <qtr-> and < gu-> may be eliminated ahead), the use of <rr> in word initial position, or the replacement of <x> by <s> or <cs>, <qs>. In a scale of unlikely immediate changes, there follows the reduction of <b> and <v> into <b> (nowadays, however, teachers, broadcasters and singers are spreading a hypercorrective [v] of obvious graphemic origin). At the bottom, I would place all those changes involving <z> for "soft" <c>, <y> for <ll> (Spanish American "yeismo") or <s> for <z> (Spanish American "seseo").

Exploring attitudes of Venezuelan students towards Bello orthography

I would like to conclude by reporting the results of a small research project carried out to explore the attitudes among Venezuelan students of two different educational levels towards Bello's orthographic system. Subjects were 150 students (equal numbers of males and females) of the third year of high school education, and identified as members of the local lower, middle and upper classes, and 50 students (equal numbers of males and females) from the course "Language and communication" at the Instituto Universitario Pedagógico de Caracas. A list of words was dictated for them to transcribe, after they had determined, in a second list, which word they preferred: the one written in Bello's orthography (MS), without indicating so, or the same word written in current orthography (CS). The scores for each group were the following:

Table 1

Group scores lot dictation and spelling choice (%)

Group:	Dictation:	Spelling choice.
UC-HS-s (n=50)	6	2
MC-HS-s (n=50)	28	38
LC-HS-s (n=50)	15	4
U-s (n=50)	10	24

As it is shown, in the dictation (which was given to test how good the student was at CS), the upper class students (UC-HS-s) did better than any other group, followed by the university students (U-s) and then those high school students belonging to the lower class (LC-HS-s). There were more mistakes in the middle class group. Regarding the choice of spelling alternative, it was found that more middle class students (MC-HS-s) tended to prefer MS, together with the university students. Both the upper and lower class students were very close in their preference for CS.

It is premature to derive sound conclusions from the facts mentioned above. Nevertheless, we may suspect that, once again, we have here a case of what W. Labov has called "middle class linguistic insecurity." The dictation scores show that, in our testing, the middle class students did not do as well as the upper and lower class students. Insecurity may have then influenced in the choice of MS, but also the desire for a more phonetic or simpler spelling that could ensure a greater probability of orthographic success. Being more secure, the upper class group did not manifest any

special preference for MS: this group has such good command of the established spelling norms as to be willing to replace them with different, more innovative ones. In the lower class group, the situation may have a distinct motivation: to ensure social ascendence, the lower class individual would pay more attention and concede more importance to the norms of stable and successful groups. The lower class group does not seem to need an innovation from a source lower than that, since such an innovation may hinder its way up. These explanations are only intended as working hypotheses for further research.

I have mentioned that the university group did better than the middle class high school students, but coincided with it in also showing a high preference for the MS alternative. Two hidden variables may be at work here: educational level and group orientation. According to the first variable, university students did better in the dictation because they had been exposed to spelling pressure longer. Moreover, in the subject "Language and communication" they receive intensive instruction to correct spelling deficiencies. On the other hand, these university students, who are to become high school teachers, usually express a desire for a simpler orthography to be taught. Most of these students come from middle and lower classes. The feeling is less intense among students who will become teachers of Spanish grammar and literature or of other modern languages such as English or French.

In the spelling choice section, the only word which was the most accepted across all groups was "enrredo" (instead of CS "enredo"), even by individuals who had written "honra" (and not "honrra") in the dictation.

There is probably another hidden variable in this test: the fact that the inquiry was a classroom activity, conducted by teachers of Spanish grammar. Students may not have felt so free as to choose certain items in MS. Had they known that MS was Bello's, the results could have been different, due to the fact that Bello — a Venezuelan himself — is regarded as one of our nation's greatest scholars. That being the case, the spelling principle would be based on personal prestige, rather than on academic authority. Anyway, despite that prestige, the results might not have been very different from those I have presented here.

Notes

(1) Nevertheless, the Academia sanctioned some usages which can be regarded as progressive: it established <y> and <v> for consonantal and not vocalic values (although such forms as "rey" and "ley" were kept, together with such forms as "mui" and "hoi"); it established <b> and <v> according to the etymological criterion (but the Academia wrote "haver" instead of etymological "haver"); it suppressed <ç> for <z>; it distinguished when the vowels and consonants (particularly <m, n, r, c, s >) could be doubled; and it settled the orthography of the etymological consonantac sequences <bst, ct, nc, nt, pt, ns, sc, xc> etc.

(2) It is not very clear why Bello proposed two steps for the changes to be carried out. Rosenblat assumes that the reason behind it relates to the fact that the changes proposed for the second step were more "radical." A similar attitude will characterize the Chilean attempt, in 1844. The message is obvious: a *spelling reform* should not be associated with a *spelling revolution* nor foster one, perhaps because at this level of language — undoubtedly the most arbitrary — all representations are relative.

(3) It still surprises me that the spelling proposal made by Bello in 1826 was so ignored by his fellow countrymen, at a time when there was a good excuse for an orthographic revolution which, in the long run, might have even affected Spain. I have in mind some particular cases

in which a revolutionary process was accompanied by successful system-wide orthographic change. I do not mean to say however that orthographic change is possible when co-occurring with revolutionary social change **(J.A. Fishman (1971 [2])** provides examples of four possible situations: (a) successful orthographic revision with and without revolutionary social change (e.g., Russian and Turkish, and Czech and Roumanian), and (b) revolutionary social change with or without successful follow through of planned orthographic revision (e.g., Soviet Yiddish and (Northern Mandarin) Chinese). Fishman also mentions cases of attempts to bring about orthographic change under non revolutionary situations (e.g., Israel, Haiti and Japan), or orthographic unification of closely related languages in the absence of accompanying societal unification (e.g., India, Africa and Indonesia-Malaysia). The case in Spanish America clearly shows that the revolution was a political affair rather than cultural, and that an orthographic change in similar circumstances may not come through when the cultural bonds between two political entities remain preserved.

(4) As far as we know, the only support came from a newspaper in Mexico, *El Sol de Méjico*, which reproduced the *Indicaciones*, and from a person who later published an article to acknowledge the good intentiones of Bello and García del Rio, but also to point out that the unification of the orthography was to be made by the Academia in order to avoid endless disputes.

(5) Vid. footnote 130 in Rosenblat, 1951: cxvi.

(6) Vid. "Ortografía" in A. Bello's *Estudios gramaticales* (vol. v: 97–115).

(7) Bello's own orthography has been analyzed and discussed in "La ortografía de don Andrés Bello. Informedictamen de la comisión editora de las Obras Completas." *Revista Nacional de Cultura*, 74 (1949): 151–166.

(8) The last orthographic prescriptions were made by the Academia in 1964. (Vid. A. Rosenblat, 1967. *Las nuevas normas ortográficas de la Academia Española*. (2 ed.) Madrid: Oficina de Educacion Iberoamericana.) For a description of the current situation of Spanish spelling, see Real Academia Española de la Lengua, 1975. *Esbozo de una. nueva gramatica de la lengua española*. Madrid: Espasa-Calpe (P.1.8, pp. 120–159).

(9) Of course, this is not the case when the reform or codification implies, for example, voluntary adoption of Roman letters.

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"Spelling Reform in International Perspective," by Jesús Mosterín, Ph.D.*

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Abstract
The goal of spelling reform is to improve written communication between all the peoples of the world. Of course it should make reading and writing much easier for children to learn. But it should also increase the linguistic awareness of the speakers, facilitate the learning of foreign languages, diminish the burden of bilingual communities, offer a uniform and consistent system of transcription' from other writing systems, allow the unified representation of nouns in cartography, permit the design of universal word processing machines, etc. And it should be made in accordance with the principles valid for all the languages of the world. Most plans of spelling reform that have been proposed in the past are too narrow in scope, too parochial in concern, and incompatible with the possible reformed spelling of other languages.

The scheme of spelling reform proposed here is based on the principle of alphabetic spelling, that is, on the establishment of a biunivocal correspondence between the phonemes of each language and the graphemes of its writing. This principle is modified by 3 restrictions (morphemic, semantic, and transdialectal), which permit departures from it in specific cases, in order to maintain the uniform graphic representation of morphemes, to differentiate homophones, or to unify the writing of different dialects. The graphemes themselves should be chosen according to international criteria, and their shapes and values should differ as little as possible from those of the international phonetic alphabet.

This scheme has just been applied to Spanish and could easily be applied to English and to any other language.

Corpus

We live in a world and in a time full of unprecedented opportunities and of unprecedented problems. Some of our problems are due to the resistance nature opposes to our wishes. But most of our problems are of our own making: they do not arise from a withstanding nature, but from the inadequacy of our conventions.

The Greek philosophers of the 5th century B.C. made the all important distinction between *physis* and *nomos*, between nature and convention. Nature we must accept. As Galileo put it, the only way of dealing with nature is by obeying its own laws. Laws of nature can be discovered, but not agreed upon by convention. On the contrary, laws of the state, customs, dispositions and orthographies are conventions, whose only substance comes from out agreements. It would be a waste of time to discuss whether the solar system should have 9 planets or more or less. But it is very well invested time to discuss the laws of the state, the taxes, the systems of measures, and the rules of orthography.

Rationality has to do with the analysis and critical discussion of systems of conventions. It presupposes the clear articulation of the goals or functions the system is supposed to serve, and it seeks the optimization of those goals through the conscious design or redesign of those systems of conventions. Rationality leads to technology. And spelling reform is a typically technological

task. Humanity faces graver and bigger problems than those posed by inefficient and antiquated orthographies or by inadequate systems of measures. But if we are not able to cope with these relatively simple problems, much less can we hope to solve the bigger ones. By successfully tackling such problems as spelling reform, we can flex our intellectual muscles and prepare them for more ambitious enterprises.

Most proposals for spelling reform have been a failure. In a sense, this has been a pity, for children and adults and foreigners have been burdened with needless problems, frustrations and waste of time and effort. In another sense it has been fortunate, for a successful spelling reform would be an enormously laborious and expensive process, which should not be gone through more often than once a century. But most proposals for spelling reform have been so parochial that, had they succeeded, very soon the need for a second spelling reform would have been felt.

One typical system of conventions is the systems of measure units. Every country in the world has had two different problems with its traditional system of measures:

(1) the traditional system used to be more or less accidental or absurd, the units were not interrelated by any simple proportions, the computations with them were unnecessarily difficult and cumbersome; and

(2) the units of such a system used to be different and incompatible with the units of other countries, and this diversity hampered commerce and industry, science and communications. Each country could have coped with the first problem by itself, arriving at a satisfactory solution, but one different from the solutions arrived at by other countries. This reform would have simplified the life of the citizens of that country: But the second problem would have remained intact, and the need to deal with it would have soon led to the need for a second reform to be felt. Of course, it would have been much better to catch both flies with the same stroke. And that is the opportunity offered by the International Metric System.

The British or Americans could have proposed a new and thoroughly rationalized system of measure units based on their old pounds, ounces, drams, grains, and so on. But a wholly new system of units and measures is something difficult to impose or to accept, as it so severely impinges on the habits of the people. Nevertheless one of the best arguments for the Metric System was that not only would it facilitate the learning of physics by children and the making of computations by adults, but also that it would greatly promote the exchange of all kinds (econnomic, cultural, scientific, medical, etc.) among all countries of the world. Evidently the 'sex appeal' of a system which is not only logical and simple, but moreover of international validity, is much greater than that of any merely parochial or provincial one, whatever its merits.

The same applies to spelling reform. We should spare ourselves and others the trouble of having to go through two different spelling reforms, a first one simplifying spellings of different languages independently of one another, and a second one harmonizing and changing again all previously reformed spelling. Also in this domain, we should aim at catching both flies with the same stroke. In order to achieve that, we have to devise and promote a world spelling reform, valid for all the languages of the world.

Let us consider for a moment the English palato-alveolar fricative phoneme /ʃ/, which appears in such words as *shoe, ship*, or *machine*. One problem about this phoneme the spelling reformers have been. well aware of has been the one posed by the pathological diversity of its graphic representations in traditional English orthography: sometimes it is represented by *sh*, other times

by *ch, sch, s, ss, ti, si, sci, ci* or *ce*. Of course, this is an absurd situation. It could be remedied, for example, by writing always sh for /ʃ/, as many reformers have proposed. But we should not forget that this is only one problem about phoneme /ʃ/, the problem of its polygraphy in English orthography. There is *another* problem, which has received very little or no attention at all by spelling reformers of the past. It is the problem posed by the different and mutually incomparable graphic representation of the phoneme /ʃ/ in the orthographies of the many other languages which possess such a phoneme. Limiting our attention to the best known west European languages (all of which are written in the Roman alphabet) which possess the phoneme /ʃ/, we easily notice that no two of them represent it in the same way. English represents it (mainly) by *sh*, Italian by *sc* or *sci*, French by *ch*, German by *sch*, Dutch by *sj* or *stj*, etc. This is a real problem which should be tackled from the beginning. It is not enough that this particular phoneme gets a uniform representation in the reformed orthography of English, another and different uniform representation in the reformed orthography of French, a third one in that of German, and so on. All spelling reforms should be so coordinated from the beginning that this phoneme gets the same uniform graphic representation in the reformed spellings of all the languages. A spelling reform which ignores or forgets the second problem is a merely parochial reform and perhaps it is not worth while being carried through.

Look at German. They write the labio-dental fricative phoneme /f/ sometimes as *v*, sometimes as *f,* and sometimes as *ph*. So the initial consonant of the three words *forms*, *vorn, phosphor* is the same, /f/, but it is written in 3 different ways. Of course, this is absurd and every German spelling reformer worth his name will want to change this. So Ftitz Vonficht proposed a uniform graphic representation of /f/ in German by writing it always as *v*. That is reasonable in the context of traditional German orthography, where /v/ is represented by *w*, so that the letter *v* always represents the phoneme /f/. But this is incompatible with the writing of every other language of the world, and so it must be rated as a very bad proposal. If Germans want to unify their graphic representation of phoneme /f/, they should choose the letter for doing it, because it is the internationally accepted letter for that sound.

Look at Spanish. It possesses the velar fricative phoneme /x/ (the same sound pronounced at the end of Scottish *loch*), which is sometimes written as *j* and sometimes as *g*. Every Spanish spelling reformer has proposed to eliminate this anomaly by unifying the graphic representation of /x/. But most of them (like Andrés Bello and Juan Ramon Jimenez) have proposed to use the letter *j* for doing the job. Again this is quite correct in the context of traditional Spanish orthography, but no writing system of any other language in the world uses the letter *j* for representing the phoneme /x/. If international considerations are taken into account, Spanish speakers should use the letter *x* and not *j* for representing the phoneme /x/.

Look at French. André Martinet, certainly one of the most eminent linguists of our century, devised in 1973 a phonemic alphabet, called *alfonic*, that should serve as an initial teaching alphabet for children, on the one side, and as a possible means of written communication among adults, on the other. There is nothing to reproach in the phonemic analysis which is its base. And there is nothing new about the shapes of the letters. But the values he assigns to some of them are strange indeed. He assigns the phoneme /f/ (the one at the beginning of *ship*) to the letter *h*. Here again, there is no problem with this choice in the narrow context of the French language, which lacks any glottal fricative /h/ (like English *hat*). But French is not alone in the world. Many other languages possess that phoneme /h/, for which the letter h should be reserved. The suggestion of representing /f/ by *h* is too idiosyncratic to be accepted by anyone but the French. If the French went along with that proposal, their reformed spelling would be (at least in this point) utterly incompatible with any other actual or reformed spelling of other languages. The French children

would have to learn anew to read and to write every time they learnt a foreign language (just as now) and the same would happen to foreigners wanting to learn French. The lot of bilingual communities with French as one of their languages (in Alsace, in Quebec, in Brussels, etc.) would continue to be an unnecessarily hard one.

Look at English, and at its spelling reformers. Consider for example the close, forward, unrounded and long vowel phoneme /i/ which appears in *cheese*, *me*, or *machine*. This is a very common phoneme, to be found in most languages. Of course, the polygraphic representation of this phoneme in traditional English orthography (by the different phonograms *ee, e, ea, ie, ei, ey, i*) is absurd. But some of the proposed medicines are perhaps still worse than the disease they are supposed to cure. So the Simplified Spelling Society's New Spelling proposes to represent the phoneme /i/ by the letter combination *ee*. That would have the advantage of unifying the now chaotic graphic representation of /i/ in English, but it would be utterly unacceptable from an international point of view. No other language of the world could represent /i/ as *ee*. Sir James proposal of the idiosyncratic sign [joined] *ee*, is still worse. Consider now the diphthong /ai/, found in words like *time, die* or *aisle* (and now written as *i*, *y, igh, eigh, ie, ye, ei, ai*). New spelling's proposal for it is the letter combination *ie*. That also is utterly unacceptable in any other language. Dr. Gassner's suggestion for /ai/ is the letter *y*, also wholly off the mark, if we look at it from an international perspective.

We should beware of this sort of proposal. Some of them (like writing *machine, police, prestige* or *suite* with *ee* in place of actual *i*) would make English spelling still worse than it is today, from any point of view (and to begin with from the phonetic point of view). And they would carry English spelling still further away from international practices.

If we look at the future destiny of the English language, we must take into account that, on the one hand, every year fewer people are going to speak English as their first language (due to the demographic trends now at work) and, on the other hand, every year more people are going to use English as a second language. There are already many more people who speak Chinese than English. And soon there will be more people who speak Spanish or Hindi than English. Nevertheless English has the best chance of becoming the international auxilliary language. This means that many hundreds (perhaps even thousands) of millions of people are going to learn and use English as a second language (besides their native Chinese, Hindi, Spanish, German, Russian; French, Japanese, etc.), many more than those learning and using it as their first language. In this perspective, it is imperative to reform the spelling of English, not only in order to regularize its present extravagant patterns, but also with a view to accomodating its orthographic conventions to the needs and interests of the speakers of other languages (which, by the way, are identical with the true needs and interests of English-speaking children). R. Venezky excuses some of the oddities of traditional English orthography with the observation that "English spelling is geared for the convenience of the native speakers, not for the foreigner" (*The Structure of English Orthography*, p. 121). This callous, parochial and irresponsible attitude has to give way to a much broader frame of mind when analyzing or redesigning English spelling, or the spelling of any other language, for that matter.

The biunivocal correspondence between the phonemes of the language and the graphemes of the writing is the essence of the alphabetic way of writing. This we should never forget. But of course, it is not as simple as that. A purely phonemic transcription would not be a good working orthography. Other considerations have to be taken into account, like the need for preserving the uniform graphic representation of the same morphemes, the need for differentiating in writing some homophonic morphemes and the need for maintaining the unity of the writing code beyond the

dialectal frontiers. This is not the place for me to dwell on these most important subjects. Much more space would be required to deal with them adequately.

Let me just remark that the full consideration of these essential topics does not impinge at all on the general principle that the most economic, efficient and easy use of alphabetic writing can only be achieved by having at our disposal as many different letters in the alphabet as we have phonemes in the language. And that means that in most languages (and anyway in English, French or German) we need more letters than are available in the Roman alphabet.

We need not invent the new letters. They have already been invented and have been in general use in the scientific community for many years. They are the letters of the International Phonetic Alphabet (I.P.A.), designed by the International Phonetic Association. The I.P.A. is called to play in spelling reform a role similar to that played by the International Metric system in the reform of national systems of units and measures.

Spelling reform is one of the most important, socially relevant and intellectually fascinating tasks which confront us. We should approach this task with a certain awe and with a certain humility, but at the same time with a fresh openness of mind and a bold grasp of the aims.

We need more letters than the Roman alphabet has. That is a fact. Any spelling reform proposal which forgets that is not worthy of its name. (Another question is the tactics of implementation. But clear ideas are more important now and in the long term than mere tacticing and compromising). In choosing the new letters and in assigning values to the old ones, we should resist any temptation of personal originality and of idiosyncratic invention. We should always proceed according to the shapes and values proposed by the International Phonetic Alphabet. Only so shall we arrive at scientifically sound and internationally compatible spelling reforms of all languages of the world.

Some spelling reformers are anxious to get some movement in the actual spelling, to get people begin to change their traditional and often absurd ways of writing. To them I would like to give the advice: Do not press for all changes in spelling you think good or conforming to your favourite scheme. Press just for the ones which are compatible with international uses and with the International Phonetic Alphabet. Forget about the others for the time being and until more research has being carried out. Forget about pressing for writing *ee* for /i/, or *ie* or *y* for /ai/, or *j* for /ʤ / (as in George). There is still enough little changes you can press for with a good conscience, like the ones accepted at the 1981 Edinburgh Conference on Spelling, i.e., writing the letter *e* (instead of *a, ie, ai, ea*, etc.) for the phoneme /e/ in words like *frend* (instead of friend), *hed* (instead of head), *eny* (instead of *any*), *meny* (instead of *many*), *sed* (instead of *said*), *insted* (instead of *instead*), etc., and writing the letter *f* (instead of *ph*) for the phoneme /f/ in words like *filosofy* (instead of *philosophy*), *fonetic* (instead of *phonetic*), *foto* (instead of *photo*), etc. These are changes which go in the good, internationally acceptable direction. As a matter of fact, the last one, for example, is a change the Italians (and Spaniards, Portuguese, etc.) who are nearer to the Latin sources, have already made long ago. Now they write *filosofia, fonetico, foto.*

Spelling reform is a grander task than some reformers thought. Let's rise to the occasion.

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Spelling for Electronic Communication

"Computer transliteration of shorthand," by Colin P. Brooks,

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Summary
This paper reviews the development of two specialised text processing techniques for computer transliteration of shorthand. It is concerned with the problem of trying to reconstruct automatically an ideal orthographic transcript from imperfect, phonetically-based, shorthand notes. This work forms an integral part of a project to allow a simultaneous transcript of almost verbatim speech to be presented to a post-lingually deaf audience.

Corpus
Introduction
The Family Welfare Association estimates that between 0.8 and 1.1 million Britons suffer a hearing loss sufficiently acute to be regarded as a social handicap. [1] Whilst many of these people manage remarkably well with a conventional hearing aid, there are still a considerable number for whom attending a public meeting, or watching a television programme, is either difficult or impossible. However, since a high percentage of these people are post-lingually deaf, having become deaf in later life, one way in which it is possible to help is to provide them with a simultaneous written transcript; of speech, such us subtitles on television. At the Dept. of Electronics, Southampton Univ., we have been investigating the problems of providing the deaf with a simultaneous written transcript of speech for a number of years.

Unfortunately, there is a fundamental problem with speech transcription concerning the maximum speed at which it is possible to enter text into a machine. Speech varies greatly in speed, but normal conversation usually lies somewhere between 120 and 220 words per minute (wpm). A good typist, on the other hand, can normally only manage between 60 and 80 wpm, and may even have difficulty sustaining this speed over a prolonged period. Modern word processors considerably reduce typing effort, put they do not significantly improve on these figures for text input. The fact remains that it's usually not possible to type fast enough on a conventional QWERTY keyboard to keep up with verbatim speech.

Neither does automatic speech recognition provide a solution. Although theoretically attractive, simultaneous recognition of unconstrained speech is, as yet, impossible and is likely to remain so for some time. [2,3]

Fortunately, there is an alternative. Numerous shorthand notations have been devised and used over the centuries to allow the verbatim recording of speeches, debates, and court proceedings. However; it would be of very little use simply to present a deaf person with a simultaneous shorthand transcript of a TV programme, for example. Ignoring any technical problems which might arise, most deaf people would be either unwilling or unable to learn what is, after all, a complex code based on a mixture of phonetic and graphemic principles. Instead, the deaf person requires a readable transcript presented in a reasonably familiar manner. In order to be simultaneous, such a transcript needs to be produced automatically.

2. Automatic transcription of shorthand

During the course of our research, we have built a number of prototype shorthand transcription systems, each comprising an electric Palantype keyboard, microprocessor-based transcription unit and television monitor screen. [4] These systems allow a Palantypist to provide a simultaneous written transcript of speech on a television screen for deaf people to read. Two of these systems are in daily use by deaf businessmen, who find them of great benefit. [5]

FIGURE 1

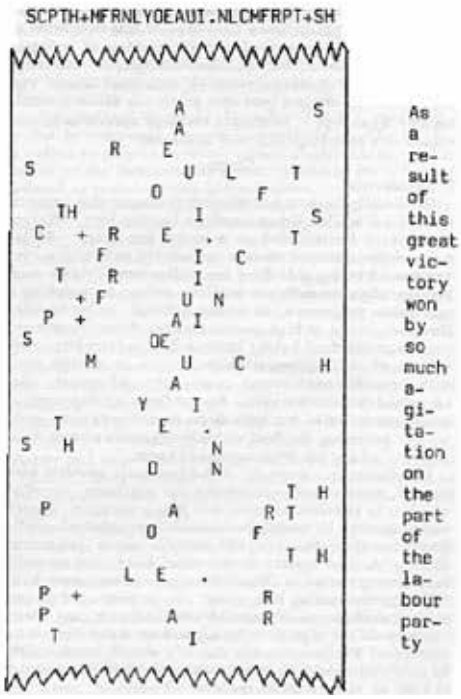
A Palantype shorthand machine.

Palantype machine shorthand is particularly suitable for this purpose because, being keyboard-based, it interfaces very conveniently to a computer. However, we have maintained our interest in other shorthand systems and, as part of a wider investigation into man-machine systems, we are currently exploring the feasibility of computer transcription of Pitman's handwritten shorthand. The translation techniques described in this paper were developed as part of this research, although the findings may be applied (at least in principle) to either shorthand notation. However, before going on to discuss the development of the translation processes in detail, let us review the essential principles of both of these shorthand systems.

Palantype machine shorthand [6] is a phonetically-based system in which groups of keys, representing a complete syllable, are pressed simultaneously to form a "chord." Words are represented by a number of chords, usually dependent on the number of stressed syllables within the word. The Palantype machine itself has a keyboard of 29 keys in a rather unusual layout, symmetrical about the centre (See **Figure 1**). The keyboard divides naturally into three groups: a left hand group of 12 keys representing the initial syllabic consonants, a central group of 5 keys representing medial vowels, and a right hand group of 12 keys representing final syllabic consonants. As there are only 29 keys in total, a certain amount of. coding is required in order to represent a sufficient number of phonemes. The output from the machine is in the form of a paper band on which each chord is printed on a separate line. Unlike an ordinary typewriter, the paper only moves vertically, and each key always causes an imprint in the same position horizontally across the line. **Figure 2** illustrates an example of Palantype output with its English equivalent.

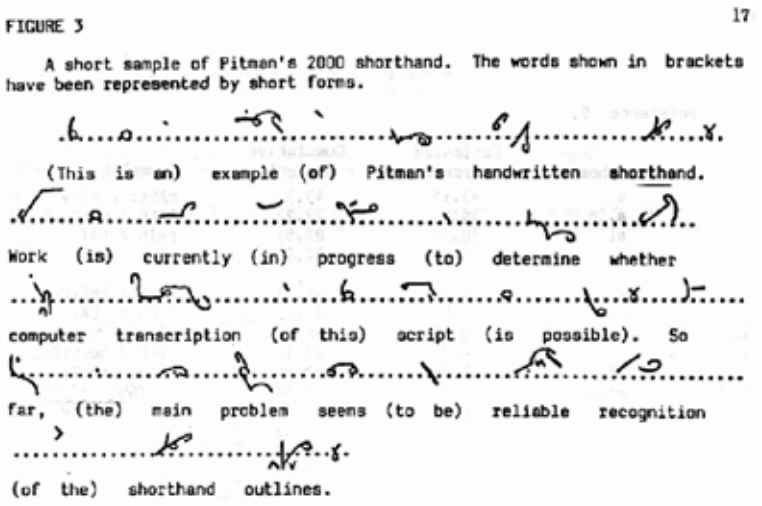
FIGURE 2

An example of a conventional Palantype band and its English equivalent. (The layout of the printed characters across the Palantype roll is shown at the top of the figure. Normally, the band would be about 6 cm wide.)



Palantype machine shorthand is a very fast shorthand system allowing accurate outlines even at verbatim speeds. In common with all machine shorthand systems though, word boundaries are not explicitly marked and this complicates transcription by computer. Despite this Palantype shorthand is highly suited to this application and suffers from only one major disadvantage. Unfortunately, unlike handwritten shorthand, it is a comparatively rare skill and there may be as few as 100 practicing Palantypists left in the United Kingdom.

In contrast, Pitman's shorthand [7,8] is undoubtedly one of the most commonly used shorthand notations in the world. It is another phonetically-based system in which the consonant 'kernel' of a word is represented by a sequence of simple, single-stroke, geometric shapes, such as straight lines or shallow curves. The vowel sounds, added only if time permits, are represented by dots of dashes written alongside the consonant symbols. In addition to the basic range of 40 phonemes, there are special symbols for orthographic features such as common prefixes, suffixes, and consonant digraphs, etc. In common with Palantype, very common words and phrases are represented by highly abbreviated symbols called short forms, and these tend to reduce the phonetic quality of the script, particularly at speed. **Figure 3** illustrates a short sample of good quality Pitman's 2000 shorthand.



In comparison with machine shorthand, handwritten outlines are highly abbreviated and lack many of the finer details of the original words. Pitman's shorthand in particular emphasises the importance of the consonant kernel, often at the expense of disregarding vowels and unstressed syllables altogether. However, despite the comparatively poor quality of written shorthand notes, they do have a subjective advantage over their machine counterpart. On the whole, word boundaries are preserved, and this has a number of advantages in subsequent automatic processing and in readability of the final transcript. There is one other difference between these two systems. Although Pitman's shorthand allows verbatim transcription, provisional studies indicate that a speed of about 120 wpm will probably represent the upper limit for transcription by machine. Beyond that speed, outlines become too highly mutilated (both physically and linguistically) to be transcribed automatically.

3. Text processing objectives

One possibility originally considered was that of displaying the (recognised) shorthand outlines directly in some form of phonetic alphabet. This, of course, would alleviate the need for any sophisticated linguistic processing. A number of possible alphabets were considered, including the International Phonetic Alphabet (IPA) and the Initial Teaching Alphabet (ITA). As might be expected, ITA would suit Pitman's shorthand quite well, but, despite this, use of a conventional alphabet was selected because of overwhelming advantages. It is not impossible to electronically display an alphabet such as ITA, but it would require non-standard equipment which is considerably more expensive. Furthermore, since most existing public data transmission services (such as Teletext and Prestel) only allow display of a standard alphabet and rudimentary graphics, use of any different alphabet would prevent compatibility with these. More importantly though, there appears to be very little, if anything, to be gained from the deaf reader's point of view in deliberately departing from a standard alphabet and traditional orthography.

The objectives of the linguistic processing system were thus established as follows:

a. To produce an ideally orthographic target script from the pseudo-phonetic source script,
b. To suppress, or at the very least, tolerate mutilations in the source script,
c. To produce a target script which can, within reason, be traced back to the original sources phonemes in the event of error,
d. To be computationally "cheap."

Two different methods of achieving these objectives were originally considered: these were' translation by dictionary lookup & transliteration by rule. (Transliteration is the name given to the process of conversion from a source script written in one alphabet to a target script written in another.) Each technique was found to have a number of advantages and disadvantages. Generally speaking, a dictionary based system has the advantage of a very" high performance, but at the cost of being intolerant of error and computationally quite "expensive" to implement.

Transliteration by rule, on the other hand, offers a lower performance, but one that is considerably "cheaper" to implement and more tolerant of error. (There is no danger of a mutilated outline being transformed into something entirely different by an erroneous dictionary match.)

In the current generation of transcription computer, we have chosen a compromise solution. A small dictionary is incorporated to deal with the most common words (which are usually short forms), but all other words are processed by spelling 'rule.' It is interesting that this is an approach also adopted by a number of spelling reformers in their proposed reforms.

4. Transliteration by rule

To reiterate then, the transliteration procedure must govern the conversion of the pseudo-phonetic source script (the shorthand notation) into an ideally orthographic target script. The spelling 'rules' mentioned above must therefore reflect how best to represent a phoneme graphemically in any given situation, taking into account numerous factors such as the position of the phoneme and the conventions of the particular shorthand notation. The rules currently being developed also take into account the relative frequency of every possible graphemic representation of each phoneme. For simplicity, only the most common of the possible range of graphemes for each phonemes are considered. Each phoneme is assigned a specific set of transliteration rules; each member of that set relates to the transliteration of that phoneme in a particular contest. Phonetic context was chosen as the best means of distinguishing possible graphemic outcomes because of the inherent simplicity in comparison with other possible techniques and because studies indicate that this may be one of the most important factors influencing phoneme-grapheme relationships.

By way of example, consider development of the set of rules relating to transliteration of the long /A/ vowel. **Table 1** lists the range of possible graphemes for this phoneme, which number 16 in all. (This table also serves to illustrate another complication caused by working from an imperfect phonetic code such as shorthand. In practice, the Pitman /A/ vowel is actually used to represent two distinct phonemes corresponding to the vowel sounds of "hay" and "hair".) Many of these graphemic options occur comparatively infrequently (i.e. less than 2%) and so may he disregarded without significant loss. This leaves four possible graphemes, namely <a>, <a. . e >, < ai > and <ay>. A survey was performed of the most common words in English to determine in what circumstances /A/ would be spelt <a>, and when it would be spelt <a. . e>, etc. Words belonging to each category were grouped and any suitable spelling pattern isolated manually. An automatic technique for detecting spelling patterns would have been preferable, but this was not possible in the time available. However, the use of rhyming dictionaries and reference to the work of several spelling reformers aided the collection of an adequate number of examples of each grapheme **[10,11,12,13]**. Reference to a rank list of the most common words in English was also found particularly useful in this respect. **[12]** The resulting spelling patterns for the /A/ phoneme are listed in **table 2**. A similar set of rules have been isolated for every other phoneme in the Pitman shorthand alphabet.

The transliteration rules for the /A/ phoneme would be read as follows. Consider the first rule governing the grapheme < ay >. This rule would be read:

> "If the /A/ phoneme is preceded by any phonetic consonant AND followed by a word boundary, THEN the /A/ phoneme is probably best represented by the grapheme <ay>"

This rule would thus be satisfied by the words "pay", "may" and "say." Similarly, the second rule would read: "If the /A/ phoneme is followed by the phonetic consonant /n/, which in turn is followed by any inflection or word boundary, THEN the /A/ phoneme is probably best represented by the grapheme <ai>."

This rule would thus be satisfied by the words "pain," "rain" and "training," for example. The other rules in this table would be read in an exactly analogous fashion. In the event that no specific context rule was satisfied, then the grapheme shown on the bottom line (label led context "else") would be output. Naturally, this should normally be the most common graphemic representation of the phoneme, and in this case is just <a>.

In addition to the groups of rules relating to the transliteration of specific phonemes, the overall process must also be sensitive to a number of the more 'general' rules of English spelling. For example, the following spelling conventions have also been incorporated:

TABLE 1
This table illustrates the phoneme-grapheme correspondences expected for the Pitman long /A/ vowel (as used in "HAY" and "HAIR"). After Hanna et al., reference 9.

	Estimated	Cumulative	
Grapheme	percent	percent	Examples
a	43.19	43.19	mAbel / mAry
a..e	34.03	77.22	lAtE / cArE
ai	10.29	87.51	rAln / fAlr
ay	05.30	92.81	pAY
e..e	1.62	94.43	fEtE / thErE
ea	1.09	95.52	EAch / tEAr
ai..e	0.85	96.37	rAlsE / questionnAlrE
e	0.81	97.18	cafE / sombrEro
ei	0.76	97.94	vEln / thElr
eigh	0.72	98.66	slEIGH
ey	0.60	99.26	thEY / EYrie
et	0.36	99.62	bouquET
aigh	0.16	99.78	strAIGHt
ei..e	0.08	99.86	sEInE
au..e	0.04	99.90	gAUgE
ay..e	0.04	99.94	AYE

TABLE 2
This table lists the transliteration rules for the Pitman long /A/ vowel.

Rule			
Number	Phonetic context		Grapheme
1	(consonant),	A,(word boundary)	ay
2		A,N,(inflection or boundary)	ai
3		A,D>2,(word boundary)	a..e
4		A,D<3,(word boundary)	ai
5		A,(consonant; but NOT N or D),(NO vowel)	a..e
6		else	a

(a) The addition of a silent 'e' following a final consonant preceded by a long vowel, such as occurs in "cake" "like" and "mute."

(b) The removal of a silent 'e' before the 'ing' and 'ed' inflections, such as occurs in "taped" and "taping." (c) The doubling of a final consonant following a short vowel and preceding the 'ing' and 'ed' inflections, as in "map", "mapping" and "mapped."

The overall translation process thus operates in this manner. Working with a word at a time, the transcription computer sequentially examines each of the phonemes in the shorthand outline. For each of these phonemes, it attempts to match the context in the shorthand outline with one of the context rules listed in transliteration tables like the one in **Table 2**. If the context in the outline matches one of the listed context rules, then the grapheme recommended by that rule is used. If no specific rule is matched, then the phoneme is simply represented by the most common grapheme for that phoneme. Meanwhile, the computer also checks to determine whether any more general spelling rules are applicable, and if so, takes the necessary action. This process continues sequentially for each of the phonemes within the source text until the whole outline has been transliterated.

At present, over 100 context rules have been isolated for the Pitman notation. Work is currently in progress to develop a similar system for Palantype shorthand, but in this case, it is necessary to precede the transliteration process with some means of accurately locating word boundaries. Many of the transliteration rules rely on word boundary information to determine the most appropriate grapheme for a given grapheme. The rules are still provisional, and much more work needs to be done to achieve the best compromise between overall complexity, accuracy and tolerance to error when working from real shorthand outlines.

5. Vowel marker insertion

As already mentioned, an additional problem when working from a Pitman transcript is that the outlines are often vowel deficient; non-essential vowels are omitted in order to increase recording speed. Hence, it was also necessary to develop some means of automatic 'vowel insertion' in order to improve the readability of the final transcript.

The principle of operation of the vowel insertion scheme is quite simple. Every pair of adjacent consonants that have a low probability of occurence in everyday English are split, and a generalised vowel marker sign (currently a "Y") inserted. The insertion of such a marker merely denotes that it is likely that the stenographer left out a vowel character in that position from the original outline. It is not possible to reliably insert a specific vowel, except perhaps in the case of final silent 'e'. Although experiments have not been done by the author, a number of related experiments by psychologists interested in reading" imply that this technique should improve readability by helping to restore the correct word 'shape.'

In order to achieve the best possible performance from this technique, the insertion process has been devised to reflect the different initial, medial and final vowel structures common in English words. Special attention is given to consonant digrams which occur near word boundaries, as psycho-linguists believe" that word boundaries play a particularly important role in reading. To this end, contextual sensitivity is achieved by having not one, but five vowel insertion lookup tables. Each table summarises exactly which consonant digrams are permitted and which must be split in a given situation. The tables are the result of analysis of the most common vowel structures in written English, and in the prototype system, are arranged to split all digrams with a probability of occurence of less than about 40% in everyday English. Figure 4 illustrates the effect of the vowel insertion process on a small passage of vowel deficient text

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Figure 4.
An example of the effect of the vowel insertion process on a highly mutilated passage of English, in which all vowels in words of two or more consonants were first deleted and then automatically re-inserted.

Original Text:

> This is a short demonstration to illustrate the effect of the vowel insertion process on a short passage of highly mutilated English. As can be seen, although it is normally only possible to insert a generalised vowel marker symbol, this does appear to improve readability.

Mutilated version:

> Ths is a shrt dmnstrtn to llstrt th ffct of th vwl nsrtn prcss on a shrt pssg of hghly mtld nglsh. As cn be sn, lthgh it is nrmlly nly pssbl to nsrt a gnrlsd vwl mrkr symbl, the ds ppr to mprv rdblty.

Vowel Inserted Version:

> Th+s is a sh+t d+m+nstrt+n to +ll+strt th +ff+ct of th v+wl +ns+rt+n pr+c+ss on a sh+rt p+ss+ge of h+gh+ly m+tl+t+d +ngl+sh. As c+n be s+n, l+th+gh it is n+rm+lly +nly p+ss+ble to +ns+rt a g+n+rl+s+d v+wl m+rk+r symble, th+s d+s pp+r to+mp+rve r+d+bl+ty.

Figure 5
A. The result obtained by transliteration of a 'good' phonetic transcript of the text is shown in Figure 3. The words shown in brackets are short forms and would normally be processed by dictionary.

> (This iz an) eksmple (ov) pitmns hnd ritn shrthnd. Work (iz) currently (in) progress (tue) determin whether computer transcription (ov this) skript (iz possble). Sow far (thu) main problm seams (tue be) relliable rcomnsion (of the) shorthand outlns.

The result obtained by transliteration and subsequent vowel insertion of the shorthand notes are shown in Figure 3 after simulated recognition. The words shown in brackets are short forms and would normally be processed by dictionary and therefore appear correctly spelt in this transcript.

> (This is on) egs+mple (of) p+tm+ns h+nd r+t+n sh+rth+nd. Wrk (is) c+r+ntly (in) progrs (to) d+trm+n wh+ther computer tr+nskr+ption (of this) skr+pt (is possible). So far (the) main pr+bl+m s+ms (to be) reli+bee r+nd+sion (of the) sh+rth+nd outl+nes.

6. Performance of the transliteration procedures
The performance of the two text processing techniques described in this paper are illustrated in **Figure 5**. The first paragraph, **Figure 5a**, was obtained by transliteration of a 'good' quality phonetic transcript of the passage shown in **Figure 3**. A stenographer was asked to write out this text as accurately as possible in the Pitman alphabet, as if writing full shorthand outlines. As can be seen, the resulting transcript is highly readable and compares quite well with the original, despite the fact that some vowels are still missing. A transcript approaching this quality should be possible from Palantype machine shorthand provided that word boundaries can be accurately determined by some other means.

The second paragraph, **Figure 5b**, was obtained by transliteration and subsequent vowel insertion of the shorthand notes written by the same stenographer, also shown in Figure 3. In order to remove any possible effects of machine error, the shorthand outlines were recognised manually. This transcript is distinctly more difficult to read, but by no means impossible. However, a number of causes of error are clearly evident. Possibly the most serious of these errors is that caused by excessive abbreviation or syncopation of the outline as in the case of "rension" for "recognition." Here, the effect of the error is emphasised because "rension" is seemingly a reasonable word.

There is little that can be done about this category of error except to encourage the stenographer to be as accurate as possible; accurate transcription of the beginning of a word is particularly important. Another problem evident in Figure 5b occurs when a transliteration error also induces a

vowel insertion error. In particular, vowel insertion errors about a word boundary (as in "+sk+ript" for "script") can cause serious difficulty. In the future, a single text processing technique implementing both transliteration and vowel insertion on a phonetic level may help to reduce this type of error.

Conclusion

This paper has discussed the development of two specialised text processing techniques for computer transliteration of shorthand notes. The problems encountered during this research were found to be similar to those experienced by spelling reformers searching for a logical spelling strategy for written English. In this case, however, the task was complicated by the use of an imperfect phonetic script such as shorthand. Although it was not possible to satisfy all of the original objectives, it was possible to devise a transliteration scheme which produces a readable, if not orthographic, transcript of the original shorthand. Further research is expected to improve the performance of these techniques but will never enable traditional orthography to be produced completely automatically. However, practical experience shows that, at least in some applications, an 'imperfectly' spelt transcript can be quite acceptable.

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Development of Improvement in English Orthografy:

"Semantic aspects of spelling reform," by Neville Brown, Ph.D.

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Abstract
Traditionally, attempts to simplify English spelling have been predominantly motivated by the difficulties that a substantial minority of children experience in early written language acquisition, particularly in respect of phoneme-grapheme correspondence and the reproduction of polysyllabic words. Evidence from recent research suggests that too much emphasis on the phonological or phonetic aspects of written language in teaching may deter many children from using other available strategies, such as direct linguistic encoding and decoding in reading and writing, to the extent of impairing their learning and performance efficiency. From this, it is argued that semantic considerations should take precedence over phonological considerations in any attempt to reform the English spelling system.

Corpus
The motivation for spelling reform stems predominantly from the difficulty experienced by a considerable proportion of school children in acquiring the written English language and also the apparent disparity between the acquisition of oral and reading vocabulary and between reading and spelling vocabulary in terms of word length. This paper will attempt to show that, whilst attention to such a problem is not of itself misplaced, some of the assumptions underlying traditional approaches to spelling simplification are not only untenable but perhaps counterproductive.

Whilst it will be readily recognized that Chinese ideographs, for example, constitute a written language that has little or no phonological basis but is nevertheless a language, there has been the general expectation in most Indo-European languages that a fine relationship between phoneme and grapheme is desirable and can be attained, so that much attention, for example, that of Sir James Pitman of i.t.a. (initial teaching alphabet) fame, has been directed to alter the orthography accordingly. It is, however, recognized that within our own language the notion of an absolute value for any phoneme is undermined by the infinitely wide variation in pronunciation between regions, villages and even individuals. One aspect of the usefulness of written language is that it transcends such differences to a large degree. At this time, it might be argued that any attempt at reforming English spelling along phonetic lines would involve such a multiplicity of necessarily acceptable spellings using an orthography of such extended range as to render a child incapable of using writing as a communicative tool. This, however, is not quite my theme in this paper.

In recent years, research findings in the field of information processing indicate that there are mechanisms in an analysis of which clearly supports the view that there are separate phonological and visual pathways in reading and also that there are two fundamentally different operations applicable to "information processing in general and to reading/spelling in particular which may be termed analytic-sequential and holistic-simultaneous **(Das, 1973 [5], Bever, 1975 [2], Aaron (1977 [1])** suggests that reading involves the analytic-sequential processing of selected letters and

the holistic-simultaneous perception of the salient features of the entire word and concluding that dyslexia is due to an imbalance between these processes.

The prevailing assumption of reading pedagogy and its research is that processing along the phonological and analytic-sequential pathway is not only essential but is prior to any other process. In other words, reading and spelling cannot proceed without phonological mediation. At first sight, commonplace findings would appear to support this view: Children who experience difficulty in reading do tend to sound out the words that are not in their sight memory letter by letter and build the sequence of sounds into the word and, further, their difficulty appears to increase as does the word length. This relationship is, however, not a simple one and correlation coefficients for difficulty x letter count rarely exceed .4, hence the need for elaborate calculations involving other variables in indices of reading difficulty of prose passages used for children. It is very easy to fall into the trap of thinking that because 'normal' readers do use phonological mediation in reading and spelling, then phonological mediation is necessary and prior, and that consequently a high correlation between written language disability and deficiency in the ability to analyse words into phonemes indicates the need to 'overreach' phoneme-grapheme correspondence or to render the orthography more amenable to such a teaching approach. . . or both!

In a study of preference for encoding modality in reading in 149 'apprentice' readers, it was found **(Brown, 1978 [3])** that subjects who preferred the visual modality exhibited greater reading difficulty than those who preferred the auditory, but subjects who showed no preference tended to be better readers. Amongst the poor readers, the ratio of visuals to audials was approximately 2:1. The predominately auditory-preferent readers clearly tended to be underachievers in the sense that their mechanical reading level was below what one would expect from a study of their oral language ability. **Aaron (1978)** [1] in a study of processing strategies in dyslexics, found that whilst normal readers had both adequate eidetic and phonetic memory, dyslexics tended to group into what her terms 'dyseidetics' and 'dysphonetics'. If one equates Brown's 'audials' with Aaron's 'dyseidetics' and Brown's 'visuals' with Aaron's 'dysphonetics', one comes to the. conclusion that the two processing strategies are not only potentially present in reading but also necessary, and that a 'mixed' approach to remediation of reading and spelling difficulties rather than a solely 'phonics' approach would be beneficial.

The 'mixed' view appears at first sight only to be supported by a study by **Brown (1976)** of linguistic complexity in prose passages of known difficulty. Brown took the responses to 460 applications of the Neale Analysis of Reading Ability which has 6 graded prose passages and found that the error counts for individual words did not bear a simple relationship to word-length or to familiarity. The word 'confident' accounted for 2.13% of the errors on passage no. 5, 'captives' had a 3.23% error, 1.39% for 'proceeded', 6.01% for 'persistent', whilst 'withstand' had no error count at all. When relationships between error count and a number of word-variables were explored, at the level of the Neale passage 1, which consists with one exception of short monosyllabic words, the only significant factor in passage 1 was the length of the words in letters. As the passages increased in difficulty, other variables such as syllable-count and morphographeme count assumed significance. The variable which most affected error at the higher levels of the Neale was, however, not the length of word in terms of letters, syllables or morphographemes but the incongruence of syllable/morphographeme boundaries.

A working definition of a morphographeme is a meaningful letter string that can, irrespective of any shift in sound or pronunciation be generalised from one word to another. Thus 'ed' is a morphographeme in the words 'wanted', 'killed' and 'skipped' though its pronunciation differs markedly over the three examples. As it could be argued that 'wanted' has two syllables and 'killed'

and 'skipped' have but one, the difference is perhaps more quantitive. The word 'corporation', however, can be divided into four syllables and also into four morphographemes, but the boundaries are quite different:

In syllables: cor - por - a - tion
In morphographemes: corp - or - at - ion

It is in words where the syllable and morphographeme boundaries do not coincide — termed 'incongruent' here that tend to give much greater difficulty to children in reading and spelling than words of comparable length without 'incongruence.'

Table 1: *Correlation coefficients of relationships. between Error Count and Word-level variables in the Neale Analysis of Reading Ability, Form A, p<001 throughout.* **(Brown 1978 [3])**

Passage No.	*'Age'*	*Letters in word*	*Syllables*	*Morphographemes*	*Incongruence of Syll/MG.*
1	6:9	.7437			
2	8:5	.6938	.6299	.6427	.3820
3	9:6	.4616	.4202	.6203	.6204
4	11:2	.5117	.4697	.5728	.5093
5	12:3	.6249	.4843	.4516	.7019
6	13:0	.4902	.4997	.4715	.5557

Aaron (1977) suggests that reading (and presumably spelling) involves the analytic sequential processing of selected letters and the holistic-simultaneous perception of the salient features of the entire word, coming to the conclusion that Dyslexia, specific written language difficulty, or whatever one wishes to term it, results from a deficit in one of these processes. Saffron and Marin can, however, accede from their clinical observations of aphasic dyslexics that reading can not only proceed independently along the two pathways but can even proceed exclusively along either. This suggests, further, that for some children in difficulty, the direction of attention to the morphographemes in longer words, irrespective of their fine pronunciation, might facilitate the processing of a word for meaning as morphographemes are by definition semantic units. In the course of research, it was found in the application of the Neale Test for Mechanical Accuracy and (subsequent) comprehension without feedback of mechanical errors that sometimes a key word for a comprehension answer would be unrecognizably misprocessed in mechanical reading and yet reproduced perfectly in the comprehension test.

In another experiment, unfamiliar words were taught under controlled conditions to children with reading and spelling difficulties but who were competent in the oral language. Whilst this work is reported elsewhere **(Brown, 1978 and 1979 [3,4]),** it was found that such children could learn to spell and read — both mechanically and for comprehension — the corpus of 'impossible' words significantly better by a morphographemic approach than by what may be termed a 'phonic' approach. For this experiment, the teaching of vocabulary was conducted in silence and there was evidence that attempted subvocalisation inhibited processing of the morphographemes.

It appears that a polysyllabic and polymorphemic written word can be encoded and decoded not only at different levels but by different pathways. The analytical sequential approach to our word 'cor-por-a-tion' may be at the level of grouping individual letter sounds into syllables and thence to the word. The implication of this approach is that semantic encoding is not possible until the whole word has been processed and referred to acoustic memory. It is frequently found in reports from

certain Dyslexia centres that extra practice in 'chunking' sounds into syllables is required. The word 'chunking' (after G. A. Miller) appears to be entirely inappropriate to the analytic-sequential processing path as the resultant encoding or decoding need not involve meaning, hence the phenomena of 'barking at print' and the ability to spell better than to read in some children, recorded by Carbonell de Grampone. 'Chunking' does seem to be appropriate for the simultaneous-holistic processing of letter strings or morphographemes for meaning-cum-recognition.

The next step in the argument is that meaningful encoding and decoding is preferable to meaningless, and that anything which prevents the processing of morphographemes in a word is more serious than that which inhibits the mere pronunciation of the word by the analytic-sequential pathway.

In lieu of a conclusion, it may be useful to give examples where angels should fear to tread: The integrity of the morphographeme 'vis' should be maintained across the words 'divisive' and 'division' so that a spelling change which differentiates 'divisive' and 'division' should be avoided. The spelling pattern 'rupt' is better maintained over 'disruptive' and 'disruption' and 'rig' is better maintained over 'rigor', 'rigid', and 'incorrigible.'

On the other hand, 'x' may well be regarded as not only a redundant letter but one that interferes with the generalisation of letter strings. Without 'z' it may be easier to relate 'ecsample' to 'sample' 'ecsamine' to 'same' (and all four together), and even perhaps the 'ecs' morpheme as in 'ecstract' to 'ec' in 'economy' and 'eco-system.' There is perhaps a case for changing 'build' to 'bild' and so bring us into line with at least one other EEC language, though this is better seen as a bonus when it occurs rather than a prime aim.

Our energy at Lichfield is currently directed towards enabling the dyslexic child to come to terms with the existing orthography and our teaching will be considerably helped by the forthcoming publication of a dictionary of morphographemes which we shall call a 'Wordbitbook'. From this paper, it should be apparent that we also have clear views on the direction that spelling reform should take if it is to assist children with unexpected difficulty or failure.

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"How to reconcile conflicting principles for a reformed English spelling," by Dr. Walter Gassner*

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Abstract

The conflicting principles are:

(1) *Consistency in the use of letters and minimizing deviations from traditional orthography.* The latter involves: avoiding the introduction of new letters or written accent signs: moreover, avoiding, within the limits of practicability, unfamiliar use of letters; and finally, providing a means to distinguish words with the same sound but different meanings which are distinguished by distinctive written forms in the traditional system. (It does not involve limiting arbitrarily the number of occurences of letters whose sounds are established unambiguously, such as *k* and *z*, and replacing them by *c* and *s* respectively, just to conform with established practise). Any system that would aim at preserving more than, say, 30% of traditional written forms would, necessarily, be encumbered with complicated rules, and such a situation should be avoided.

Ways to reconcile the conflicting principles: (a) allowing certain sounds to be represented by letter *groups*, such as *sh, ng, ai*; (b) allowing certain letters to be used for different sounds in different positions, such as *y* for the consonant in "yes" when occuring in front of a vowel, and for the diphthong in "hydrant" when occuring in front of a consonant (where the other sound cannot occur); (c) allowing certain vowel letters to be used for different sounds in stressed and unstressed syllables — as "a" for the sound in "hat" in stressed syllables, and for the Neutral Vowel in unstressed syllables (This has the prerequisite that the system is one in which the location of stress is clearly indicated).

(2) *Basing the system on one particular pronunciation or not taking into account variant regional pronunciations.* The speech of Southern England is used as a basis (not for any inherent superiority, but on the grounds of intelligibility and acceptability and the possibility of checking it in reference books). Deviations from it are established, where a substantial number of speakers make a distinction that speakers of Southern English do not make and such distinctions are backed by distinctions in traditional orthography — as the use of *ar, or*, and *er*.

(3) *Differences in styles of speech*: Using as a basis careful pronunciation of educated speakers, but rejecting fanciful pronunciations that exist only in the minds of persons who are influenced by traditional orthography. Words with distinctive "strong" and "weak" forms rendered so as to suggest the strong form, the form used in isolation. This for the sake of consistency.

(4) *Rejecting inordinate emphasis on time, saving and etymology*. A brief description of the author's *Consistent Evolutional Spelling* pointing out the features through which the best possible compromise between conflicting principles is achieved. Occasional reference to the position in other languages.

Corpus
At this and previous conferences, a large number of spelling reform proposals have been presented. The common goal of all these proposals is to replace the present traditional system of orthography — which is full of arbitrary features and inconsistencies — with a system that is simple and straightforward, easy to learn and easy to use. Most spelling reformers — the exceptions being, of course, those who want to introduce a completely new system of writing — stress the need to limit departures from existing practice to the absolute minimum, and this is justified in view of the need to make transition easy and to obviate a situation in which it will be impossible for future generations to read and understand anything that has been written before the reform. These two principles are in direct opposition to each other; and whilst most reformers try to bridge the gap between the two conflicting principles, it lies in the nature of things that they arrive at different results.

This is an attempt to determine what is essential and to arrive at a solution which is effective and workable.

In order to determine what is essential, we have to remind ourselves of the plight of youngsters who are faced with the task of learning to read and write a language in which sounds and letters do not agree. They have to memorize long lists of words by rote, an exercise which is stultifying because it is devoid of any stimulus to logical thinking. It is also wasteful from the educational point of view because the time required to become literate is an obstacle to proficiency in other studies, the range of which is continually increasing. Where a language is phonetic, all that a person who knows how to speak has to do is to learn the alphabet and their sounds and, possibly, if the alphabet is deficient, a few groups of letters. Attempts at framing rules for English spelling have, of course, been made and some ingenious teaching devices have been proposed, but they do little to alleviate the situation. A rule that is riddled with exceptions becomes useless if the exceptions appear arbitrary. It is only if this situation is radically remedied that spelling reform becomes effective; when such a reform is implemented, it will no longer be necessary to ask the question, "How do you spell (such and such a word)", for the answer would almost invariably be, "As you pronounce it" or, possibly, "As you hear it pronounced" (say, by the B.B.C. or some other authority) — subject to qualifications only in variations in pronunciation and the need for clarity.

Likewise there should be no need to be provided with pronouncing dictionaries or to have the pronunciation of words indicated in an all-purpose dictionary. If one takes account of the fact that there are numerous systems of imitated pronunciation, varying from one dictionary or reference work to another, with which users in most cases are not familiar, one can see that here, too, a lot of time and effort is wasted, which will be saved if a phonetic system of spelling replaces the existing one.

From what has been said, it follows that "scratching merely the surface," that is, eliminating certain glaring arbitrary written forms, or omitting redundant letters, would not sufficiently alter the present position, for learning by rote would still be the necessary thing to do; a limited reform of that type would not be worth the upheaval. It is only when the written forms of words are a reliable guide to their spoken forms and vice versa, that the staggering rate of illiteracy will disappear in English-speaking countries and that one can expect foreign students to arrive at an acceptable and intelligible pronunciation. (I am, of course, thinking of persons who are able to express themselves flawlessly in writing and yet distort the words when expressing themselves in speech). Obviously, the new spelling, as I conceive it, will not prevent foreign or regional accents from continuing to exist, but in general, every user, whether English-speaking or otherwise, will be able to deduce the written form from a spoken form with which he is familiar, and vice versa.

If consistency and effectiveness are the essential requirements, it follows that the reverse principle, that of limiting departures from existing practice to a minimum must play a minor role. Yet, in certain respects, it is an essential principle. The important feature of a system thus conceived is not the number or percentage of words that remain unchanged, but the degree to which words are recognizable without special instruction to persons accustomed to the traditional spelling. Thus, there is no point in insisting that the letter *c* should continue to be used for the *k*-sound and the *s*-sound, because we have the letters *k* and *s* at our disposal. If, accordingly, the letter *c* were to be eliminated, the words in which a *c* is replaced by a *k* would evidently be recognizable at sight; indeed, only persons who are adverse to any change should be shocked at an increase of the occurrence of the letter *k*. What we must reject, however, is the idea of abandoning the Latin alphabet or augmenting it with new letters. Implementing an entirely new system of writing, as George Bernard Shaw suggested and provided for in his will, would sever the ties of the English language not only with the past, but also with the languages of the greater part of the European continent, and, indeed also of the other continents — seeing that even for Chinese the Latin alphabet has been allocated certain functions. And these remarks are applicable not only to a completely unrelated system of writing, but also to an alphabet which is essentially the Latin one, but is augmented by additional letters or diacritical marks. No matter how much ingenuity is evident in the designing of these additional symbols, they would impair the readability by the uninitiated and the acceptability from a world-wide point of view.

The Latin alphabet has 26 letters, and there is some agreement that the English language has at least 40 distinctive sounds, or rather phonemes. This is evidently an area where there is conflict between fundamental principles, but these are easily bridged if one agrees to the attitude that for some sounds, we can continue to use groups of letters (digraphs or trigraphs, referred to as "compound symbols") — chiefly for long vowels and diphthongs. There is quite a choice of such compound symbols among those used in traditional orthography, and this makes it possible to reflect one important aspect of the pronunciation of words: stress. Many spelling reformers will refrain from indicating the stress in their proposed systems, arguing that a notation of that kind is impracticable or unnecessary. Suggestions are made to the effect that stress might be marked, especially in books for children and foreigners, by underlining, bold type or written accent signs — but that for general use, the indication of stress can be dispensed with. I hold the opinion that indication of the stress should be incorporated in the system in common use — thus avoiding the additional expense and effort to have books especially marked for certain types of users. However, none of the devices mentioned would be practicable and they would be deviations from existing practice. Indications of stress can, indeed, be effected by making available a second set of vowel symbols in addition to the ordinary ones and, in a limited range of instances, by using double consonants after short vowels. Of the various ways of indicating the stress (I have experimented with several), the most appropriate one is to use the second set, as referred to above, to mark the stress on a syllable that is not the initial one, on the understanding that where only "ordinary" symbols appear in a word, stress falls on the first syllable.

Once it has been made clear *which* syllables in a word are stressed and which are not, it is possible to represent certain obscure vowel sounds — sounds that can only occur in unstressed syllables — by vowel letters which have a different function in stressed syllables. The sound that requires special attention among obscure vowels is the so-called neutral vowel, sometimes referred to as "schwa" or the muttering vowel sound. It is the sound most frequently occurring in unstressed syllables and is, under the existing system, represented in a variety of ways (*a* in *about*, *e* in *silent*, *o* in *develop*, *u* in *circus*, *ou* in *grievous*, *ia* in *parliament*, *iou* in *precious*, *oi* in *tortoise*). In the International Phonetic Alphabet it is represented by an inverted *e* (thus ə). Earlier spelling

reformers ignored the existence of this sound. Their schemes were based on the assumption that the words involved contained the sounds which these letters have in stressed syllables, either leaving the written forms of the unstressed vowels as they are in the traditional system, or with minor arbitrary simplifications. The effect would have been a continued need to memorize the spelling of a lot of words. Then came some spelling reformers who *did* take account of the existence of the neutral vowel, establishing newly invented symbols for it. As mentioned before, extending the alphabet is extremely undesirable — even if only a single symbol is added to it. Apart from the costs and inconvenience of adapting all printing fonts and typewriters in English-speaking countries, there would have been the additional problem of printing English words in countries in which other languages are spoken; and the need to print English words throughout the world is obvious in view of the position of English as a world language. At one stage I toyed with the idea of using the letter "*q*" for the neutral vowel — not a new letter, but one that in the existing system serves no useful purpose. Later on I abandoned this idea in. view of the strange appearance given to the most common words.

It is actually because the second set of vowel symbols is used as a stress market on syllables other than the initial one, that an obscure sound such as the neutral vowel can be represented by a letter which is used for a different sound in stressed syllables. The letter best suited for this purpose is the letter "a" — which in stressed syllables represents the sound occurring in the word "hat"; this chiefly in view of the frequent occurrence of this letter for the neutral vowel sound in the initial and in the final position — almost to the exclusion of other ways of representation. (In *about, afraid, along*, the sound occurs in the initial position; in *banana, data, China, villa*, the sound occurs in the final position). The cases in which the traditional system uses a combination involving the letter *r* at a word end or before a consonant — such as *river, tailor, sugar* — are different; here the symbol *er* is used. It is not possible to show the occurence of the neutral vowel in words of one syllable, and it is actually not necessary to do so because such pronunciations of monosyllables with the obscure vowel sound, as *can* in the expression: "I can do it" without any emphasis on *can* have to be considered as incidental to sentence stress. It depends upon the desires of the speaker as to whether he wants it to be stressed or not. And sentence stress is something that is not practical to be indicated in the spelling. All such words as *at, from, of, have, must* are represented the way they are pronounced in isolation.

Two letters of the alphabet — "y" and "w" — can be used both as consonants and as vowels, as they are in T.O. The consonants are those occurring in *yes* and *wind*, and the vowels are those occurring in *hydrant* and *put*, *how* (which will be written *pwt, how*). This double use is not an infringement on the principle of concistency if the rule is established that the two letters in question are consonants when followed by a vowel, and vowels when followed by a consonant, or used as part of a diphthong.

Another source of differences of opinion is the variety of pronunciations in various parts of the English speaking world. A certain form of speech has to be taken as the standard, and it has to be a form that is reflected in currently used pronouncing dictionaries, in dictionaries in general use and in foreign language dictionaries in which the pronunciation of the English words is shown for the benefit of foreign students. This standard is Southern British, sometimes referred to as "the Queen's English" or "Received Pronunciation." Deviations are allowed for in cases in which a substantial body of speakers uses an alternative pronunciation which is clearly backed by use in traditional orthography. Thus, certain vowel sounds are split up into "cases with r" and "cases without r" (such as *aa* and *ar*), the letter *r* in such cases being almost silent in Southern British speech, but sounded in Scottish speech. Also the vowel in such words as "ask" (pronounced with the *a* in "father" in Southern British speech) is represented in a special way. Generally speaking,

where different pronunciations are used in different styles of speech, the system is based on careful pronunciation used by educated speakers, but fanciful pronunciations that exist only in the minds of persons who are influenced by traditional orthography are left out of account.

The suggestion has often been made that spelling reform should be put into practice gradually, the idea being that changes of a trifling nature would be more easily accepted, and that with each successive change, resistance would decrease. My chief objection to implementing a spelling reform in a large number of small steps is that the intermediate steps would, of necessity, be unphonetic (they would even in some instances deprive the written forms of that modicum of consistency they might appear to have) and that each step would require re-editing of dictionaries and reference works. However, following a frequently heard demand, I will make two suggestions for a spelling reform step-by-step: the first, in fact, chiefly to reject it and to demonstrate why; the second is one that is practical, simple to understand and reasonably extensive. The first is based on the assumption that we, the alphabeteers, have come to an agreement and that we know what the final outcome is going to be. The first step is that proposed by Mr. Lindgren of Narrabundah, Australia, viz. that the letter *e* should be used for the vowel sound in "bet" to the exclusion of all other ways of representation. In my opinion, this makes sense only if we also refrain from using this letter for other sounds and use the symbols that truly represent these sounds. Thus: *ee* in "lever", *i* in "pretty." Now with each subsequent step the same procedure would have to be followed, and if each step takes 10 years to carry out, it would take over a hundred years to arrive at the final shape. It is self evident that a step-by-step spelling reform of this type would require a public throughout the world (whether English-speaking or not) endowed with an infinite amount of patience and docility, ready to replace their dictionaries frequently with new ones and assimilate the changes gratiously.

The other suggestion for a gradual approach does not assume that there is complete agreement among alphabeteers. And only one intermediate step is required — the rule is simplicity itself: to each of the usable letters — all except *c* and *q* — one sound is allocated, and whenever this sound occurs, that letter is used. (But the letters continue to be used also for other sounds — adjustment of this and handling sounds that are represented by compound symbols and other features have to be left to the second and final step — which can be taken only after spelling reformers have come to an agreement). In the proposed intermediate system, the vowel letters would have their "short" values as in *hat, bet, sit, hot*, and *hut*. Among the consonants, *k* and *s* will replace *c; z* will frequently replace *s*; *f* will replace *g* wherever it is thusly pronounced, leaving to *g* the duty of representing the "hard" sound (as in *get*); *z* represents only *ks*, and *f* replaces *ph* and sometimes *gh* (as in *tough*).

Once this intermediate system is introduced, a definite effort should be made by all spelling reformers to come to an agreement. The final goal-effectiveness in learning — in the sense that learning lists of words would no longer be necessary — should not be left out of sight.

Whilst, generally speaking, a reform in steps is undesirable, one which would not interfere with arrangements in dictionaries for the intermediate step is not so. The German language is much closer to being phonetic than English, but if it were to attain the same standard as envisaged for English, a lot of alterations would be necessary. But there is one change that could be carried out prior to a large scale spelling reform — and there is a strong movement in Germany in favour of it: abolition of the capitalization of nouns in general, limiting capital letters to proper names, as in other languages. This step would not interfere with the arrangement in dictionaries and could be carried out in advance of a more thoroughgoing reform.

It is hoped that those who oppose a spelling reform for fear that it would destroy a valuable inheritance will rest assured that such a sacrifice will not be required. Those in favour of radical reforms, introducing a new alphabet, or augmenting the old may consider that all the advantages they envisage can with equal ease be achieved by staying within the limits of the existing alphabet. (see example)

Examples from *Consistent Evolutional Spelling*

From "*A Krismas Karal*, by Charlz Dikinz. *Marli'z Goast*.
Marli woz ded, tw bigyn wi'th. Thair iz noe dout whottever about that. The rejister ov hiz berial woz siend bie the klirjiman, the klark, thi undertaiker, and the cheef moerner. Skrooj siend it. And Skrooj'iz nain woz gwd for enithing hee choaz tw pwt his hand tw.

Oald Marli woz az ded az a dornail.

Minde! Ie doant meen tw say that ie noa, ov mie oan nolij, whot thair iz pertykywlerli ded about a dornail. Ie might hav been inklinde, mieself, tw rigahrd a kofin'nail az the desist pees ov iemmunggari in the traid. But the wizdam ov our ansisterz iz in the simili; and mie unnhaeload handz shal not disturb it, or the Kuntri'z dun for. Yoo wil thairfor permyt mee to repear, emfatikali, that Marli woz az ded az a dornail.

Skrooj neu hee woz ded? Ov cors hee did. How kwd it bea utherwiez? Skrooj and hee wir partnerz for ie doant noa how meni yeerz. Skrooj woz his soal egzekywter, hiz soal admynistraiter, hiz soal asine, hiz soal rizydyweri legatea, hiz soal frend, and soal moerner. And even Skrooj woz not soe dredfwli kut up bie the sad ivent but that hee woz an exalant man ov biznis on the veri day ov the feunaral, and solamniezd it wi'th an undowtid bargin.

The menshn ov Marli'z feunaral bringz mee bak tw the point ie startid from. Thair iz noe dout that Marli woz ded. This must bea distynktli understuud, or nothing wunderfwl kan kum ov the stauri ie am goaing tw rilayt. If wee wir not pirfikrli konvvnst that Hamlit's faather died bifoer the play bigaen, thair wwd bea nuthing mor rimahrkabl in hiz taiking a stroal at night, in an eesterli wind, aponn hiz oan ramparts, than thair wwd bea in eni uther midl'aijd jentlman rashli timing out affter dark in a breezi spot — say Snt Paul'z Chirchyear for instans — literati tw astonnish hiz sunn'z weak minde.

From the monolog in Akt III, Sean I ov "*Hamlit*" by Wiliam Shaikspeer.
Tw bea, or not tw bea; that iz the kweschan.
Whether 'tiz noabler in the minde tw suffer
The slingz and aroaz ov outrajas forchan,
Or tw taik armz agenst a sea ov trublz,
and bie opoezing, end them?
Tw die: tw sleep;
noe mor; and bie a sleep tw say wee end
the hahrtaik and the thouzand nachwral shoks
that flesh iz ehr tw; 'tiz a konsumayshn
divowtli tw bea wisht.

(Editor's comment): Gassner is not very consistent in the use of his system(?). In the 2nd line, he spells *about* as *abowt*. Yet in the 2nd line, 2nd paragraf, it is *about*. He spells *hee* yet *bea*, and in 1st line, *noe* but in 2nd line, 5th paragraf, *noa*. Also *wwd* for would, yet *understuud*.)

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"An account of the 'English Maximally Simplified Writing' (EMSR)" by Prof. V. A. Vassilyev,

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Abstract
The rationale of EMSR is to remove all discrepancies between pronunciation and spelling. Spelling reforms, no matter how badly needed, are impossible to put into use to supplant traditional spelling. MSR is planned to co-exist with traditional spelling. Variant spellings are considered. Kinds of writing. Advantages of MSR. The use of schwa helps to indicate stress. Ways of introducing MSR. Better knowledge of speech sounds and its use in phonics. Chart of consonant, vowel symbols and key words. The system is based on Received Standard Speech (Southern British).

Corpus
The rationale of EMSR is to remove all discrepancies between pronunciation and spelling. It is not intended to be an official orthography obligatory on all literate people, but to be an unofficial and optional re-spelling system to be used alternatively with the traditional spelling (TS). It is to emphasise this unofficial character of MSR that the word 'rieting' rather than 'spelling' is used in it.

Spelling reforms as such, no matter how badly needed, are impossible to enact, as proved by the failure of more than a hundred projects to reform English, French, Russian and German. It is a mistake to believe that because reforms are 'evidently rational', they can easily be introduced by means of official governmental spelling reform. Reform depends upon highly literate people who are dogmatic, conservative, and have forgotten how hard the learning was for them. They firmly believe that if they themselves overcame all such difficulties, so can all others. Many proposed reforms have been so revolutionary in design that orthographic unity would be broken internationally, since it is unlikely that countries could agree on a common change.

MSR, however, is planned to co-exist with the official TS. It could be learnt easily because it denotes each of the language's sounds with a separate (only one) letter or constant letter combination almost exclusively belonging to the language's traditional alphabet ('one sound-one grapheme' principle).

As phoneticians, the devisers of MSR are at pains to distinguish the 'sound types' which are the bases of MSR from the more technical and even controversial elements of the spoken language, phonemes and phonetic elements, although the sound types function as phonemes in that they distinguish language units from each other.

The number of rules for pronunciation and re-spelling in MSR are approximately the number of sound types and phonemic sub-types in the language, viz, about 47, and there are no exceptions to the rules. This means that for the learner to write in the MSR system, he must be able to break up his own (dialectal) speech and the (standard) speech which he hears from others (including speech on radio and television) into the language's sound types and phonemic sub-types (to do which he must know their inventory) and write each of them by the appropriate grapheme.

The second part of the above general rules means that for the learner to read in MSR, he must be able to pronounce correctly (i.e. in accordance with standard pronunciation) all the sound types and phonemic sub-types which he sees presented by the appropriate graphemes. The knowledge of both parts of these general rules frees the learner from the necessity of memorising any particular pronunciation and spelling rules. Thus the number of learning-to-read-and-write difficulties is reduced to an absolute minimum. All the learner would have to do would be:

1. To learn the handwritten and printed shapes of the capital and small letters of the alphabet and their names.
2. Memorise the inventory of the language's sounds (about 47).
3. Acquire the ability to break up words into these sounds.
4. Acquire the ability to denote each of these sounds by the appropriate graphemes.

In order to co-exist with TS, MSR uses the absolute minimum of letters and consonant letter combinations not used in TS. A symbol is needed for the neutral vowel, the schwa (a) because its absence from an alphabet violates the one-grapheme-one-sound principle. The symbol used is an upside down 'e' (ə) which can easily be put on any typewriter.

Eight English sounds which are not denoted by any special graphemes in TS are represented in MSR by <dh, zh, uu, ə, iə, eə, oə, ooə> as in *dhae, vizhn, duu* (do), *kə* (cur), *hiə* (here), *cheə* (chair), *goəj* (gorge), *pooə* (poor). Full details are presented in the monograph by Prof. Vassilyev and Prof. Gimson, "The Quickest and Easiest Way to Learn to Read and Write in English," which attempts to provide a solution to the problem they see that "it is impossible to devise a re-spelling system for English which would still be simple and still close graphemically to ETS without violating the crucial principle for MSR of one-grapheme-one-sound, and without oversimplification.

As well as 'sound-typing', 'monograph emnis' and 'graphemic closeness' to TS, a fourth prerequisite for coexistence of EMSR and TS is maximally possible letter economy by eliminating silent and doubled letters, including nonspoken vowel letters, resulting in a 5% economy overall. Even schwa is omitted when not actually necessary.

Writers in ESMR can choose the variant to the pronunciations to which they are most accustomed. The great extent of free variation therefore may be criticised by the argument that the reader who comes across several different spellings of one and the same word will have his recognition of words hampered. The counter arguments are proposed that:

1. A reader in MSR will become accustomed to several slightly different spellings of some words through practice.
2. Readers will learn that there are several equally correct pronunciations of the same word.
3. The benefit for writers is important.

Reading both in TS and MSR without special learning to do the latter may be called 'automatic lectal biliteracy.' The first stage in the introduction of MSR systems is practising TS and MSR lectal biliteracy. The second stage will be practising reading in TS by those who have learnt to read first in MSR. To what degree this second stage of lectal biliteracy will also be automatic can only be discovered through experience and special experiments (both of which are now lacking, of course). But it is assumed that little additional teaching and learning will be required for originally MSR

readers to start reading in TS as well because except for 9 graphemes, all graphemes are already used in TS, and only a small number of words would differ from their TS counterparts in more than two graphemes, and many of the TS rules of pronunciation can be guessed or deduced from knowledge of English. The authors assume that readers in their native tongue will have this knowledge of the English language, although foreigners would have to pass from reading in MSR to reading in TS after acquiring a good knowledge of the language or to frequently consult the dictionary if they start reading in TS immediately or very soon after learning to read in MSR. All sorts of context-linguistic (grammatical, lexical, fonetic, orthographic), and semantic will also greatly help initially only MSR readers to read correctly sentences written in TS.

If however, some or even all of these factors prove, contrary to expectations, invalid, there is also the well-known fact that it is comparatively easy to learn only reading (without writing) in any TS system, especially in one's mother tongue, and even in a foreign language no matter how complex and difficult its TS is. There are a great many people who read (without being able to write) in a foreign language or even more than one who read (usually silently 'to themselves' without even mentally pronouncing words). Practice will also contribute to ensuring that MSR and TS lectal biliteracy could be achieved readily.

This lectal biliteracy will exclude the necessity to republish in MSR what has been, is being, and will be published in the TS system.

Writing is quite different from reading — physiologically, psychologically, in their varieties and uses. There are people who read well but write badly. These discrepancies between lectal biliteracy and scriptal literacy exist in TS but the authors assume that those who read in an MSR system would, ipso facto, be able to write in it as well. In other words, learning to read in an MSR system would be at the same time learning to write in it. *(**Comment by summariser**: from my own experience, I think this would need to be tested experimentally rather than assumed. VY)*

Only about 1% of the population need to write for publication in the TS, because that is the official system while MSR is to be used to write what is not meant for publication — the other 99% — who will not need to consult dictionaries.

Thus a tremendous amount of classroom and homework time, mental energy, material means and even manual labour in spelling exercises will be unnecessary, since school children will not have to learn to write TS, just as higher mathematics is only learnt by a few in a higher educational institution.

The advantages of a writing system such as MSR

1. It applies across languages, such as English, French, Russian and German.
2. The saving of time for schools in teaching and learning; the saving for adults not having to consult dictionaries.
3. Readers will improve both their native and foreign language pronunciation since texts will reflect the standard speech.
4. The use of schwa will help to indicate stress.
5. Economies of 5% in English, 7% in French, and 0.5% in Russian.
6. Linguistic works would not need special phonetic type.
7. Makes possible the development of portable cybernetic typewriters and similar developments in electronic sound-symbol transliteration without requiring expensive and complicated

dictionary memories. Cybernetic readers will be possible. True, the pronunciation of such a cybernetic 'reader' will be unnatural, especially in the matter of prosody (length, stress and pitch) but it will be comprehensible. Since they could be made cheap and portable, they could supersede Braille for blind people.

8. Better methods can be designed for teaching reading and writing with a simple MSR system — as well as for switching to bilectalism.
9. Typing speeds could improve, since the system involves no superfluity of graphemes to denote one and the same sound to increase nervous system decisions and processes.
10. It is possible that reading would also become faster.
11. MSR in the original European languages now could blaze the way for MSR in other languages with complicated or no spelling.
12. Publishing opportunities will increase, in a wider literate public, as well as expanding into MSR publishing itself.
13. The lectal and scriptal rules for MSR can be given in a nutshell on a postcard, with MSR/TS keywords adduced to illustrate each rule.

Ways of introducing MSR

1. Publicity to inform the public, using all media.

2. Literacy teaching in educational institutions using MSR, with special streaming to allow teaching in both MSR and TS for those who wish it or whose parents desire it. Those who already can read in TS may only require one teaching period in MSR.

The authors estimate that a fortnight with the help of special audio visual aids and specially designed textbooks would be sufficient to help beginners and second-language learners to master the techniques of reading and writing in any MSR. (Summariser's comment: We are so used to learners taking 18 months for 'the penny to drop' and three years for independent reading that we have not really considered how to organize teaching very carefully for 'speed learning'.)

The necessary skills to learn would be the ability to break up words and wordforms into constituent sounds, to know the meaning of the term '(speech) sound', and the inventory of the language's sounds, and to be able to identify as sounds and letters the vowels and consonants, voiced and voiceless consonants, stressed and unstressed vowels. The authors think even pre-school children can 'easily acquire' this 'phonetic minimum' if the methods are appropriate.

As an initial learning medium MSR would have the advantages of Pitman's i.t.a. without its drawbacks — the advantages of earlier and easier learning to read and write, without the disadvantage of transition, abandoning so much old learning to learn so much new.

3. Publishing in MSR, including the 'nutshell postcard' reference table of lectal and scriptal rules for handy reference in early use of it, news about the use and introduction of MSR systems at home and abroad, a summary of the main domestic and foreign news printed in TS elsewhere in newspapers, the 'nutshell rules' printed on the covers of exercise books.

4. Support by voluntary organizations and movements, in addition to an official MSR movement, such as the Simplified Spelling Society could be.

5. The 'orthoconservatists' and 'orthodogmatists' will not be inconvenienced themselves by the introduction of MSR because they can still read and write in TS — and will find MSR easy to read if they desire to do so. The orthoconservatists' insistence that everybody should learn to read and write only in TS and spend on it an immense amount of time, mental and physical energy and material means, including money, is manifestly undemocratic — an orthographic dictatorship, so to speak. MSR is completely democratic; only those will use it who wish themselves to do so. There is no need to doom humanity to eternal orthographic torments, paying through the nose for them at that.

The public have the right to be informed of MSR, so they can have the experience of using it for their mother tongue and for foreign and second languages, and by their own experience become convinced of the advantages and benefits.

In the long run, even those who insist on publication only in TS will get so used to the look of national MSR systems and enjoy the benefits that they too will start using it. That will mean a natural spelling reform — and MSR will pave the way for it.

6. National and international organizations that can help promote MSR: a) ministries of education, b) societies such as the Simplified Spelling Society, whose stated object is "to recommend and propagate simpler spellings of English words than those now in use' does not go far enough — it should be seeking the maximally simplified spelling. (Some of its attempts at rule-making, e.g. *The Pioneer*, September, 1979, p. 3, 4 have been incredibly complicated, and impossible for learners to apply even if they memorise the rule.) Such societies should have their own publishing house and be internationally organized, with numerous national branches. c) The British Council and the English Speaking Union — the latter also has the Duke of Edinburgh as a patron. d) The International Phonetic Association and the International Society of Phonetic Sciences. The IPA's aim of scientific and practical representation of different languages remains so far largely unachieved, but MSR could be the way to achieve its orthographic aims. The ISPhS has within it an Orthographic Reform Committee, and one member of this committee has written, "The new and the old spelling must be close enough to co-exist indefinitely. . . nobody would have to change his spelling habits. Let everybody continue spelling as he was taught in school; thus the irregularities would become obsolete with the passing of current users and the rational form would gradually become standard thru common usage. . .' e) UNESCO. The overwhelming majority of the earth's population is illiterate. MSR may be crucial in achieving UNESCO's stated aim of doing away with both lectal and scriptal illiteracy.

V. Vassilyev. 23.7.1980. (Summarised by V. Yule)

A commentary on Vassilyev and Gimson's proposals will appear in a future issue of *Spelling Progress Bulletin*.

Letaz and konstant leta kombinaeshnz widh dhea naemz and sound valuez in IMSR (Ingglish Maksimali Simplified Rieting				
	Voualz and	Konsanants	Kee-waadz in	
	dhea naemz	and dhea naemz	IMSR	ETS
1.	ee /dubl ee/	p /pee/	peep, pee	peen, pea
2.	aa /dubl ae/(r)	b /bee/	baa, baa(r)[1]	baa, bar
3.	au /ae, ue/(r)	t /tee/	taut, tau(r)	taut, taught; tore
4.	uu /ue, ue ue /ue, ee/	d /dee/	duu, due, duep	do, due, dupe
5.	əə /dubl shwaa/(r)	k /kae/	kəək, kəə(r)	kirk, cur
6.	i /ie/	g /jee/	gig	gig
7.	e /ee/	m /em/	met	met
8.	a /ae/	n /en/	man	man
9.	o /oe/	ng /en, jee/	gong	gong
10.	oo /dubl oe/	f /ef/	foot	foot
11.	u /ue/	v /vee/	duv	dove
12.	ɜə shwaa/ (r)[2]	/th /tee, aech/	ɜtheena thəmomitə(r)	Athena thermometer
13.	ae /ae, ee/	dh /dee, aech/	dhae, baedh	they, bathe
14.	ie /ie, ee/	s /es/	disiesiv	decisive
15.	oi /oe, ie/	z /zed/ (US: /zee/)	boiz, zuu	boys, zoo
16.	ou /oe, ue/	sh /es, aech/	shout	shout
17.	oe /oe, ee/	zh /zed(zee), aech/	noe, vizhn	no, vision
18.	iə [2]/ie, shwaa/	h /aech/	hiə(r)	here, hear
19.	eə/ee, shwaa/	ch /see, aech/	chea(r)	chair
20.	oə/oe, shwaa/ (=au /ae, ue/)	j /jae/	goəj =(gauj)	gorge
21.	ooə /dubl oe, shwaa/	w /dubl ue/	wooə(r), pooə(r)	wooer, poor
22.	-	(=wh /dubl ue, aech/)	when (=wen)	when
23.	(yooə)	y /wie/	yes, unyan pyooə (r)	yes, onion, pure
24.	-	l /el/	lip, bel	lip, bell
25.	-	r /aa(r)/	riet	rite, right, write
	Aeə(r), ieə(r)	-	plaeə(r), hieə(r)	player, hire, higher
	oiə(r), ouə(r)	-	distroiə(r), flouə(r)	destroyer, flour,
	oeə(r)	-	loeə(r)	flower, lower

1. Dhə letar r in brakits signifiez dhat it iz not soundid in an r-əmiting varieəti əv IMSR (e.g. in British IMSR) ət dhi end əv a wəəd prənounst in iesələeshn aur ət dhi end əv a sentəns bət iz soundid imeedyətli bifaur ə voual prənounst widhout dhə slietist pauz bifaur it, cf. 'faa', ' It's faa,' widh 'faarəwae', 'It's not faar ət aul', 'dhə Faar Eest'.

2. Wot iz sed hiər əbout dhv letar r in brakits aulsoe əpliez tə dh shwaa imeedyətli preeseedid bie i, e, o and oo, viz. iə(r), eə(r), oə(r) and ooə(r).

-o0o-

[Spelling Progress Bulletin Winter 1982 pp10–13 in the printed version]
[Valerie Yule: see **Bulletins**, **Anthology**, **Quarterly**, **Journals**, **Newsletters**, **Personal Views** 10 & 16, **Media**, **Books**.]

"A Research-Developed Reform for English Spelling"
by Valerie Yule,*

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Abstract
An international modernization of English spelling has been held up by conservatism backed up by mistaken assumptions — that spelling reform is a purely domestic matter, that ideally it must be purely fonemic ('spelling how you speak'), that the appearance of English print would need drastic change, that immense costs would outweigh the immense savings, that the requirements of the literary elite have priority and are irreconcileable with the needs of learners, foreigners, or the ordinary average public, and that reforms can be argued out or in, regardless of careful technological and psychological research.

This analysis of the international and national requirements for English spelling today accepts none of these assumptions, and suggests directions for investigation of the possibility of a Chomsky-style 'morfo-fonemic' reform that shows the pronunciation of words, conveys their meaning quickly through its visual form, and has simple, consistent rules for learning that takes account of learners' abilities and difficulties.

Corpus
As 'international' English becomes more important than local 'native' English, it is conceivable that economic, social, and scientific interests could back an international English spelling reform that by-passed home conservatism and was introduced first into international communication and overseas education — brought in first as parallel alternative spellings which then substituted for the old through common preference, in the same way as internal spelling reforms have succeeded in countries like Korea.

1. *However, the old (and still present) assumption must be abandoned*, that the whole matter of spelling reform can be argued out in armchairs at an academic level. Spelling is part of modern communications technology even more than a shelf in a corner of an Arts of Education faculty, and it requires the same approach of Human Engineering and inventive testing that has revolutionised the rest of audiovisual communication in the past three decades. There are volumes of research on what is wrong with people who cannot spell; now we must look at what is wrong with the spelling that so meny people cannot learn it — and how to change it so that they can. All the directions for reform outlined in this paper have been suggested by converging findings in independent research in cognitive psychology, education, linguistics, and electronics communication, making the multi-disciplinary approach evident at the Edinburgh conference.

2. *The script for English spelling* cannot be one applicable to English alone as reformers have tended to assume. At some date, technological change may make a radical super-efficient orthografy practicable or necessary, but it will affect the whole world, and be adaptable for all languages. For the foreseeable future, however, the Latin alfabet must be the basis, since it is the common medium for most modern languages.

3. *There has been almost universal assumption that English spelling reform must be purely fonetic*, that is, going backwards — reaffirming the principle of the original alfabet break-thru, that symbols represent speech-sounds. However, 'spelling how you speak', the purely fonemic reform, today faces problems of regional variations in English dialect between country and country and even within districts and cities, problems of homofones (words that sound the same), of clumsy polysyllables, of how to represent slurred vowels, discontinuity with present spelling, and the degree to which such a spelling would lose visible relationship to other modem languages. (See **Appendix 1**).

We now have the benefit of a century's experience in the design of new orthografies for developing countries and languages, and of spelling reforms on other modem languages. This experience shows that in practice, plain sound-symbol correspondence must be modified in consistent ways to make reading for meaning faster and more accurate, and learning to write easier. Without such modification, some of the most theoretically perfect fonemic designs for new spelling for tribal languages have proven disastrously impractical. **(O'Halloran, 1981 [9])**

The most important differences between an easy spelling and a difficult one may be that the rules must be few and consistent, not multiple and unpredictably applied, and the exceptions to rules must number at most a few dozen words, not thousands.

The rearguard action agenst improving English spelling thinks up meny arguments which all assume that eny reform must be purely fonemic. Today the understandable desire to retain familiarity is rarely dressed up as an 'aesthetic' argument, and few people have the scholarship to be able to benefit from the 'etymological' argument, but at present the main thrust of conservative academic argument is to admit that a fonemic spelling such as Pitman's 'initial teaching alphabet' is proven to be easier for learners, but to claim that the visual appearance of present English spelling is better for users, especially skilled readers.

There are two types of 'visual appearance' arguments, one sponsored by Chomsky, and the other by Albrow and Sampson. It is easy to see by simple examination that neither argument applies very well to present English spelling, but they could be used to support directions for spelling reform.

Chomsky's claim (**Chomsky and Halle, 1968 [6]**, and **Carol Chomsky, 1970 [5]**) is that English spelling shows the 'lexical form' of words which underly their surface pronunciation. It is still frequently repeated, although now disproved. Less than 3% of the irregular spellings in a school book of 6000 words was justified as linking word-families and helping to decode new words by showing underlying lexical form. (See, for example, **Francis, 1970 [7], Sampson, 1975, Yule, 1978 [13]**). However, when one considers how much visual similarity of words across languages aids learners and readers in other languages, Chomsky's idea becomes an exciting possibility for English spelling reform, if applied more consistently — that is, a 'morfo-fonemic' spelling reform that shows the core 'word form' as well as pronunciation.

Albrow (1972 [1]) suggests that readers can scan sentences for meaning faster if meaning-bearing words are longer than function words, so they are more easily distinguished, and if grammatical inflexions have invariant spellings, e.g., the plural *s* in *cats* and *dogs*, although the spoken form is closer to /cats/ and /dogz/. If these ideas are proved by research to be valuable, they could easily be part of English spelling reform — for most function words could easily be made shorter still, and the grammatical markers could be made more consistent.

Sampson has suggested that fast scanning in reading is aided by visual distinctiveness in the spelling of English words, and he implies that this is achieved by the bewildering variety of spelling patterns for words — 318 different ways to spell the 20 English vowel sounds, and 226 ways to spell 23 consonant sounds (See **Appendix**), and by the redundancy of extra letters.

However, agenst that there is the evidence that the most familiar spelling sequences are recognized more easily than the more unusual ones. Reduction of choice in spelling sounds could be a beneficial reform — and could also reduce decision time — for learners, particularly, when sound patterns overlap, as in *should/shoulder, were/there/here*. The 'redundancy' that is valued in speech or in the content of writing is all related to the message, to ensure that the message may get through even if some of the information is missed; however, redundant letters in the spelling of a word do not shore up the form of a word — they are only 'noise.' Research can easily prove or disprove whether English words are actually more distinctive if streamlined down to essentials — or barnacled with surplus ink. (Would words in the preceding paragraf become more or less recognizable if cut down to size?, e.g., *sujested, acheved, ar, mor, lerners, riting, mesaj, thru, misd*).

It is possible that the shorter the word, the more visually distinctive it may be, and the easier to scan for meaning. The compact mixed script of Japanese and the almost equally fonemic scripts of Indian languages are reported to be faster to read than English spelling, while early experiments by **Beech (1981 [3])** and **Yule (in progress)** are indicating that literate adults can need only a few hours' practice in order to reach their *normal reading speed* when tested on reformed English spelling systems that use few but consistent rules which remove the irregularities and 'redundancy' which are claimed to be an advantage. With more practice, the subjects might well become faster than they are with the present English spelling.

Streamlined consistent spelling is also likely to serve the interests of learners too, since it avoids the problems of a purely fonemic spelling — of longer polysyllables and risking everything on auditory discrimination. Recent research has been finding differences between people who prefer a 'Chinese' strategy of visual clues in reading and writing, and those who prefer a 'Phoenician' alfabetic and fonic clues. **(Baron and Strawson, 1976 [2])** It has been suggested that Phoenician may be the better method for learning or writing, but Chinese is the better for faster, efficient reading, and that the two interests conflict. **(Frith, 1981 [8])**

However, research on learning and learning difficulties is tending to suggest that the more economical the representation of a word, and the shorter it is, the closer it is to a 'Chinese' type of compact visual gestalt, and the easier it also is to use auditory analysis and synthesis of a Phoenician type, in view of the nature of short-term memory and its limitations. The more decorated and lengthy the spelling, on the other hand, the harder for 'Chinese' operators because the gestalt is weaker and the basic structure less visible, while 'Phoenician' operators take longer to scan or to resynthesise a sentence, and find poorer linking to the spoken word. (Sometimes I think the natural spelling of five-year-olds should be the model — c.f. "I hav ben t th epot and ther ws a plan ful ov pepl nd lugaj.")

The ideal spelling might be shown to have a fonemic basis, for learning and writing and speaking and to ensure that the primarily visual activity of reading had the slower strategy of 'sounding out' words as an essential back-up technique to decode new words. However, this fonemic base would be mediated not purely by direct sound-symbol correspondence, but by a limited number of modifying rules which pack as much information into the appearance of a word as possible, to

transmit word meaning and sentence meaning, avoid confusion with other words, and promote faster visual scanning. It would still be possible to derive the spoken language from the written and vice versa.

4. *The assumption that eny real reform of English spelling would require such radical revision that everything now in print would become obsolete,* and impossible demands would be made on the present literate generation faced with a completely new spelling. However, if you look closely at a printed page of English, you will observe that 70–80% is regular in the crucial sense that it is predictable from rules. Only 20–30% needs 'cleaning up.' As it is, this 20–30% wrecks the whole system, because you cannot tell in advance what is going to be predictable and what is not. If there are only three booby-traps on a road, it is still the whole road that is unsafe.

An international perspective on the visual-versus-fonemic issue, however, restates the dilemma in a form research can tackle. What weight must be given to the need for an international standard for sound-symbol relationships, and to the need for visual similarity of similar words in different languages that give them different pronunciations? (e.g. *theatre, imagination*, or *machine*). To what degree could the apparently conflicting demands be reconciled?

Mosterin's recommendation (1981) [10] of the universal adoption of the International Fonetic Alfabet (IPA) for all national spelling reforms is interesting but there are meny difficulties. The present IPA letters are not well suited for everyday use in print and handwriting, are not generally available in printer's fonts and on typewriters, the large number of symbols is unwieldy for our present technology and would require too much variation of keyboards from country to country; the symbols are designed for precise representation of sounds whereas an English spelling would do better with 'diafonic' representation, conventions that allowed some dialectal range in their pronunciation rather than quibbling about whose speech would be the 'standard.' The major question remains: is it more important to preserve visual similarities between languages, or to clarify fonic differences in their spoken forms — or can the two be reconciled?

At present, the relationship of consonant letters and sounds in English spelling is basically close to IPA and international usage, and only needs 'cleaning up' the exceptions. These are the sounds represented in English spelling by *j, ch, th, wh, x, sh, ng, c, qu*, or the sound of *zh*. However, English use of the five Latin vowel letters *a, e, i, o, u* differs from Continental usage because English has a different set of paired long and short vowels, which can alternate systematically within word-families.

Switching to IPA vowels and their Continental usage would change the appearance of English text dramatically, with 22 vowels required, of which only one would be retained as at present, and four extend their occasional representation. (*e* as in *bet*, *a* as in *car*, *i* as in *police*, *o* as in *solo*, *u* as in *tabu*)

However, observation and experience suggest, and experiment could test the opinion, that as long as shifts in sound-symbol representation are systematic and limited in range and number, and the fonemes are close enough to existing repertoire, learners of different languages adapt quickly to some variation in the values of letters and letter combinations — usually in the first lesson. Sets to speak a different language can change like a shift in gears; so can set to read one.

At this stage it may be appropriate to give an illustration of what a 'morfo-fonemic' spelling could be like, that included in its charter the requirements that have been discussed, of continuity with present spelling and international recognizability, of economy, of minimum 'special cases' for

distinguishing confusable homofones or abbreviating the commonest function words, or providing grammatical markers, of operating within an IPA framework or towards one, as far as it seems practicable, with no variability in consonant representation except for nine special cases (described below) and rules that govern a limited range of vowel representations:

"How, cd yu expect me not t'be wurrid at whot that antiqated lejislater thay caul th' public wil say when it sees me now, aftir al these years I hav been sleping in th' silens o oblivion, cum out with al my years on my bak, with a tale as dry as a rush, barrin o invension, devoid o stile, poor in wit an laking in al lerning and instruxion , without qotasions in th marjins or notes at the end o th' book; wheras I see uthir werks, nevir minde how fabulus an profane; so ful o sentenses from Aristotl, Plato an th' hoel herd o filosofors as t' impress thair reders an get thair authors a reputasion for wide reding, erudision an eloqens? (Prolog, *Don Quijote*)

Description:
1. The principle of representing the 'form of the word,' despite sound changes, has been achieved through the simple technique of extending the existing use of 'silent e' to indicate that a preceding vowel is long. The corollary, absence of a silent e or use of double consonants, indicates when the preceding vowel is short. This can cover most cases except some initial vowels. e.g. slepe/ slepd/ sleping not *slepping*); *profane/ profanity*, long vowel shown: *antiqated, legislater, these, stile, minde, etc. short vowels shown: wurrid, aftir, barrio, uthir, nevir*.

2. Vowel representation modified by place, in word and length of word:

that	when	wil	not	cum
tale qotasion thay	these been me polis	stile my	notes qotasion so goes	mute fabulus due

marjin banana	lerning nevir author occur	thair	caul saw al	

out how	devoid boy	boot flute tabu	poor	

	a	e	i	o	u
a	paam	paela	dais	caos	taut
e	year	been	deity	peon	odeus
i	dial	diet	—	iota	pius
o	oasis	poet	going	boot	about
u	dual	duet	ruin	duo	arduus

This vowel scheme allows for some regional variation in pronunciation, some flexibility in further reform (e.g., towards Continental vowel representation) and choices are generally rule-governed so that the reader can know how to say what he reads, and the writer can know how to spell what he writes.

3. *Special cases.* Shortening of function words, e.g. *cd, tb, t, o,* etc. Distinction of confusable homofones only, e.g., *hoel/hole*, *-sion, -tion, -zion*, suffixes as conventions for pronunciations /-sion/, /-tshun/, /-zhun/ to preserve continuity (although *sn, tn, zn*, might serve better)

4. *Grammatical markers*. *-s* as plural and verb ending; single nouns may end with *-se* or *-ss*. *-d, -n* as verb participle endings. (e.g., *grone* is a noun, *groen* is a verb)

5. *Consonants*. Transisional retention of velarplosives *c, k, q* (not *qtr*) with rules for their use. j still with English pronunciation until international agreement on *j, y*, etc. is established by research. Formal spelling of words like *nature, special*, which are slurred in actual speech.

6. *Visual distinctiveness and speed of reading*. A transcription in other languages is given in **Appendix**, and I would welcome reports of timed tests, using each subject as his own control with a time interval, and alternation of order of presentation to subjects. (The reformed spelling is 5%–10% shorter, as shown by the indication of omitted letters in the illustration.)

7. *Towards an international English spelling*. The illustration can be compared with other transcriptions (**Appendix**) for resemblance to the Spanish original. In a comparison of the spellings of 100 'trans-national' words from the commencement of that passage and later paragrafs, findings for closest resemblance were:

39% present spellings, 26% 'morfo-fonemic' Spellings, with 35% other spellings identical.

The words in which present spelling has the visual advantage are of course all words which present difficulty in pronunciation and spelling to the foreigner, and it remains to be tested, indeed, whether the advantage is actually complete, i.e. whether there still remain in the 'reformed spelling' version sufficient visual clues for transnational recognition, as well as sufficient fonemic clues for trans-national pronunciation according to the English key.

Conclusion

All the ideas put forward here are subject to testing by empirical research. They may be substantiated, modified, or refuted, and are in no final form. But we should learn from metrification the hazards of implementing eny ideal system without thorough practical testing first. In spite of what most alfabeteers say, most of their systems have not been tested adequately.

Geoffrey Sampson has suggested **(1980)** **[11]** that failure to initiate English spelling reform may be linked with the loss of national self-confidence. "We see ourselves now as following the lead of others rather than as the model to which foreigners aspire; since even the Eurocrats of Brussels have not yet presumed to reform our own language for us, we instinctively suppose that change must be inappropriate or impossible."

I am of course being provocative in suggesting that the 'Eurocrats' or rather the 'cosmopolitans' may change, not the language, but the spelling. However, the first steps that can safely be taken within all the foreseeable possibilities for future English spelling can be taken, by all and enyone now — tacit adoption as alternative spellings of the international usage of *f* for *ph* and *e* for the short *e* sound, as in *bet* (as has been used throughout this article). Both are now appearing in the English-speaking press, often as much unintentionally as by design, and Australian publishers are putting out books and journals which use 'Spelling Reform 1', the short *e* reform.

Further directions for reform can be tested out now what spelling can best help adult illiterates, dyslexic learners, fast readers, transliterating computers? There is exciting research needing to be

done on the question of international convergence in sound-letter conventions, and how the spellings of one language can be most accessible to the speakers of another.

There may be some future technological break-thru in a completely new direction, but an internationally useful English spelling reform is needed now, that could be gradually introduced by the existing route of co-existing alternative spellings. The features put up for research and discussion are:

1. Consistent use of the present alfabet, with reduced choice of vowel spellings regulated by few consistent rules, to maintain continuity with present spelling, accomodate regional dialect variation and allow a future transition to a spelling system applicable to all languages, if required. The 'silent e' and double-consonant techniques are extended to preserve basic word-forms that have soundshifts between English long and short vowels.

2. Maximum compactness, including condensed function words, to aid visual distinctiveness and efficient scanning for the 'Chinese-strategy' reader, ease of production and decoding for the 'Phoenician-strategy' writer and learner.

3. Minimum rules and exceptions to modify basic fonemic spelling, to meet the needs of reading, learning, pronouncing, writing, and electronic communications technology.

We have dramatic evidence all around us of human capacity to adapt to change. Stone Age Papuans entering the modern age in a few decades, modern cultures risking reversion to the Stone Age. Research is also showing that intelligent, literate people can even adapt to changes in their spelling system in hours rather than generations, and all the resources of modern communications research give guidelines on how the transition can be made.

The spelling of a language is an example of the importance of very small things, often ignored as much as the air we breathe. A social elite can use it to maintain its own superiority by claiming that the convenience of the most educated users must be its major determinant, or it can be an instrument for universal literacy and fuller development of all the potential intelligence in a population. In this day and age, the reform of English spelling could be a sign that hope is possible. "The letter killeth, but the spirit giveth light."(Paul's 2nd letter to the Corinthians)

Appendix.
Spanish compared with two English translations in spelling reform and with present English spelling.

1. *Spanish*. "Porqué ¿cómo queré is vos que no me tenga confuso el que dira el antiguo legislador que llaman vulgo cuando vea que, al cabo de tantos años como ha que duermo en el silencio del olvido, salgo ahora, con todos mis años a cuestas, con una leyenda seca como un esparto, ajena de invención, menguada de estilo, pobre de concetos y falta de toda erudición y doctrina, sin acotaciones en las márgenes, y sin anotaciones en el fin del libro, como veo que están otros libros, aunque sean fabulosos y profanos, tan llenos de sentencias de Aristóteles, de Platón y de toda la caterva de filósofos, que admiran a los leyentes y tienen á sus autores por hombres leí dos, eruditos y elocuentes?" (*Don Quijote*, Alhambra edition, 1979, pp 56–7)

2. *An English translation using a fonemic spelling reform* ("World English Spelling") *with a consistent relation between sounds and letters.* (Spell as you speak) "How cuud yoo ekspekt mee not too bee wurid at whot that antikwaeted lejislaeter thae caul the publik wil sae when it seez mee

now, aafter aul theez yeerz Ie hav been sleeping in the sielens ov oblivion, cum out with aul mie yeaz on mie bak, with a tael az drie az a rush, barin ov invenshun, devoid ov stiel, puur in wit and faking in aul lerning and instrukshen, without kwoetaeshunz in the marjinz or noets at the end ov the buuk; whaeraz Ie see uther works, never miend how fabyoolus and profaen, soe full ov sentensez from Aristotul, Plaetoe and the hoel hurd ov filosoferz, az too impres thaer reederz and get thaer autherz a repyootaeshun for wied reeding, erudishun and elokwens?

3. *A fonemic spelling for English using the Roman alfabet but within the guidelines of the International Ponetic Alfabet.* "Haw cud yu: ekspekt mi not to bi wurid aet whot that aentikweited ledzhisleite: thei co:l th publik wil sei when it si:z mi nau, a:fte: o:l thi:z jie:z Ai haev bi:n sli:ping in th sailens ov oblivion, cum aut with o:l mai jie:z on mai baek, with a teil aez drai aez a rush, baeren ov invenshen, devoid ov stail, pue: in wit aend laekin in o:l le:ning and instrukshen, without kwoteishenz in th ma:dzhinz o: nots aet thi end ov th buk; weiraez Ai si: uthe: we:ks, neve: maind haw faebjulus aend profain, so ful ov sentensez from Aeristotel, Pleito aend th hol he:d ov filosofe:z, aez tu: impres the: ri:de:z aend get the: o:the:z a repju:teishen fo: waid ri:ding, erudishen send elokwens?"

4. *Translation in present English spelling for comparative tests of readability.*
"How could you expect me not to be worried at what that antiquated legislator they call the public will say when it sees me now, after all these years I have been sleeping in the silence of oblivion, come out with all my years on my back, with a tale as dry as a rush, barren of invention, devoid of style, poor in wit and lacking in all learning and instruction, without quotations in the margins or notes at the end of the book; whereas I see other works, never. mind how fabulous and profane, so full of sentences from Aristotle, Plato and the whole herd of philosophers as to impress their readers and get their authors a reputation for wide reading, erudition and eloquence?"

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[Spelling Progress Bulletin Winter 1982 pp14–15 in the printed version]
[Chris Jolly: see **Bulletins**, **Journals**, **Newsletters**, **Media**, **Books**.]

"Commercial and Marketing Considerations when Developing Orthographic Reform," by C.J.H. Jolly.

London, England.

Abstract
The main efforts of spelling reformers have quite rightly centred on making the teaching of English both easier and quicker by simplifying the orthography. However, by definition, almost all English users already write the language, and spelling reform would be an unwelcome change in their habits.

Commercial and marketing considerations are suggested which would help to make spelling reform a more welcome change. Like teachers, users of English are shown as living with a system that is wide open for improvement and how, by meeting their needs, orthographic reform can win more of the support necessary for acceptance.

Corpus
My own background is that of Consumer Marketing and so this is the approach that I have used in considering the subject of this conference: Spelling: Research and Reform.

Marketing is about persuasion, in particular, how could we persuade people to change their behaviour. The changes we wish to see could broadly be achieved in one of three ways:

(1) We could advertise heavily, promote with competitions, sponsor sport championships, etc. However, I would estimate that *Persil* spend approximately £2m in this country each year to get over the message 'Persil washes whiter', so with our vastly more complicated message and meagre resources, this is not practical.

(2) The changes could come by legislation or imposition. Examples would be decimalization or a change from driving on the left. This would only really be effective where the government has close control and where only one system is admissable. It is doubtful whether a change in English spelling would be brought about in this way.

(3) Our proposals could gain increasing acceptance because leaders of society use or do or believe these things. These are the people you respect in that particular field, opinions from columnists in the Press, fashions worn by fashion leaders, and what Jane Fonda does with her spare time nowadays. This is probably the most powerful and effective route for us in the long term.

However, let's consider the problem further. We must distinguish between:

(1) the beneficiary of the change, and
(2) the decision maker for the change.

Children's brekfast cereals for instance, are for the benefit of the child, but bought by the mother. So it needs to include aspects such as 'promotes helthy growth' to ensure she will buy the product. The same applies in spelling reform. The prime beneficiaries are learners of English that is, children or the person learning English as a second language. The decision maker, however, is the fluent English speaker because only by changing his behaviour will we bring about spelling reform. Here is the basic problem. We must find benefits for the fluent English speaker (and reader) if spelling reform is to have eny chance of success.

To provide such a benefit, we must identify problems and confusions experienced in using English today. Pointing out illogicalities is not enough. There must be pressure for change because the existing orthographic system is either too prone to mistakes or too cumbersome, requires frequent searches in the dictionary, and because the alternative overcomes these.

Let us look at an important area where this could apply: Alphanumeric codes. Alpha codes or alphanumeric codes have grown in use enormously over the last few decades. For Example, product descriptions (e.g. the Ford Cortina 2.3 GL car, Rolls Royce P 3 211 aero engine, Castrol GTX oil), postcodes and vehicle number plates. If we drive from Edinburgh to Glasgow, we need to distinguish between the A8 and the M8 routes. Context alone is no guide as both go to Glasgow. When it comes to the code used for identifying hazardous substances by road tanker in the UK, the code even distinguishes between letters printed black on white from those printed white on black.

Here is an example taken from the current British Airways timetable:

London–Delhi

Day	Dep.	Arr.	via	Flight	Aircraft
Mo	1000	2305	non-stop	A1116	747
Tu	1000	0110	Frankfort	A1102	747
Tu	1005	0315	Kuwait,Dubai	BA147	L10

The code for the British Airways flight BA147 is clear enough, but what about the symbol for the first flight listed? In the timetable it looks like it starts AI, the chemical symbol for Aluminum. In fact, of course, it is Air India. But is there an Air India flight A116, one wonders, and is there ever eny confusion? And when you are settling into your seat for Air India flight 116 to New Delhi, spare a thought for your luggage which may be being stowed on the plane alongside Alitalia flight 116 to Naples. With such similarities, mistakes like this are easily made. Although the operator is to blame, in reality we have given him, and ourselves, a system which does not meet the demands of today. An example of the sort of mistake that our present day alphabet and numerals can produce came to light when I worked for Boots, the Chemist. Fortunately, the error was not important and so was never corrected. Here are the computer description of the two products involved:

Brief Case 3252 Black + Zip
Brief Case 34Z Black

The first description used to be 325Z because of the outside zip pocket to the case. Constant rewriting and the passage of time had changed it to 3252.

It is to avoid confusions of this kind that we often see these changes:
1 written as ~~1~~ to avoid confusion with I
and 7 is written ~~7~~
Z is written ~~Z~~ to avoid confusion with 2
the letter O is written [with a dot in the middle] to avoid confusion with zero, 0 or the number 0 is written Ø

Eny new system of English orthography should set out to redress problems of this nature.

An experiment by Brown and Hull showed the common errors made when copying from people's handwriting. Excluding the obvious confusions between 1 and I and between O and zero, the results were:

Errors made when copying from manuscript
Confusions of Z with 2 and 7 produced 10.2% of the errors
Confusions of 0 with 9 and 6 produced 5.7% of the errors
Confusions of S with 5 produced 4.6% of the errors
Confusions of D with 0 produced 2.0% of the errors
Confusions of H with 4 produced 1.6% of the errors
Confusions of T with 7 produced 1.5% of the errors

(By chance, errors of less than 0.2% would have been expected for each letter-digit or letter-letter confusion).

Another way of looking at the same problem was the experiment by Howell and Kraft showing responses to typescript, which found confusion between *C-G-6, H-M-N, M-H, Q-O, S-5, 2-Z, 3-5, B-8, 9-P.*

While interesting, I question the reliability of this research for our purposes and would suggest it needs to be rechecked.

Conrad and Hull showed that confusions could occur because letters and numbers *sounded* alike even though they were visually dissimilar. This was particularly so when letters and numbers had to be remembered before writing down in another location. There appears to be an acoustic as well as a visual element to the memory of these symbols:

Acoustic Similarity
Common acoustic confusions between letters and digits between: *V and 3, 5, 2; H-8; F-5; X-6; T-2.*

Acoustic confusion between letters is particularly significant because most letters can be placed in groups that sound alike:
Group 1. B, C, D, E, G, P, T, V, Z (in USA) and sometimes Q
Group 2. A, M, N
Group 3. F, S, X
Group 4. Q, U
Group 5. O, A

It is notable that air traffic controllers have to use descriptions for letters but not for numbers to overcome this confusion. For Example, the letters in the first group are referred to as: Bravo, Charlie, Delta, Golf, Papa, Tango, Zulu, and Quebec respectively. We should expect a new system to use modified names for the letters so as to avoid the need for these secondary descriptions. Note that the most commonly used letters in codes are also the most prone to the confusions described:
e.g. S for Super, Special, Sport, South
O for Ordinary, Old, Zero
I for International, Internal, Interior, Interest, etc.

In developing codes, enormous care has to be taken so as to prevent them being prone to errors. A typical postcode in the UK has two clusters of letters and numbers e.g. WC2A 1LB. The second of these clusters never uses certain letters because one of several errors could arise:

Visual: C (confusion with G), I, O, M (confusion with H)
Acoustic: V (confusion with 3)
Perception: K (confusion with X, C)

For the reasons given, we need to look seriously at the number, graphic form and description of the letters used in our alphabet as an integral part of orthographic reform, and this may be vital to its acceptance.

Let us move on from alphanumeric codes to a new field: Symbols. There are of course, some 200 commonly used symbols, of which everyday letters and numbers are a part. Besides punctuation (.,:;!?") and mathematical symbols (+-x > % oo√) 'there are a number of others that are widely recognized (*£$&#/°∆) as well as the enormous number of corporate symbols. However we draw mostly from the Latin and Greek alphabets for our extra symbols. In one scientific dictionary, these few symbols are used for 'no less than 370 physical quantities. To take one symbol, alpha, it can represent:

Use of symbol alpha a	Mesured in radians
Plane angle	Mesured in radians /sec^2
Angular velocity	Mesured in per degree C°
Thermal diffusion factor	
Linear expansion coefficient (in thermodynamics)	
Magnetic polarizability	
Light absorbance	
Acoustic absorption factor	

There are meny more uses for *alpha* as a symbol. It is also used to identify an atomic particle, the alpha particle.

The point of all this is that there is an enormous market for symbols in the academic community. Obviously, eny new symbol needs to be fixed in its form but with international agreement for its use in spelling, could get widely used elsewhere. Besides the academic community, new letter symbols could have a more dramatic use in the commercial world for product names. Phonetic spellings are often used to gain attention, e.g. Kwik Kopy, Kodak, and also numbers, e.g. 7up and 3M. New letters could get used to describe new products long before they were widely used in everyday. This could hasten their acceptance.

I would now like to draw your attention to one of the most crucial requirements for spelling reform, one which has not received the attention it deserves. That is the reform of the spelling of personal names and places. We cling to these very tightly and they are the last we would wish to change, but they are among the most needy of reform. They will have to be changed by legal action to preserve continuity of identity.

If we look at a telephone directory of place names or surnames, how meny can we be sure to pronounce correctly? Most perhaps, but not all. Taken the other way, if we could have eny pronunciation we asked for, we would still not get the spelling of some names. Here is the dilemma for eny communication that is by writing or by voice alone. Names would have a correct spelling for writing and a phonetic or reformed spelling for pronunciation, just as it is now in dictionaries. With the growing acceptance of the latter, it is reasonable to assume that it will slowly take over from the former. By this means, we have a method of avoiding the antagonisms that comes from imposing a change.

Considering the possibilities, there are probably three ways in which spelling reform could be introduced:
(1) in gradual steps, e.g. SR-1 and on.
(2) suddenly, as with the Turkish reform.
(3) by transition from one system to another, the two systems coexisting during the changeover.

To conclude, if it is to be successful, the introduction of orthographic reform really does need some convincing, non-conversational benefits for the fluent English speaker if it is to win the support of the very people who can make it happen.

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[George O'Halloran: see **Bulletins**, **Newsletters**]

"Spelling: What Road to Reform?", by George O'Halloran,

London, England (in absentia)

Abstract
How nearly ideal is English spelling? Phonemic reform — will it make the teaching of English a lot easier? Diaphonic spelling: How accurate do we need vowel representation? Dialect spelling, and teaching in it. Syllabic systems. Is English a syllabic system, and should it be taught as such? Is ideographic writing on the ascendency? Can we devise a spelling system compatible with Eurospellings? — perhaps by semi-ideographic spellings?

Corpus
The long-standing insult offered by our traditional spelling to all readers, but especially to beginning readers must surely be coming to an end — or must it? Is our spelling really, as Chomsky would have us believe, the ideal instrument for representing English? or is it, as so many others would assert, a treachery, a delusion and a snare? And if English spelling is to be reformed, or perhaps just simplified, what kind of changes should be made? From Ormin onward there have been many proposals for change. These came to a head in the first third of the century when reform bills had encouraging support in the House of Commons. The operation of these was hindered by the selfish outlook of a purported reformer who attempted to foist his own system on the unsuspicious public. He failed in this attempt, but left the reform movement considerably weakened.

Some of the early proposals for reform were said in their time to be *phonetic*. That is to say, they were said to be based on the systematic representation of the sounds of words as uttered. There was some uneasiness about the use of this description and as time went by it began to be replaced by the word *phonemic*. This description is said to be based on the systematic representation of families of related sounds. It was hoped that all the slightly variant members of such a sound family might be represented by the same single character. This possibility is not now so widely accepted as a panacea. There was for many folks in many lands the danger of just substituting one unsatisfactory system for another equally disappointing.

The reformers had hoped to make reading (and consequently education and thus economic progress) more easily available to the hoi poll. But was this happening? The underprivileged, speaking the widely variant dialects of the ghettos of London, Liverpool, New York, Freetown, and the West Indies would seem still to be out of the range of help. Large scale experiments in new systems such as i.t.a. conducted on thousands of children in hundreds of schools in numerous countries showed conclusively that children did learn to read in English faster when using i.t.a. — but not much faster. It seems that the greater net gain was not worth the disproportionate expenditure of money, effort and printing needed. The fact that nearly all former i.t.a. schools have now given up i.t.a. and have reverted to traditional orthography must, in itself, be significant. It has now become clear that any simplification or reform to be generally acceptable will have to be diaphonic as well as phonemic. That is to say, it will have to cover all (or most) of the sounds of all dialects of English adequately for reading — at least for beginners. A diaphone is a character which covers all the variant pronunciation of particular phonemes. Using a diaphonic alphabet,

learners would be able to learn to read in terms of their own dialects. A diaphonic system would be equally valid for the English sounds of Liverpool, Los Angeles, Lagos, Adelaide, and East London.

Another thing that was highlighted by all the experimentation was the importance of dialect itself in learning to read English. English has always been written in the middle-class dialect of the language. This has not been unreasonable since this dialect was in the past the language of most English literature as written by middleclass writers. It was fair that they should write as they spoke. But this made it harder for speakers of non-standard dialects to learn to read. This defect is said to be one of the causes of immigrant failure in education. One of the causes of the failure of i.t.a. was probably because it held too closely to class pronunciation and spellings. The mood of the times was against it. It was probably better to have early readers taught in their own dialects, and some progress has been made along this road already.

It is widely accepted that the vowels of English cause more confusion to beginning readers than the consonants. Teachers of reading in any language are only too well aware of the difficulties of vowel blending. In an earlier presentation to this Society, I described a method by which I overcame specific difficulties in an African language by consonant substitution. Experiments have shown that reading in a devoweled English script is quite easy. Would it be a good thing therefore to just leave out the vowels in English writing? Or just to leave out or to change only those which cause bother? Arabic (for Arabs) does omit vowels at an early stage in reading — although for nonArabs, especially in African countries, they are retained much longer in Arabic and are never even partially abandoned when writing local languages in Arabic scripts. Is there a lesson for us here? Should we set up experiments to test the effects of leaving out or changing some or all of the vowel letters in English. After all, the various kinds of shorthand have usually omitted the vowels. One successful brand of shorthand called Speedwriting whose proponents read a paper for us at our first conference uses ordinary letters and omits vowels only. It seems to work very well but is, of course, usually only taught to adult students.

Or should we go for a syllabic system? Here there must be careful thought. Classical English syllables are quite primitive, very difficult and numerous. Languages which have developed further phonologically than English have greatly simplified their syllable structure. For example, the Eest African language Mandika has reached a very high stage of syllable development. It has now only three types of syllable: V (vowel), CV (consonant+vowel), CCV (consonant+consonant +vowel). It is doubtful if a language can get more stream-lined than this.

But English is already developing along similar lines, although it has a long way to go. The following TV advertising jingle shows what has already been achieved as part of current oral usage: It is shown in the International Phonetic Alphabet:

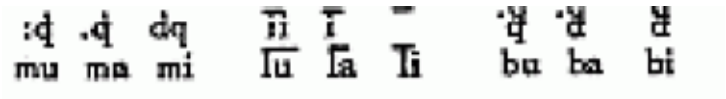
jvl nɛvə gɛ? ə bɪ ə bʌ?ə ɔn jvə naif
you'll never get a better bit of butter on your knife.

This development needs only to be used in print, perhaps as under, to effect a very much quicker reading result in all English-medium schools.

Yu'll neve ge a be'e bi o' bu'e on yu naif.

Most folks will be surprised to learn that English is, in its usually spoken form, already nearly a syllabic language. Think what an acknowledgement of this could mean to literacy. Children learn to read in syllabic languages with great speed. In The Gambia we set a period of two months for the attainment of complete fluency in reading. Hardly any children failed to achieve it. This was, of course, in the Gambian vernacular which is written as an open syllable language. Is this the shape of things to come in English? Are we going to follow the Mandinkos down the road of easy literacy instead of persisting with the outworn, outmoded system we borrowed from the Romans and never allowed to develop?

Do we need very great vowel accuracy in everyday writing? Again we may perhaps look to Africa for Guidance. The Mende people of Sierra Leone and Liberia (relatives of the Mandinkos already mentioned) in pre-colonial days evolved a system of writing to fit their language. This was a syllabary of a very special kind. It was written from right to left. I give a few characters to show how it worked:



Don't forget the right to left reading. But the script could just as easily read from left to right or even boustrophedon. Unlike the ancient syllabaries where discrete syllables like *ki, ka, ku* would usually be written as completely different shaped characters, the very competent orthographers of the kikaku recognised the separate nature of vowels and consonants. But these were also understood (in the ancient fashion)as an integral part of the syllable. This can be seen from the non-writing of a separate /i/ sound in syllables like *ki, wi, mi*. It was a change of vowel that was registered by dots as above.

Another interesting fact is that modern Western-trained linguists regard Mende as having a seven-vowel system. These seven vowels are in I.P.A. written as: a, e, i, o, u, ɔ, E. But the Mendes found their own locally evolved three-vowel system quite adequate for all purposes. Do we really need all those extra vowel signs to write Mende nowadays. Or are they there for the benefit of foreigners rather than natives? A quite small number of foreigners will learn Mende. Should all the Mendes be burdened with superfluous letters to accomodate a few outsiders?

Come to that, do we really need all those vowel signs and combinations of vowel signs for English? The more signs there are, the greater the difficulties of learning them, and the greater the possibilities of confusion. Redundancy is not a virtue here. My elementary manual of phonetics claims that standard British English has need of over 21 different vowel signs. Maybe it's fewer vowel signs we need — not more. Should we perhaps try out the Mende three-vowel system to see how it goes? After all, the Arabs don't seem to suffer too much from the use of their three vowel system. (Ed. comment—!!!?)

Or should we go further and persue alongside, or even instead of, our Romanic script a completely new system of expressing our ideas. Should we go for same system of purely ideographic writing such as Blissymbolics? Bliss is gaining adherents in many countries. Originating in Australia, it is now supported by the Canadian Government which has financed the production of a full colour talking film to explain the system. This film can be had on loan free of charge from the Canadian High Commission. Such a system, being purely ideographic, would over-ride both class and

national barriers. There are also Bliss books available. This year there is a course on Blissymbolics at the National College of Speech Sciences in Hampstead on October 1st.

Or should we not just go straight to the fountain head and adapt the 2,000 ideographs of the Chinese as these are used in Japan. It seems a lot to learn but the Japanese manage it and it does not seem to have kept them backward in any way. Perhaps the extra learning load would have a therapeutic effect on naughtiness in schools. As a bonus, we should be able to read a good deal of Chinese, Japanese, Korean and Viet-Namese. It is worthy of taking note of the fact that there is a very much higher standard of literacy in Japan than in Britain. A few years ago there was an experience in New York teaching the backward to read. They apparently learned much faster in this script. (Ed. comment: This is unbelievable!)

Do we ask for too much definition in our script? Is it not enough for most purposes, perhaps after all, that our writing signs should just stimulate the memory into the correct response? Or is this script business strictly a psychological thing: a kind of master/servant complex? We seem to want to tie other folks down: we have no good will to men and expect none. So we try to register every nuance and every comma into a forcing situation of spelling and rules. Are we manifesting our own character defect in our alphabet? — inherited with the writing from the Romans?

But for us who are in the E.E.C., it seems that we must not move too far away from our Euro-compatriots. English shares with most European languages a very large number of spellings exactly the same as those of other E.E.C. languages. Could we combine these into a form of simplified spelling? It could be a grievous mistake to move too far away from that of our Euro-compatriots and thus perhaps create greater division in our first real hope of unity with our neighbours. Are there echoes of Axel Wijk in this? Was the underlying unity of Euro-scripts another, if underlying, reason for the failure of i.t.a.?

It is true that the printed common forms of Euro-words often conceal very great differences of sound, but at least we have the shape of the words in common and often the meaning as well. The beginnings, perhaps, of a rather cumbersome pasigraphy. Also many of these words have become international in the correct export of European and North American culture and manufactures to fill gaps in third world countries. It could be a mistake to depart too far from these word-shapes. Would it be a good thing to produce a common Euro-vocabulary from these shapes? No work has been published on this task up to now. Used ideographically, such a vocabulary could have a unifying effect an the European communities.

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[Spelling Progress Bulletin Spring 1983 pp6–11 in the printed version]

Experiment and Research in Spelling Reform

"An experimental study of attitudes towards English spelling reform," by Dr. Robert G. Baker,

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Abstract.
Results are discussed of a number of experiments investigating subjective attitudes toward traditional English spelling. The basic paradigm of the experiments was presented at the International Conference of the S.S.S. in Northampton in 1979. Literate adult native speakers of English were presented with lists of English words and asked to re-spell them in more rational ways. These "reformed" spellings provide information on those linguistic aspects of orthography which people consider to be important. A selection of such results was presented at Northampton.

There is one critical problem in this research. The instruction to re-spell words is deliberately vague and different reformers may have fundamentally different views on what is meant by a more rational spelling. In order to explore this point further, the naive spelling reformers took part in structured interviews based on the changes they had made in the spelling reform task. Reformers were asked to explain, describe, compare and contrast all the reforms they had made.

A statistical analysis of the interview material allows us to make inferences about these reformers' general attitudes towards spelling reform. The technique provides useful insights into popular opinions about English orthography.

Corpus.
Introduction — the spelling reform task,
This paper continues and elaborates on the analysis and discussion presented in an earlier paper published in SPB **(Baker, 1980 [2])**. Both this and the earlier paper focus on the attitudes of naive spellers (i.e. non-specialists with no reforming axe to grind) to the conventions of traditional English spelling. The principle technique used in the investigations is the "spelling reform task" in which lists of English words are presented to naive "spelling reformers" with the instruction that they should first rate the words according to the "rationality" of their spelling, and then provide alternative "more rational" spellings for low-rated words.

The earlier paper presented some results from one such experiment. 23 undergraduates from Stirling Univ. took part in the experiment. The spelling reform task was carried out on a list of 111 English words specifically selected to represent the range of "non-phonemic" [1] spelling conventions in English. The undergraduates' reforms were scored according to whether or not they preserved or destroyed the conventions in question. (See **Table 1**) It is clear that some conventions, e.g. preservation of plural "s" in "dogs," are more highly valued than others, e.g. preservation of graphemic final '"-e" in "give."

This type of experiment may have various implications for the Simplified Spelling Soc. The responses of naive reformers may indicate "areas of least resistance" in popular attitudes towards English spelling. If gradual step-by-step reform is to be advocated (e.g. **Lindgren, 1979 [10]**), then a properly conducted social survey along the lines of the "spelling reform task" may provide guidance as to the order in which reforms could be made. The work of **Kenneth Ives (1979 [9])** appears to be already pointing in this direction. In addition, the occasional use of such surveys throughout a period of actual spelling reform should serve as a useful barometer of change. It seems likely that the popular acceptance of any form of change in the current spelling system could radically alter the biasses shown in Table 1.

Table 1
Average rationality ratings and proportions of occasions when higher order regularities are preserved in spelling reform task

Rule Level	*Average Rationality Rating;*	% occasions rule is preserved
Graphemic		
give *not* giv	3.71	42.6
freeze *not* freez	4.28	67.8
Phonotactic		
fetch *not* fech	4.18	66.7
wash *not* wosh	4.01	52.2
Morphemic		
walked *not* walkt	3.22	60.9
dogs *not* dogz	4.71	87.9
Syntactic		
goose *not* goos	3.78	29.3
add *not* ad	3.53	52.2
Semantic		
seem *and* seam differentiated	3.80	57.2
sp. *g* retained in sign and signal	3.53	46.1

Another approach to gradual spelling reform could be through the introduction of lists of reformed vocabulary items rather than through the modification of conventions. The data from the spelling reform task show quite a lot of agreement between people on certain specific words. For example, "bomb" was re-spelt as "bom" by 100% of the students, "peach" was respelt as "peech" by 96% of the students. Whichever approach is taken, the collection of social survey data could provide valuable propaganda for the proponents of reform.

Individual approaches to the spelling reform task.
The data collected from the spelling reform task raise many questions. In spite of a degree of consensus over the reform of many words, there was still a great deal of individual variation; at least as much as there is between expert reformers. Some people were willing to reform many more words than others and some introduced interesting innovations to cope with certain items. For example, the use of alphabetic letter names to represent phoneme sequences (e.g. "c" for "sea"), the use of hyphens at morpheme boundaries (e.g. "grad-yoo-al") or elsewhere (e.g. "ta-ee" for "tie"). It was therefore decided to attempt to find out more about how people were operating in the spelling reform task. The instruction to produce "more rational" spellings had been deliberately vague, in anticipation of the fact that people would differ in their conceptions of orthographic rationality. In order to gain a deeper understanding of individual approaches to the task, each o£ the 23 undergraduates were given a structured interview. Each person was asked first of all to try to explain or comment on each of the reforms he or she had made. These comments and explanations were then converted into five point rating scales. In a second session, each person was asked to rate each one of his/her reforms according to each of his/her rating scales. Thus if a person had produced the explanation "I'm spelling this the way I pronounce it" for a particular reform, he or she would be asked to decide to what extent this explanation was true of every reform he/ she had made. If it was definitely true of a particular reform, a rating of 5 would be given. If it was definitely untrue, a rating of 1 would be given.

Which people reform for which reasons?
A total of 47 different rating scales was elicited. The maximum any one individual produced was 12 and the minimum was 3. All the scales are presented in Appendix A since spelling reformers may wish to take cognizance of them all.

The most frequently produced explanations and comments were:

1. I'm removing unnecessary letters (17 people).
2. Some British people may pronounce this word differently from the way I've reformed it (15 people).
3. I don't like my reform (14 people).
4. I've spelt this the way I pronounce it (12 people).

It is worth noting that two of these comments reflect an uneasiness about the task. The other two demonstrate a fairly straightforward "phonemic" approach to the task.

In order to find out what sort of people produce which explanations, the 23 undergraduates were classified according to 4 separate objective measures. These are shown in Table 2. The mnemonic labels refer to aspects of reforming performance. The label Conservative is straightforward. Some people reformed far fewer words than others. The maximum number of reforms was 100 out of a possible 111 and the minimum was 17.

Table 2

Performance of Undergraduate students.

Subject	**Conservatives*	*Levellers*	*Linguists*	*Phoneticians*
Removing silent letters	3.0	2.8	2.8	2.4
Substituting for ambig. let.	3.0	3.3	3.0	2.5
Word better left unchangd	3.2	2.2	3.2	2.2
Reform is offensive	3.0	4.0	2.0	4.0
Aiming for economy of sym.	2.7	2.5	2.7	3.5

*Conservatives = few reforms, Levellers = reforms in direction of more frequent sound-spelling, Linguists = reforms to preserve linguistic rules, Phoneticians = consistent one sound=one symb.

Each person was placed in one of 4 status groups (A–D) within the Conservative classification depending on the number of words reformed. Thus Group A Conservatives produced relatively fewer reforms than Group B Conservatives, and so on.

The same procedure was used with the other three classifications. The Leveller classification refers to a measure of spelling reform "regularity." A frequency list of English sound to spelling correspondences **(Hanna et al, 1966 [7])** was used to establish whether any particular reform represented a more frequent sound/ spelling correspondence than its original spelling. Thus the "ee" spelling in "peech" represents a more frequent sound/spelling than the original "ea". In this instance the spelling "peech" would be assigned a regularity score of 3. If on the other hand a word such as "greed" had been reformed to "gread", a regularity score of 1 would have been given. Correspondences of equal frequency would be assigned a score of 2. The scores were summed and averaged for each reformer to produce an index of the extent to which each reformer made changes in the direction of more frequent sound/symbol correspondences. Group A Levellers had higher average regularity scores than Group B Levellers, and so on.

Group A Linguists were those people whose reforms preserved or enhanced non-phonemic spelling conventions (as in **Table 1**) more often than Group B Linguists' reforms.

The classification Phonetician is essentially a measure of phoneme/grapheme consistency. A set of ambiguous sound/spelling correspondences was selected from the original word list, such as /k/=c or k, /s/ = s or c, /tsh/ = ch or tch. "Good" phoneticians were those people who consistently and unambiguously selected one or another of the alternatives throughout their reforms.

Comparing these groupings with the explanations and comments produced by the reformers, we find that some explanations are exclusive to certain types of people. Thus a Group A Conservative was the only person who produced the rather prescriptive and reactionary comment "This reform

would be unnecessary if people spoke more clearly." Examples of reforms which were highly rated on this scale are "Ingland" and "wimin."

On the other hand, a Group A Phonetician was the only person who made the comment, "It is difficult to represent some of the sounds in this word without introducing new letters," showing a high degree of phonetic awareness. An example of such a word is "revision," where the comment presumably refers to the phoneme /3/ which has no unambiguous representation in English spelling.

A Group A Linguist is the only person to make the comment "I have made this word more difficult to identify." This comment applies particularly to words where the reform produces a homograph, e.g. "maid" reformed to "made," "sign" reformed to "sine", "air" reformed to "ayr." This comment therefore demonstrates an awareness of semantic orthographic conventions, and perhaps a reluctance to break them down (the type of analysis discussed below confirms that this is the case).

However, many of the explanations are shared to a certain extent by people in all the subgroups. Table 2 illustrates some of the relative biases which people in any particular classification produce the comment or explanation in question. The scores in the table are calculated by assigning a rating to each person who gives the explanation, depending on which status group he/she belongs to within each classification. So, for example, a Group A Conservative producing any particular explanation will contribute a rating of 4 to the Conservative column; a Group D Conservative producing the same explanation contributes a rating of 1. These ratings are added up and divided by the total number of people producing the explanation. This gives an average bias with which particular explanations are produced by particular types of people. So, if all the people who produce a particular explanation are Group A Conservatives, it will receive a Conservative bias score of 4; if they are all Group D Conservatives, it will receive a score of 1. If any explanation was produced by all subjects, a bias score of 2.57 would result.

The explanations given in **Table 2** are merely illustrative of this type of analysis. It should also be borne in mind that all the explanations discussed were given spontaneously. If we take "removing silent letters" in Table 2, we see that it is a fairly Conservative-biassed explanation. Those people who only make a few reforms are particularly concerned about "silent letters." Phoneticians, on the other hand, remove silent letters as a matter of course. It is a *sine qua non* of operating "phonetically" and so there is no need to mention it in their explanations. Phoneticians are relatively more likely to talk in general terms about "Economy of symbols."

"Substituting ambiguous letters" is a particularly common explanation amongst Levellers, and once again a *sine qua non* for Phoneticians.

The production of the comment "Better left unchanged" is equally biassed towards Conservatives and Linguists (disguised Conservatives?).

As for "Aesthetics," Conservatives and Linguists are probably less likely in the first place to produce reforms which they deem to be aesthetically offensive. However, only one person (in each group), (Grade A Leveller and Phonetician, Grade R Conservative and Grade C Linguist) actually produced this comment (See **Appendix A**). This type of analysis generally suffers as a result of the limited number of explanations shared by the subjects.

What do the comments and explanations mean?
A more powerful way of examining people's explanations of their own reforming behaviour is to plot the relationships between each individual's different explanations and comments. This can be done by taking each person's matrix of ratings (reformed words by explanations) and putting it through a principal components analysis on a computer. Principal components analysis is a statistical tool for describing the structure of matrices (see **Slater, 1976–7 [12]**).

A few examples will be given to illustrate the technique. In an ideal world, a perfect spelling reformer would produce perfect spelling reforms. He/she would be completely consistent in producing reforms which were phonetically sound, aesthetically satisfying, economic on symbols, and so on. In such a case, the computer would be unable to carry out a principal components analysis. In practice most people are less than perfect.

Figure 1.
Grade A Conservative

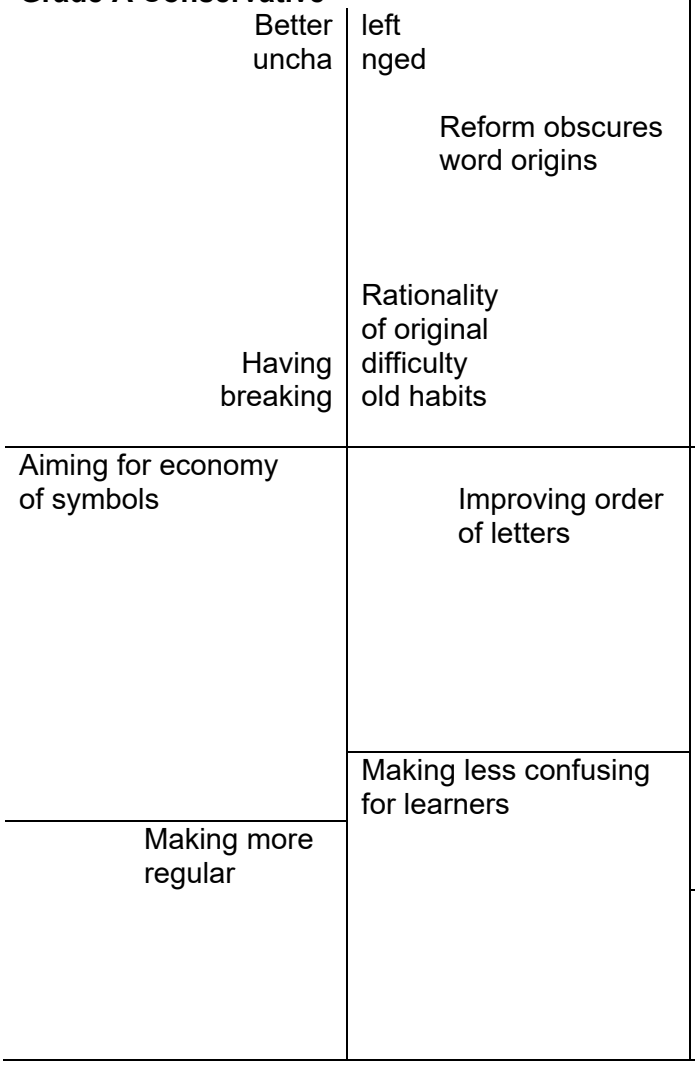


Figure 2.
Grade A Leveller

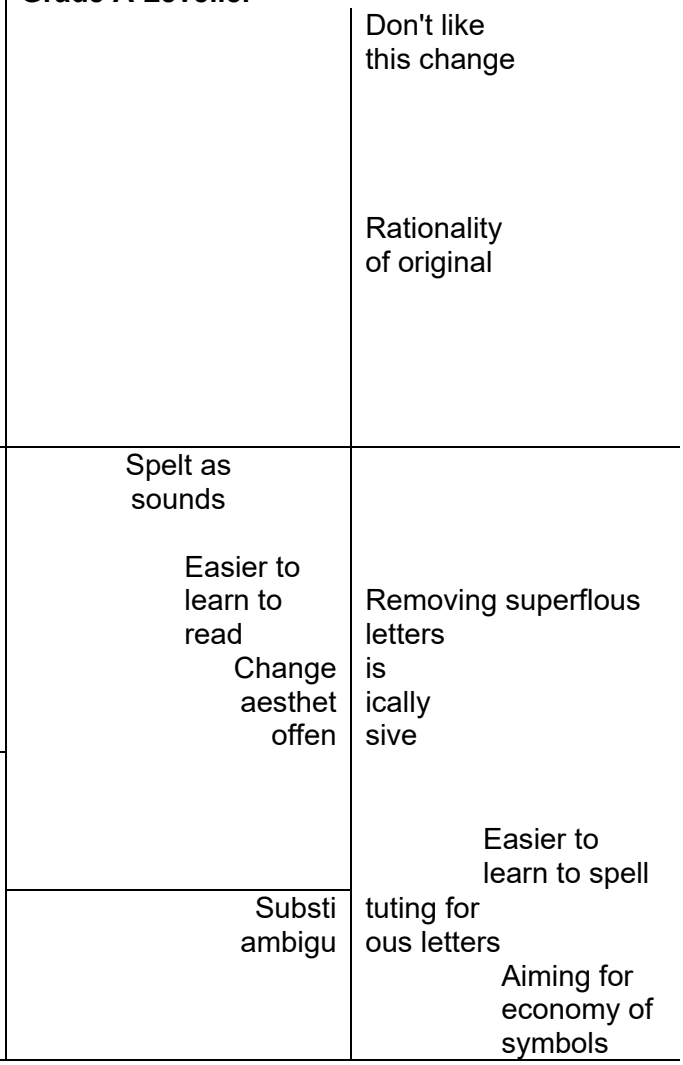
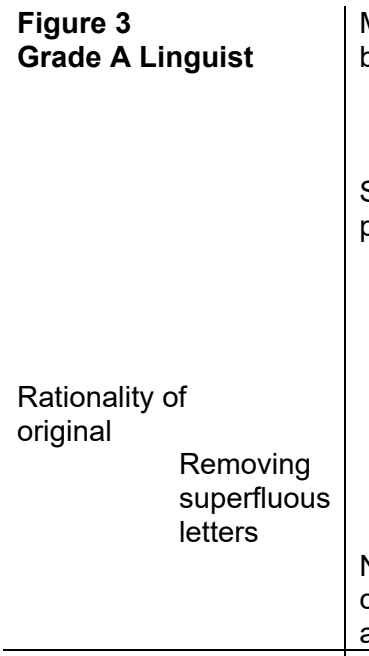


Figure 3
Grade A Linguist



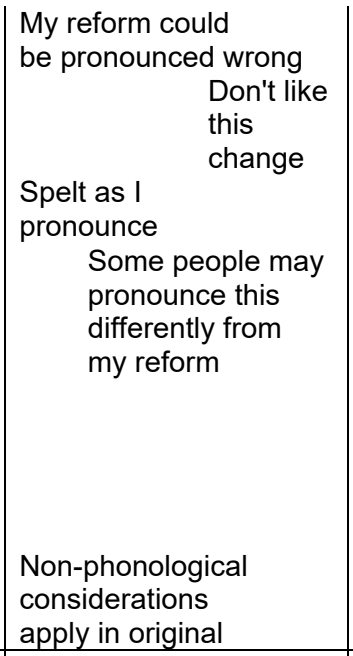
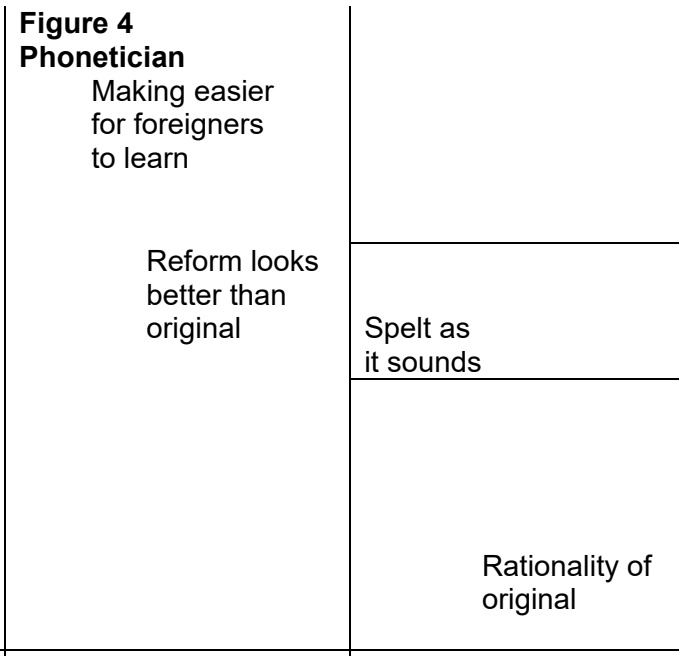
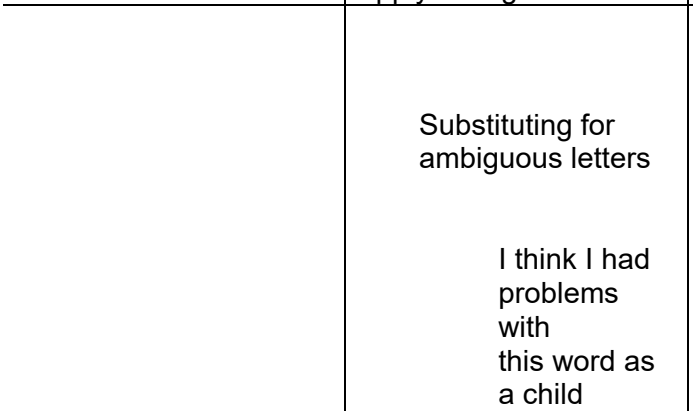


Figure 4
Phonetician





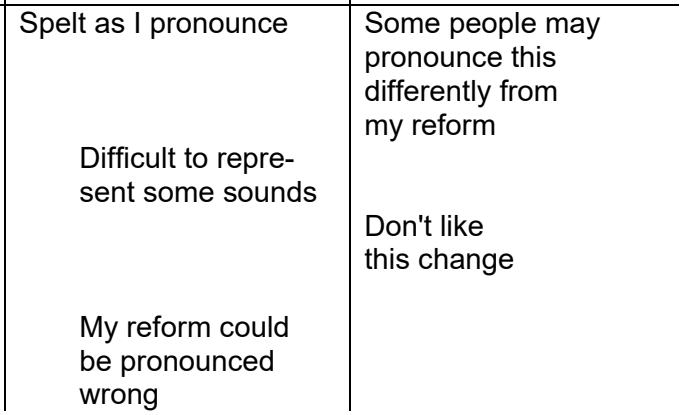


Figure 1 shows an example. This figure represents the explanations and comments of a Grade A Conservative, making only 17 changes in the original word list. The way in which the labels for the comments and explanations are spread out in a 2-dimensional space represents their relationships to one another. For example, "Obscuring a word's origins" is quite strongly associated with "better left unchanged." Precisely what this person means by "obscuring a word's origins" can be ascertained by looking back at the way in which this comment is applied to the reforms themselves. It is applied in particular when a derivational relationship between words in the list has been broken down, e.g. kwest = kweschun; fakt = factual.

High "rationality ratings" of the original word are associated with "having difficulty breaking old habits" in the reform. It can be concluded that this is a fairly enlightened Conservative who is aware of the major role played by habit in the acceptance of traditional spelling. Words such as "bom", "gon," and "goos" are highly rated on these scales.

"Making words more regular" is directly opposed to "better left unchanged", so it is clear that this person sees regularization as the principal aim of reform. On the other axis, "economy of symbols" is opposed to "improving the order of letters." The opposition applies particularly to the reforms "ogger" (ogre) and "aker" (acre) where in the first instance at least, the subject has to increase the number of letters in order to avoid a possible pronunciation. In both words the conventional full syllable representation of the final phoneme(s) as "er" may also be construed as a diseconomy. A parallel motive is found in the Nue Spelling's treatment of syllabic "l" in "peepl".

Figure 2 shows a Grade A Leveller. Interestingly "aesthetic offensiveness" is negatively correlated [2] with "not liking a change," so this person is not much concerned about offending peoples' aesthetic sensibilities.

There are two particularly interesting comments here. A clear distinction is made between reforms that are "easier to read" and those that are "easier to spell". At the same time, "easy to read" is strongly positively correlated with "spelling words as they sound", and "easy to spell" is strongly positively correlated with "economy of symbols". For example, "revishon" is rated as "easier to spell" and "economical", but not "easier to read" or "spelt as it sounds". The reform "appeer" is rated in the converse fashion — not "easier to spell" or "economical" but "spelt as it sounds" and "easier to read." The failure to acknowledge the distinction between readability and spellability has been one of the fundamental criticisms of the initial teaching alphabet **(Haas, 1970 [6]).**

Figure 3 shows a Grade A Linguist. This person is aware of childhood problems being caused by ambiguous spellings, referring mainly to words containing "x" and "q". He is obviously very concerned about the effects of his reforms on other people's pronunciation. This applies, for example, to "aw" (awe) and "cokett" (coquette). "Aw" may be particularly relevant here because this person is a Scottish dialect speaker and may be aware of the Anglo-Scottish discrepancy in the vowel phoneme system, centering on the /ɔː/=/ɔ/ distinction (see **Lass, 1974** [9]). "cokett" preserves some version of a Chomskyan stress placement rule **(Chomsky and Halle, 1968 [4])**, by preserving the final double consonants. However, it is more realistic to suggest that his concern is not with the native speaker's phonological awareness of this rule system, but rather with a general indeterminacy about the pronunciation of recent borrowings from foreign languages.

Original words with superflous letters are rated quite highly on "rationality". This applies mainly to words with final "-e", which, according to his original ratings, he is not too happy about dropping, especially where they have a syntactic function and/or may influence pronunciation. e.g. "hors" (horse).

In the centre of **Figure 3** we have the typical "linguist's" statement "non-phonological considerations apply in the original" (not actually phrased this way in the interview see notes to **Appendix A**). This statement applies particularly to the original spellings "burlesque," "coquette," "bomb," "horse."

Figure 4 shows a Grade A Phonetician. Here we see that words that have "sounds that are difficult to represent" cause problems; for example "worl" (wall). Here we have another example of the troublesome /ɔː/ phoneme, though in this case the reformer is a Northern Englishman living in Scotland, not a Scot.

Encouragingly "spelling words as they sound" not only helps foreigners but also improves the appearance of the words. Examples here are "lej," "hav," pleez," "swet," (sweat).

On the other hand, this person is fully conscious that some people's pronunciation may differ from his own, e.g. "wick" and "paw" = "poor" = "pour", and this may be one good reason for rating the original spelling of these words quite highly.

Conclusions.
The analysis of these data is still continuing, but it is possible to draw some conclusions. Firstly, it is clear that the business of reforming English spelling is extremely complex. Many principles are involved and some of these are frequently in conflict. In practice, even relatively naive people will have a great deal to say about spelling reform. Even if some of their attitudes about spelling reform reflect their naivety rather than their sophistication, expert spelling reformers would be wise to take

them into consideration. An analysis of the attitudes of a more representative sample of the general population should be undertaken.

Secondly, many of the problems highlighted by the analyses above are also found in the spelling reform proposals of the experts. A few examples will be given to illustrate this point.

For example, some expert reformers show a strong bias towards improving readability rather than spellability. Pitman's i.t.a. treatment of the schwa vowel in "legal, rebel, civil, symbol" is a good example. He prefers to retain the full vowels in these words, as in the derived forms "legality, rebellious, civility, and symbolic." This is unlikely to cause problems for the reader, at least as long as he/she knows the words; but the speller must make use of knowledge of the derivational relationships in order to spell the words correctly.

Among expert reformers, we also find "Linguists," preserving certain grammatical conventions in spelling (but which and why?), "Phoneticians," aiming for one symbol/ one sound consistency, and "Levellers," biassing their reforms towards the most frequent representations in traditional orthography (type frequency or token frequency?).

On a related issue, some reformers (e.g. **Beech, 1980** [3]) recommend preserving "irrational" spellings in a few very frequent words in the interests of minimal disruption of traditional spelling. It might also be argued that reform will get off the ground more quickly if one homes in on precisely the same frequent irrational spellings from the start.

There are many problems in the details of reform. Some reformers are more worried than others about homophones. One reformer **(Gassner, 1978–79** [5]**)** suggests doubling consonants in one of each pair of homophones in order to avoid homography. How would the speller fare with this convention?

Many reformers allow certain grammatical conventions to hold in spelling, but do not make it clear how far one should go. **Wijk (1959)** [14], for example, permits us to preserve the unitary spellings of the third person singular present tense morpheme in "begs" (begs) but not in "is" (iz).

Variations in pronunciation cause many difficulties. Pitman recommends that we should all distinguish between "law" and "lore" for the benefit of those speakers who pronounce them differently. But should we expect consistently "correct" spellings from those people who make no distinction in pronunciation? Many reformers state that Southern British speech should be the standard on which base spelling reform. Is there room for ethnocentric and parochial attitudes in a radical cause? Others recommend that in certain instances "expert" pronunciation should be relied upon. For example, "iodine" with an /i:/ vowel in the second syllable when pronounced by chemists, is apparently pronounced with an /aɪ/ vowel by many (Australian) laymen **(Lindgren, 1969** [10]**)**. To what extent should minority pronunciations be given precedence? This issue becomes more vexed when we consider spelling reform in an international context, where the majority of people use English as a second or third language.

There are many other basic issues on which the experts disagree. An urgent task for the Simplified Spelling Society should be for members to examine their own attitudes to these basic issues. If possible, the Society should agree, preferably in consultation with the general public, on an order of priorities for the principles of spelling reform. Indeed it may be a salutary exercise for members to subject their own attitudes to the kind of analysis presented above.

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Appendix A

Lists of comments and explanations. concerning spelling reform behaviour

Comment	*Number of people (out of 23) producing comment*
1. The original word could be pronounced wrong	4
2. I'm not sure how I pronounce the original word	1
3. There are non-phonemic justifications for the original spelling	5
4. This reform would be unnecessary if people spoke more clearly	1
5. I had difficulty with this word as a child	1
6. This spelling should definitely be changed	1
7. It isn't clear how this word should be pronounced	1
8. I am aiming for economy of symbols in my reform	6
9. My reform indicates the word's emphasis better	3
10. My reform makes the word easier to pronounce	6
11. My reform makes the word easier to learn to read	2
12. My reform makes the word easier to learn to spell	2
13. My reform makes the word more difficult to identify	2
14. My reform gets rid of unnecessary letters	17
15. My reform gets rid of unpronounced letters	5
16, My reform gets rid of ambiguous letters	7
17. My reform gets rid of confusing letters	4
18. My reform improves the order of letters	4
19. My reform produces a more straightforward rule	2
20. I have spelt this word the way it sounds	8
21. I have spelt this word the way I pronounce it	12
22. My reform is phonetically accurate	4
23. My reform shows a more direct relationship between spelling and sound	3
24. My reform is more straightforward than the original	3

25. I am trying to avoid producing a homograph	1
26. I am trying to maintain relationships between related words	1
27. There are non-phonemic considerations in my reform	5
28. My reform is better than the original	2
29. I'm not sure if my reform is an improvement	1
30. I'm not sure if my reform is the best possible	2
31. I can't think how to improve my reform further	4
32. This word would be better left unchanged	5
33. I'm not sure why I made this change	4
34. I don't like my reform	14
35. My reform obscures the word's origins	1
36. My reform looks odd	4
37. My reform is cumbersome	1
38. My reform is aesthetically offensive	1
39. My reform could be pronounced wrong	6
40. My reform has altered the pronunciation	1
41. My reform is too complex for children to learn	1
42. I am exchanging one irrationality for another	1
43. I could have been more consistent in my reform	1
44. Some British people may pronounce this word differently from the way I've spelt it	15
45. It is difficult to represent some of the sounds in word without introducing new letters	1
46. I am finding it hard to break old spelling habits	3
47. My reform looks better than the original	2

Notes: Some of the comments and explanations have been rephrased for the sake of brevity. For example, the explanation "There are non-phonemic justifications for the original spelling" (No. 3) was in fact originally given in forms such as "There are good reasons for spelling the original word this way although it doesn't represent the sound accurately."

In cases where two or more comments seem remarkably close to one another in content (e.g. Nos. 2 and 7), the justification for representing them separately is that both were produced and used separately and distinctly by a single individual.

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[1] Footnote: Following the analysis of **Albrow (1972)** [1], **Venezky (1970)** [13] and **Chomsky and Halle (1968)**, the representational principles of English spelling can be seen as polysystemic, morphographemic or systemic phonemic, carrying grammatical and semantic information in parallel with phonological information.

[2] A correlation matrix forms part of the computer output of the principal components analysis.

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[Spelling Progress Bulletin Spring 1983 pp11–18 in the printed version]
[John Beech: see **Bulletins**, **Quarterly**, **Journal**, **Newsletter**]

"The Effects of Spelling Change on the Adult Reader,"
by John R. Beech, Ph.D.,

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Abstract
A change in the English spelling system could be a substantial aid for children learning to read. But little is known about what the likely effects of such a change would have on adult readers. It was found that text written in World English Spelling, a phonetically based system, impaired reading rates of adults, but Regular Spelling, a system uniformly applying the most frequent of existing spelling rules, only impaired reading in the initial stages of the experiment. After reading about 6,000 words of text, the impairment in reading rates in Regular Spelling had disappeared. By contrast, the reading rates of the WES group were still substantially impaired. By the end of the experiment, spelling in both systems had not been completely mastered by the subjects, but this was probably due to the teaching of the spelling of the orthographies being treated as secondary within the experiment.

This paper shows that spelling reform proposals can be tested out, and demonstrates the vital fact that literate adults can learn to read a consistent reformed spelling in hours, not years.

Corpus
The present system of English spelling produces difficulties when learning to read. One solution to this problem would be to reduce or eliminate the irregularities within the English spelling system. However, although this would undoubtedly make learning to read an easier process, the problem would be that the rest of the population, who are accustomed to reading in traditional spelling, would have problems with trying to learn a new system of spelling. This present paper is concerned with finding out how well two groups of adults each learn a different regular spelling system. The capabilities of the adult learning a new scheme is a problem that has not been approached seriously, and so far, very little experimental work has been undertaken on this subject.

Let us first briefly examine other attempted solutions to help children overcome the irregularities of traditional orthography (t.o.). All these solutions have been designed to help children to learn to read and to spell in t.o. One solution has been to use signalling codes to specify the phoneme that a letter represents. For instance, **Gattegno (1962)** [5] suggested the use of color coding whilst **Fry (1967)** [4] proposed the use of diacritics. Another solution has been to propose simplified and regularised alphabets that usually disregard most letters of the Roman alphabet and create a new alphabet that is entirely phonetic. Examples of such schemes are Paulsen's Torskript **(Paulsen, 1971** [6]**)** and Malone's UNIFON **(Ratz, 1966** [8]**)**. The third category of solution has been the creation of a traditional alphabet that retains as much similarity as possible to t.o. The best known example of such a system is the initial teaching alphabet (i.t.a.) devised by **Sir James Pitman (1961)** [7] and researched initially by John Downing. All these main solutions involve the child in learning a new reading scheme, or medium, at the outset and then transfering at the appropriate time to t.o. In the case of the i.t.a. scheme, the research work appears to be encouraging. For example, **Warburton and Southgate (1969)** [9] reviewed all the 17 published researches up to 1969 on the i.t.a. scheme and made favorable conclusions. Although few of the experiments had been well controlled and none was sophisticated in statistical analyses, all the results showed that children learning in i.t.a., "learned to read earlier, more easily and at a faster rate than similar children using t.o." But after three years of schooling the level of reading was the same for both the

i.t.a. and t.o. children. Warburton and Southgate also concluded that the evidence is equivocal whether or not there is a problem in transferring from i.t.a. to t.o.

The experimental studies on the i.t.a. scheme are interesting because they clearly show the impediments of the present t.o. For instance, **Downing (1967)** [3] found that after 2 1/3 years, twice as many i.t.a. children as t.o. children had completed the reading scheme; in other words, 52% of the i.t.a. sample had completed the scheme, compared with 25% of the t.o. sample. Thus, it may be concluded that t.o. is retarding children's progress in spelling.

It would be premature to conclude that the various spelling mediums used for the teaching of reading are of little use because eventually children taught in a new spelling system are not better readers after about three years than those who are taught in t.o. from the beginning. However, it is tempting to conclude that this eventual equalization of the two groups which has been found so far, is entirely due to the children taught in the new medium being retarded by their having to transfer to t.o. Eventually the children taught in t.o. from the beginning catch up. This leads us to the proposal that a change to make the t.o. system more regular would mean that this retarding element would be removed. Children would learn to read more quickly and easily and the incidence of permanent reading problems would reduce. But of course, such a change would not be easy, otherwise t.o. would have been changed long ago. One major problem would be the unwillingness of adults to change over to a new system due to inertia and a reluctance to relinquish traditional spelling. But leaving this problem aside, what would be the rate of progress of adults learning a new spelling scheme in terms of their spelling and reading ability in the new scheme? The present study is aimed at studying this and other questions.

The two spelling schemes chosen for this study were Regular Spelling (RS), devised by **Beech (1980)** [1], and **World English Spelling (WES)**. The RS system was devised with three criteria in mind. The first criterion was that the system of regularization should enable children to learn to read more easily. Second, adults should find it easy to read, so there would have to be a close resemblance with t.o. Third, it should be easy to spell in the new system, thus the number of spelling rules should be reasonably small. The problem is to devise a system that is able to balance between this triumvirate of criteria. For example, the Regularized Inglish system of **Axel Wijk (1959)** [10] satisfies the second criterion (that adults should find it easy to read) quite well, equally as well in fact as the RS system, but it fails on the third criterion (that it should be easy to spell) because of the very considerable number of spelling rules that have to be memorized. Approaching the other extreme are systems like i.t.a. which satisfy the third criterion because they have reasonably few spelling rules, but do not appear to satisfy the second criterion, because the text appears to be radically different from t.o. to the adult reader familiar with t.o. In order to satisfy this balance, the RS system was devised using several guidelines which have been outlined elsewhere (see **Beech, 1980** [1]). Briefly, these include the following: first, where several symbols or combinations of symbols represent the same sound, the rule most frequently used is adopted, bearing in mind the position of the sound in the word. For example, in t.o. the spelling *ou* most frequently represents the *ou* sound in the middle of the word (as in *loud*), but *ow* represents the same sound at the end of the word (e.g. *cow*). Second, subtle distinctions in sounds already ignored in t.o. are also ignored in RS. For example, 'is' and 'result' remain unchanged, instead of being spelled with *z* in place of *s*. Third, in cases where the frequency of a sound in a word position is low, an easier to learn spelling combination is substituted. For example, *u-e* is used to represent the long *u* sound (e.g. *tune*), but this sound is most frequently represented by *ew* at the end of the word. In the case of RS, all words ending in this sound end in *-u*. Furthermore in this particular case, suppose I had decided to end all such words in *-ew*, this would have resulted in strange spelling constructions such as *continew* (instead of *continu* which is the RS spelling). An example of some text in RS is given in the **appendix**. I have since made some slight amendments to the RS system, basically bringing it closer to t.o., and these are described in the method section. Tests on

the RS system revealed that approximately 70% of the text remained unchanged, whereas the number of spelling rules was reasonably small, but not so small as those in systems such as WES.

The WES system was chosen for comparison mainly because it has been strongly advocated by the Simplified Spelling Society to replace t.o. In addition, WES is similar to the i.t.a. spelling system, so that it may be assumed that children would find it very easy to learn to read in this medium. Thus WES is an almost completely phonetic system, but unlike i.t.a. it uses only the Roman alphabet. An example of text in WES is as follows: ". . . or eni naeshon soe konseevd and soe dedikaeted, kan long enduer". As mentioned previously, although it satisfies the criterion that it can be read easily by children and that it is (presumably) easy to spell for children and adults, it may well be difficult for adults who are used to t.o. to learn to read. The extent of this difficulty is investigated in the experiment.

The method used in this experiment was to teach one group of adults the RS system and the other group the WES system. Both groups were given successive passages to read in one of these orthographies. The passages were long extracts, in sequence, from one book. After each extract there was a comprehension test of that section and a spelling test of the new orthography. Subjects also timed themselves for reading each extract in order that reading speeds could be calculated later by the experimenter. The advantage of this method was that subjects could read the kind of materials they would normally read and become well acquainted with the orthography. Furthermore, the comprehension tests and the context of the story in the book ensured that they were reading for meaning and were not concentrating too hard on the new spelling. Thus, the change in orthography, although an impediment to reading in the initial stages, may well be processed automatically with experience. A cautionary note should be made at this point that university students were used in the experiment so that performances must not be considered as representative of the whole adult population. However, students are probably representative of anyone who reads a substantial amount of material on a regular basis, and thus are representative of that sector of the population most likely to be affected by a change in the present orthography.

Method

Subjects

The subjects were university students participating in a second year practical class; their ages ranged from 19 to 43 years. The subjects were divided into two groups which were balanced as far as possible according, to sex and to their average grades in examination at the end of their first year at university. There were 7 males and 6 females within each group.

Materials.

The two spelling systems. The RS system which has been described in detail by **Beech (1980)**, has been amended in a minor way by its deviser. Although not previously named as the RS system, this name has been given to the system as it now stands in its amended form. The amendments are as follows:

1. *The k sound.* Previously, the *k* sound was always represented by 'c'. Now it is represented by 'c' except at the end of the word where 'k' is used, although the grapheme 'c' continues to represent the *k* sound when the *k* sound is preceded by a short vowel sound. Here are some examples of spelling in RS: *milk, crank, seek, take, took, senic, nec.*

2. *The long e sound.* In the new version of RS this is represented by 'ee' (e.g. *sleep*), except when the spelling in t.o. is 'ea' (e.g. *meat*). In the case in which the grapheme 'e' in a word spelt in RS has more than one letter between itself and the end of the word, the *e* sound is spelt just as 'e' (e.g. *feld* for 'field', *equal*). However, when the word ends in *ch, st* or *th*, then 'ee' or 'ea' is still used (e.g. *teach, east, teeth*). When the word ends in the *ee* sound, it is spelt as '-e' when preceded by

only one consonant or *sh*, e.g. *be, ce* (key), *he* and *she*. In all other cases, the ending is 'ee' (e.g. *glee, tree*).

3. *The s and z sounds.* In the original version of RS, these sounds were spelled with an 's' except for the *z* sound at the beginning of a word (e.g. *zip*). In the amended version, when the word ends in '-ess' in t.o. this spelling is retained (e.g. stress). The following '-ce' spellings are used at the end of the word for the s sound:

-ance (e.g. *dance*) -ace (e.g. *pace*) -eece (e.g. *fleece*)
-ence (e.g. *hence*) -ice (e.g. *dice*) -eace (e.g. *peace*)
-ince (e.g. *mince*) -oce (e.g. *doce* for 'dose')
-once (e.g. *sconce*) -uce (e.g. *puce*)
-unce (e.g. *dunce*) -ooce (e.g. *jooce* for 'juice')

If the word ends in a *z* sound, *s* is used and not the '-ce' ending (e.g. *dose* ('doze'), *muse, wise*). The *z* sound continues to be spelt with a 'z' at the beginning of the word.

4. *-sion and -tion endings*. The *shun* and *chun* sound endings are still spelled '-tion' but the *zhun* sound ending is now spelled *-sion* (e.g. *fusion, division*).

5. *-ower ending.* This is now spelled 'our' (e.g. *pour* for 'power') instead of 'ouer' which was the previous version of RS.

6. *al- beginnings*. This is now spelled as in t.o., for instance, *also, altogether, altho*. The WES system is the same as that described in **Dewey (1971)** [2]

The booklets.
Two booklets were prepared, one for each group, explaining how to spell in their respective orthographies. The WES system was described by giving the name of each sound followed by examples. This was followed by explanatory notes on the following: The use of the dot to separate successive letters which otherwise might be read as a combination, the distinctions between *aa* and *ar*, between *thh* and *th*, between *au* and *or*, between *au* and *oo*, and between *er* and *ur*. After each explanation of the system there was a self-spelling test of 32 questions with the answers upside down for the subject to check himself. The RS system was described in a similar manner to **Beech (1980)** [1] except that more examples were given after each rule. As in the case of the WES explanatory booklet, there was a self-test of 37 aspects of the RS system. The answers were provided upside down below the test so that the learners could check their answers. The booklet explaining the RS system was approximately three times as long in space.

A total of eight additional booklets was prepared for each group. Each booklet contained a passage of text of approximately 1400 words taken from Vera Brittain's *'Testament of Youth.*' Two of these booklets had the passages written in t.o. and the other six were in RS. Those written in t.o. were reasonably self-contained extracts taken from later parts of the novel and unlikely to inflluence the subject's grasp of the meaning of the other six parts. The six extracts to the new orthography were identical in content for both groups and were taken in sequence from the earlier part of the book.

Some parts of the text were edited so that there could be a reasonably self-contained story within each extract. Each passage began with the instruction to start the timer, and similarly at the end of the passage there was the instruction to stop the timer and to write down the time taken to read the passage. Table 1 shows the number of words remaining unchanged in the passages when converted into the new systems.

Table 1
Percentage of words in passages remaining unchanged

Spelling			*The trial passages*				
system	1	2	3	4	5	6	m
RS	69.0	68.6	66.1	71.0	77.0	69.7	70.2
WES	31.8	30.7	33.4	31.3	33.6	34.9	32.6

Table 2
Typing speeds in words/minute

Spelling			*The trial passages*				m
system	1	2	3	4	5	6	
RS	41.9	37.5	36.8	34.0	40.4	39.5	38.2
WES	32.3	36.5	36.0	34.0	32.5	37.5	34.8
			*Two passages in t.o.**				
t.o.	37.2	37.3					

*The two passages in t.o. were different in content from the passages constituting the six trial passages.

On the next page was a comprehension test consisting of 12 statements, each of which had to be marked as either 'true' or 'false.' For instance, "'My father was very fond of music TRUE/FALSE" or "I wrote five novels before I was eleven years of age TRUE/FALSE': All instructions and questions were in the new orthography except for the booklets with passages in t.o. The comprehension test was followed by a spelling test only for the booklets in the new orthography. Each spelling test consisted of 32 questions for the WES group and 37 questions for the RS group. In this test a word was given in t.o. followed by a blank in which the subject had to write the word as it would be written in the new spelling system. Each question was designed to test one aspect of the new orthography. For instance, for the WES group, one question in each booklet always tested the use of the dot rule. Thus, each aspect of the orthography was tested on six successive occasions in the six selling tests at the end of each in the new orthography. Of course, the tests of each rule involved not only instances where a rule would be applied, but also instances where a rule would *not* be applied.

The typing of these passages afforded the opportunity for a minature experiment. The typist (J.B.) timed herself while typing the passages, copying from neat handwritten versions of the passages. The timer was stopped whenever a mistake occurred and restarted after the mistake had been corrected. All the RS passages were typed in sequence from Trial 1 to Trial 6, and similarly, the WES passages were typed in sequence. Table 2 illustrates the typing rate across trials. It should be remembered that the words in the passages are exactly the same when comparing, say, the RS passage for Trial 1 with the WES passage for the same trial. It can be seen that there was no systematic improvement in typing speed, but the typing rate was faster in all trials for the passages spelled in RS except for Trial 4, in which the typing speed was the same. The typing speed in RS was approximately the same as in t.o. Thus, it would seem that the motor patterns established by an experienced typist are not impaired when typing RS. This is probably because of the predominant use of spelling combinations in RS which are of high frequency. By contrast, WES has new patterns of spelling combinations which require the learning of new motor patterns by the typist.

Procedure
At the beginning of the experiment the subjects were told that they were to imagine that the country had suddenly changed over to a new system of spelling. They were then given a brief summary of what the experiment involved so that they would know what to expect at each stage. Booklets were handed out with a passage in t.o. followed by a comprehension test. The subjects were each given a timer and practised using it. They were told beforehand how the comprehension test would be marked, that is, +1 if correct, -1 if not correct and 0 if not attempted. (Thus the marking scheme corrected for chance). They were instructed to read the passage at their normal reading rate. After this task was completed by all subjects, they were split into two groups. The author took the RS group for the remainder of their session and his wife (J.B.) and a postgraduate student (R.M.) took the WES group for the rest of their session.

Each group was then given a spelling test in t.o. of all the words subsequently to be tested in the spelling tests in the new orthographies. The subjects were not told that they would later encounter these words in the spelling tests. Then they were given the explanatory booklet about the new spelling scheme. When they were satisfied that they knew the system reasonably well, on the basis of self-spelling test, they started on the test booklets in the new orthography. The first booklet in the new orthography constituted the first trial and each subsequent trial was undergone using a new booklet containing a new passage with tests. They had to keep the explanatory booklets at the front with the experimenter while undergoing each trial. At the end of each trial they brought their booklet to the experimenter and the spelling test part of the booklet was marked in front of them. They were encouraged to consult the explanatory booklet to clarify points, if necessary, before continuing with the next trial. After the sixth trial, subjects were given the final booklet which was a passage in traditional orthography followed by a comprehension test. Finally, they were given a questionnaire about the scheme. The whole session was quite long, but subjects were encouraged to take breaks. Most finished after about 3 or 4 hours and the maximum time was about 5 hours, for both groups. In some cases, subjects took the booklet for the sixth trial and subsequent material home with them to complete that evening.

Questionnaire on the new orthography
In the first section of the questionnaire at the end of the experiment, subjects were required to rate the ease of learning to spell in and then the ease of learning to read the new orthography in relation to t.o. All the ratings in this questionnaire were made by ticking a line representing the rating scale. The analysis involved dividing each line into a ten-point scale with zero representing one extreme and ten representing the other. Thus a mark made exactly half-way along the scale would be scored as 5. In these first two ratings, zero represented "much more difficult than traditional spelling" and 10 represented "much easier than traditional spelling". Subjects were also asked the following: "Given that if WES/RS were adopted in the U.K., children could learn to read and spell more quickly and easily, saving at least a year and greatly reducing the drudgery of the school, do you think personally that we should change over to this new spelling system? (yes, no or undecided)". Obviously, this question is not framed in an unbiased manner, but up to this point in the experiment no reason for changing over to a new spelling system had been put forward, so these reasons were incorporated into the question. The case against spelling reform would have been apparent to the subject who had at first hand encountered the difficulty of learning a new spelling system. Subjects were then asked if they were already used to reading and writing in the new system. In the final part of the first section, the subjects were invited to make comments about the system.

In the second section of the questionnaire, all the aspects of the rules in the new orthography which had previously been tested by the spelling tests, were individually rated for spelling difficulty

and then for reading difficulty with "very easy" on one pole (scoring zero) and "very hard" on the other (scoring ten).

The third section asked the subjects if they had previously read Vera Brittain's book and if so, when. A television series of the book had been shown about a year earlier, but there was a considerable difference between the television version and the much more detailed accounts within the book. Subjects were asked if they had seen this series. Finally, they were asked: "If you have read the book or seen the television program, did it help you in this experiment? If so, please expand."

Results and discussion

The reading rates of individual subjects were computed and then converted to percentages of their individual reading rates of traditional orthography. These latter rates were computed from the mean rates of the passages in t.o. read before and after the main block of trials. Because subjects occasionally forgot to time themselves after a passage, some data were missing within each 2-dimensional matrix (subjects by trials) of data for reading rates. Each missing cell was replaced by the mean of the column and the row of data to which that particular cell belonged. This amounted to 2.6% and 6.4% missing data in the RS and WES groups respectively.

The reading rates, expressed as percentages of normal reading rates are illustrated in Figure 1. It can be seen that the RS group was reading much faster than the WES group and this was confirmed by analysis of variance. A 2 x 6 analysis of variance with the first factor, groups, between subjects and the second factor, trials, within subjects, produced a main effect between the RS and WES groups, F (1,24) = 14.0; $p < .01$, but the trials factor only approached significance, F (5,120) = 2.16; $.05 < p < .10$. The interaction was not significant. The lack of significant main effect for trials was undoubtedly due to the inclusion of the sixth trial. When this trial was excluded in a regression analysis, there was a significant difference in the slopes of the reading rate functions of the RS and WES groups, F (1,126) = 4.05; $p < .05$. There was also a significant difference in intercepts, F (1,127) = 18.3; $p < .001$, confirming the only significant main effect found in the analysis of variance. The slope of the function of the RS group demonstrated a 16.7% improvement in performance on each trial, whereas in the case of the WES group the improvement was only 2.5%. Thus, the RS group improved in their rate of reading text spelled in Regular Spelling until they reached rates equivalent to their normal rate of reading in traditional spelling. By contrast, the WES group improved only slowly and never approached normal reading speeds.

The performance of subjects on the comprehension tests taken after each trial is illustrated in Figure 2. This figure shows that performance at all times for both groups was equal to or above that on traditional orthography. A 2 x 6 analysis of variance on groups and trials, respectively, produced a significant main effect only on trials, F (5,120) = 3.5; $p < .01$. Generally, reading rates and comprehension levels should be examined in conjunction with one another, as there could be a reciprocal relationship between the two. An improvement in reading rate can be at the expense of comprehension. However, the present results demonstrate that the significantly better performance of the RS group on reading speed compared with the WES group was not due to any loss in performance on the comprehension test. There are fluctuations in the level of comprehension and one might conclude that the improvement in reading speed was due to a deterioration in comprehension performance. But the deterioration in comprehension is a step function with performance on the first three trials about the same and then there is a fall in the last three trials. The improvement in reading speed performance does not demonstrate the same characteristic for either the RS or the WES group.

In the spelling tests, only the spelling combination pertaining to each rule being investigated for each word was scored. The performance of both groups on the spelling tests was broadly similar at

approximately 65% correct and 57% correct for the RS and WES groups, respectively. In this case, strict comparisons may not be made between the two systems because the materials used were different as they were designed to test the particular rule of each test. We may conclude, however, that neither group had attained complete mastery of its respective system. One way analyses of variance revealed significant main effects across trials, F (5,60) = 8.11; $p < .001$, and F (5,60) = 3.85; $p < .01$ for the RS and WES groups respectively, but the improvement across trials was not particularly systematic.

Figure 1
Reading rates in the learned WES groups as function of trials

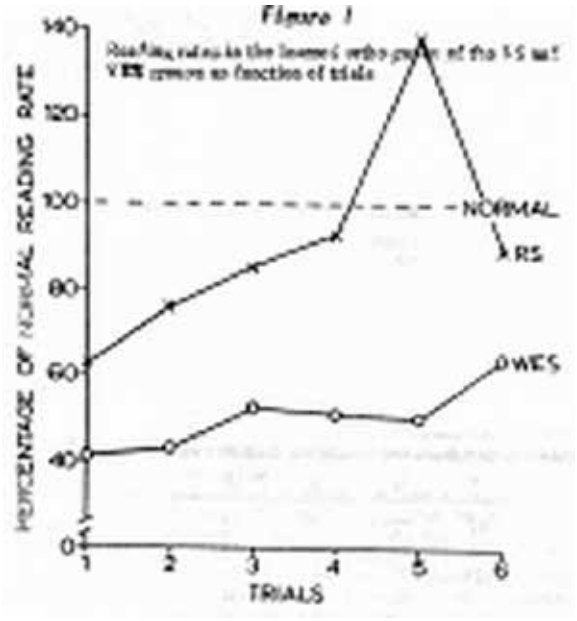
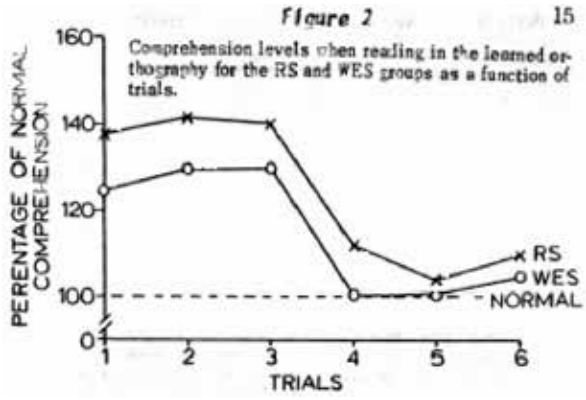


Figure 2
Comprehension levels when reading in the learned orthography for the RS and WES groups as e function of trials.



Apart from measures of reading speed, comprehension score and spelling scores in the new and traditional spelling schemes, other measures were collected from subjects via the questionnaires. All these measures were inter-correlated and the resulting matrices are shown in Table 3 for the RS group, and Table 4 for the WES group. As there were 13 subjects in each group, this produced 13 means for the purposes of computing each measure in each table. The tables are also useful in demonstrating the means of each measure. For example, it will be noted that reading speeds in t.o. were similar in both groups, but that the comprehension level in the WES group for the t.o. texts was approximately 30% better. However, this was allowed for in the previous analyses of

performance on the spelling schemes, as these performance levels were expressed as percentages of performance on the subjects' respective t.o. spelling tests. The 4th and 5th measures in each table were derived by taking the mean of all the individual ratings of each spelling rule for each subject. Measures 6 and 7 in each table refer to the one rating each subject gave about his entire spelling scheme at the beginning of the questionnaire on the ease of spelling and reading, respectively. Only one correlation was common to both groups and this was between the rating of individual rules for spelling ease and reading ease, but this may have just been because each rule had the two rating scales next to each other and the first rating would influence the second.

A more interesting result in Table 3 was a correlation of .70 between the subjects' spelling score in RS and their score in t.o. This correlation demonstrates that if one has a firm grasp of the main rules of spelling in t.o., one will be good at spelling in RS. By contrast, in the case of the WES group, the correlation was -.08, showing that a knowledge of the spelling structure in t.o. was of no help in learning WES. Another reason for this result could be that if subjects were in doubt about spelling a word, they spelt it in t.o., and as more words in RS are similar to t.o., they were more likely to be correct.

The third and final significant correlation in Table 3 was between reading speed in t.o. and the comprehension score in t.o., r = .67. If the subjects were faster at reading the text, they were also better at understanding it, so there was no speed trade-off with comprehension. In the WES group, there was no similar association between these measures, r = -.08.

There was a correlation which was almost common to both groups in that in the WES group, the correlation was .72 and in the RS group between the same two measures, it was .54 (tabulated. value .55 at the 5% level). This correlation was between reading speed in one spelling scheme and that in traditional spelling. This is not an unexpected result; it demonstrates that the reading habits in traditional orthography continue over to reading in other spelling schemes. Perhaps one would have expected a stronger association with the RS group as the text is more similar to t.o.

Table 3. Pearson Product Moment Correlations, with Decimals Omitted, between Measures from Subjects in the RS group

	Measures for RS	2	3	4	5	6	7	8	9	10	m	s.d.
1.	Reading speed	-25	15	-28	00	-34	02	54	16	27	154.6	44.9
2.	Comprehension score		13	30	26	17	29	-03	04	-26	57.6	16.2
3.	Spelling score			-39	-38	-01	23	-11	00	70**	64.4	6.9
4.	Mean of ratings of individual spelling rules for spelling ease				70**	-02	-46	-17	11	-20	3.8	0.9
5.	Mean of ratings of individual spelling rules for reading ease					14	-22	26	32	-34	2.5	1.3
6.	Rating of spelling ease of entire system						30	-21	-13	-2.7	2.2	2.0
7.	Rating of reading ease of entire system							04	-05	-16	5.0	2.8
	Measures for t.o.											
8.	Reading speed in t.o.								67*	-20	189.2	44.2
9.	Comprehension score in t.o.									-13	52.9	18.4
10.	Spelling score in t.o.										94.9	3.3

*p<.05 **p<.01 df=11

Table 4. Pearson Product Moment Correlations, with Decimals omitted, between Measures from Subjects in the WES group

	Measures for WES	2	3	4	5	6	7	8	9	10	m	s.d
1.	Reading speed	-12	14	14	14	-16	-31	72**	-27	29	103.4	31.9
2.	Comprehension score		-51	-29	-17	08	56*	11	69**	14	71.9	8.4
3.	Spelling score			-06	-35	30	-18	-18	-24	-04	57.2	8.6
4.	Mean of ratings of individual spelling rules for spelling ease				60*	-39	-45	-02	07	-32	2.7	1.2
5.	Mean of ratings of individual spelling rules for reading ease					-26	-20	18	-12	-09	2.8	1.5
6.	Rating of spelling ease of entire system						39	-19	08	04	2.1	1.9
7.	Rating of reading ease of entire system							06	47	-36	5.7	2.6
	Measures for t.o.											
8.	Reading speed in t.o.								-08	07	217.4	79.7
9.	Comprehension score in t.o.									-35	67.9	18.3
10.	Spelling score in t.o.										95.6	2.2

* p<.05 **p<.01 df=11

There were two remaining correlations in the WES group, shown in Table 4, that were not found in the RS group. First, there was a significant correlation between the comprehension scores in WES and those in t.o., r = .69, but not for the RS group, r = .04. Second, there was a significant correlation between the comprehension scores in WES and the one rating that subjects gave to the entire system for reading ease, r = .56, but in the case of the RS group, the correlation was only .29.

The individual spelling tests and ratings of each spelling rule were collapsed across subjects for each group. These measures, along with the percentages of words in the tests of each spelling rule remaining the same as in t.o., were intercorrelated and are shown in Tables 5 and 6 for the RS and WES groups respectively. In both groups, the first three measures were all significantly correlated with each other. Thus the subjects were able to judge the difficulty of the spelling rules according to their own earlier performance on the spelling tests. The fourth measure produced only one significant correlation and this low correlation was only in the RS group. The same correlation in the WES group just failed to reach significance (tabulated value, r = .32 at the 5 % level). This shows that there is a slight tendency for subjects to spell a word as it would be spelled in t.o., hence if a rule tends to indicate a spelling in the same way as in t.o. (the tables reveal that this is 57% of the time in RS and 30% of the time in WES), there is a tendency for it to be spelled correctly.

Table 5. Pearson Product Moment correlations, with Decimals Omitted, of the Individual Spelling Rules from Subjects in the RS group

		2	3	4	M	S.D.
1.	Percentage correct on spelling test	-54**	-45**	33*	65.2	17.9
2.	Ratings of ease of spelling each individual spelling rule		66**	06	3.6	1.4
3.	Ratings of ease of reading each individual spelling rule			-29	2.5	0.9
4.	Percentage of words in spelling test of each spelling rule remaining the same as in t.o				56.7	36.2

**p*<.05 ***p*<.01 df=35

Table 6. Pearson Product Moment Correlations, with Decimals Omitted, of the Individual Spelling Rules from Subjects in the WES group

		2	3	4	M	S.D.
1.	Percentage correct on spelling test	-68**	-58**	31	56.8	20.0
2.	Ratings of ease of spelling each individual spelling rule		80**	-30	2.8	0.9
3.	Ratings of ease of reading each individual spelling rule			-28	2.3	0.6
4.	% of words in spelling test of each spelling rule remaining the same as in t.o.				30.1	33.8

*p<.05 **p<.01 df=30

General opinion on the new orthographies

In section one of the questionnaire, subjects were asked various questions about their opinions on the new orthography that they had just learned. In the RS group, 8 of 13 subjects responded that they were used to reading in RS, however, all but one of the subjects indicated that they were not used to writing in the system. In the case of the WES group, 4 out of 13 indicated that they were used to reading and 1 out of 13 that he was used to writing in the scheme. When asked if a change-over to spelling in the new system should be made, in the RS group, 4 responded 'yes', 4 were 'undecided' and 5 indicated 'no'. Similarly, in the WES group, 3 responded 'yes', 6 were 'undecided' and 4 responded 'no'. So neither group was enthusiastic about spelling reform, as altogether only 27% were in favor of reform. Subjects were invited to comment on the scheme. In the RS group, only 4 subjects wrote comments. Two people made the point that changing the spelling system would make English easier for foreigners. The rest of the points were only made by one person for each point. The other favorable comment was that it would help those with spelling difficulties.

The unfavorable comments mainly concerned the need to know how words were correctly pronounced. One comment was that the system favored those in the South East of England because it was based on received pronunciation, and another comment was that it would develop a more uniform way of speaking. One subject wrote: "There should not be so many rules regarding regular spelling. This is tedious and is very like the rules which apply to the English language in general, especially with regard to the grammar part." In the WES group, twice as many subjects made comments. Five people commented on the problem that one has to know the correct pronunciation of a word when spelling in WES. Other unfavorable comments were that spelling was difficult (two subjects) and that reading was difficult (two subjects). One of these latter subjects wrote that it "Feels a bit like reading Chaucer" and the other wrote that as an adult, it was difficult to adjust to. Two people mentioned the problem of restocking books. There were two favorable comments, each made by a different person: It made English easier for foreigners to learn and it was useful for slow learners.

In the third section of the questionnaire, subjects were asked if they had read the book, 'Testament of Youth' or seen the television programs about it. In the RS group, two had seen the television programs and one of these had read the book about 111/2 years ago; this subject wrote that she had been slightly helped by this. In the WES group, none of the subjects had seen the programs or read the book.

Conclusions

Intuitively, one would expect that reading in a spelling system which produces substantial disruption to traditional spelling would be more difficult. The experiment has certainly borne this out with the reading speeds in WES being substantially less than those in RS. What was not expected, however, was that by only the fourth trial, that is, after reading approximately 5,800 words in the new system, subjects in the RS group were reading at about the same rate as they did in traditional spelling. So even though approximately 30% of the words bad been changed relative to t.o., with a relatively small amount of practice, subjects had adjusted to the new orthography. Comprehension levels did not suffer as a result of changing these orthographies.

A different picture emerges on the output side. When subjects are required to spell in the new orthographies, they spell incorrectly approximately 40% of the words in testing the various rules. However, the spelling tests were stringent, as they were deliberately testing the subjects' knowledge of certain rules. If they had been given a dictation test of connected discourse, the errors would probably reduce as the difficult rules do not occur very frequently. Furthermore, the emphasis of the experiment was mainly on subjects developing a skill in reading the new system rather than spelling in it. Still on the subject of output, a small experiment on one subject revealed that typing rates are not impaired when typing in RS, but they are impaired when typing in WES. It was suggested that as RS adopts the most frequent spelling rules for particular word positions, the well-learned motor patterns of the experienced typist are not impaired by the changes that the RS system makes.

What are the implications of this experiment for the proposal to permanently change t.o.? The first positive conclusion we can make is that a phonetic system such as WES is too drastic in its disruption to serve as a candidate for spelling reform, although it probably would be adequate as a teaching medium for children learning to read. As for RS, it did meet the criterion of being easy to read (and also to type). The problem was that proficiency in spelling was not good. It is interesting to note that the spelling rules in WES were rather less than in RS and yet the levels of performance in the two groups were approximately the same. It must be added that as the tests were different for each scheme, comparisons between absolute levels should not be made. Although spelling performance was not good in this experiment, the following points should be noted.

First, the main emphasis in the experiment was on reading the passages to understand the content, as the subjects would normally. Consequently, subjects did not use much of their time for actually learning the spelling schemes. One subject made the same point in her comments on her questionnaire. Second, all the rules in RS were presented together. Performance may have been enhanced if the learning had been broken down into stages throughout the experimental session. Unfortunately, this would have been at cross-purposes with the main experimental design. In conclusion, considering that subjects only had one afternoon to learn the system, performance was excellent on reading but not on spelling. Further work is needed to find out how easy it is to learn to spell in RS in an experiment in which spelling is given precedence. Given that adults can cope with the RS system and that children would learn to read much more easily in the system, it would seem that there is a good case to be made for changing our present spelling system to one along the lines of RS.

Acknowledgements
The author is deeply grateful to his wife, Jenny Beech, for help in the preparation of materials for the experiment and for helping to run subjects. Thanks are also due to Roisin McKeating for help in the running of the experiment.

Appendix
Lincoln's Gettysburg Address in Regular Spelling
Forscor and seven years ago our fathers brort forth on this continent a nu nation, conseeved in liberty, and dedicated to the proposition that all men ar created equal.

Now we ar engajed in a grate sivil wor, testing wether that nation, or eny nation so conseeved and so dedicated, can long endure. We ar met on a grate batal-feld of that wor. We hav cum to dedicate a portion of that feld as a final resting place for those who heer gave there lives that that nation mite liv. It is altogether firing and proper that we shud doo this.

But in a larjer sence, we cannot dedicate — we cannot consicrate — we cannot halo — this ground. The brave men living and ded, who strugaled heer, hav consicrated it far abuv our poor pour to ad or ditract. The werld wil lital note, nor long rimember wot we say heer, but it can never forget wot thay did heer. It is for us, the living, rather, to be dedicated heer to the unfinished werk wich thay who fort heer hav thus far so nobaly advanced. It is rather for us to be dedicated to the grate task rimaning bifor us that from thees onored ded we take increaced divotion to that cors for wich thay gave the last ful mesure of divotion; that we heer hyly risolv that thees ded shal not hav died in vane; that this nation, under God, shal hav a nu berth of freedom; and that guvement of the pepal, by the pepal, for the pepal, shal not perish from the erth.

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[Spelling Progress Bulletin Fall 1982 p20 in the printed version]

Implementing Spelling Reform

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Spelling Reform — Let's be Practical,"
by John Downing, Ph.D.*

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Abstract
Obstacles to reforming our spelling: children's opinions — those who are now learning our present spelling, literate adults, stability of present spelling and printing, costs of making the changes, objections by printers (valid or not?), librarians, teachers, employers, etc.

Reasons for making changes: economic, removal of confusion, easier to teach, illiteracy due to inability to cope with erratic, confusing spelling, possibility of accepting changes depends on how practical they are.

Corpus
Recently we interviewed children aged 6 to 12 in a Canadian city about their views on spelling. One of the questions asked whether or not spelling should be simplified. As many as 45% said "no." Already after only one year in school, this was about the level of opposition to spelling reform. Two main reasons were given by the children. First, "I have worked hard to learn how to spell, and I don't want to do it all over again." Second, "it would confuse people if there were two ways to spell everything — the old way and the new way." These are not novel arguments against spelling reform, but it is interesting to see how early in life these anti-reform motives develop.

Many people from a variety of occupations see the potential benefits of simplifying English spelling, but the majority of men and women in the English-speaking countries are not motivated to bring about the change. If members of the S.S.S. rely on their powers of persuasion to affect public opinion and bring about a democratic change in English spelling they are deluding themselves. The history of the organic growth of English spelling shows that it never has changed in that way. Occasionally some political or lexical authority has produced minor changes based on logical reasoning, but the strongest force for change in English spelling over the past 1000 years has been an economic one. For example, the *h* got into *ghost, ghoul* and *ghastly* because of Caxton's spelling and derivational errors when he had a monopoly of printing at Westminster. The *h* got out of *girl, goat* and *geese* when Caxton's monopoly was broken. Why the *h* stayed on in *ghost, ghoul* and *ghastly* is an interesting academic question, but the main events in the *g* versus *gh* seesaw were determined by the economic events of the time.

For the past two centuries, English spelling has been almost entirely frozen. Again this is oft economic reasons. Publishers and Printers stabilized spelling because they believed that their customers wanted words to be spelled always the same way. They were able to produce books, newspapers, magazines and so on with stabilized spellings at a more reasonable price.

But this long period of stability in English spelling is coming to an end. Everywhere we see signs of the collapse of standards of spelling in books and periodicals. Automation of typesetting and the high cost of proofreading now make it impossible to provide stable spelling at an acceptable cost. This breakdown in standards is comparable to that which occurred during the Norman occupation of England in the 11th and 12th centuries. English spelling is becoming erratic again for the same reason.

We can't afford the high price of stability.

Nevertheless, readers prefer stability, and history shows that producers of books and other printed materials strive to return to stability by improving their technology. Then customers can again have stable spelling at a reasonable price.

I believe that we are on the verge of a major change in English spelling because this economically motivated cycle is on the move once again. Therefore members of the S.S.S. should consider forming a committee whose membership would include people from the world of printing and publishing who are concerned with obtaining inexpensive stable spelling for English. Of course, in the modern world there are other considerations than those in the businesses of printing and publishing. But we cannot escape the fact that our ability to enjoy good printed materials depends on their being financially within our reach. Therefore, future changes in English orthography are bound to be once again very much dependent upon technological advances in the printing and publishing industries. The effects of any such changes on education are likely to be great. A committee of the S.S.S. such as I have proposed could include educators and members of related professions who could influence the specific details of technologically motivated changes. The committee should be international so that different parts of the English-speaking world are all served.

Spelling reform? Let's be practical! The next major change in the history of English spelling is around the corner. It's coming, as usual, for economical reasons. If we want to contribute to the coming change then we'd better be in touch with those who are going to make it happen.

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[Spelling Progress Bulletin Spring 1983 pp2–6 in the printed version]
[Ayb Citron: see **Bulletins**, **Anthology**, **Journals**, **Newsletters**]

"Spelling reform or a redistribution of power;
by Abraham F. Citron, Ph.D.

Director of Better Education thru Simplified Spelling, Bloomfield Hills, MI. Presented at the Third International Conference on Reading and Spelling, Edinburgh, July, 1981.

Abstract
Spelling reformers have assumed the movement for reform was an academic discussion, a question of psycholinguistics, a pedagogic decision in curriculum, or an educator's debate.

Members of the reading establishment have done and are doing all in their power m encourage this view.

As long as reformers, under this impression, discuss, debate, conduct experiments, expend energy looking for "that perfect system," and attempt to convince educators, literati, intelligensia, professors, pundits, that our system should be reformed, practically an progress will be made. In our society, control of language by groups contributes directly to their power. Also, individual skills in language, spoken and especially written, lead to income, influence and power. The movement for the simplification of our spelling should be seen as essentially a struggle for the wider distribution of power.

The movement for spelling reform is actually a section of the general democratic movement of the Western World, during which, ever since the translation of the Bible into the vernacular, power, educational and economic, has been more widely distributed in the population.

This paper (a) places spelling reform in the background of the development of writing, (b) points out some of the irrational supports of the present antiquated system, (c) given the nature of the struggle, outlines a strategy of practical reform. It identifies those institutions whose interests might direct them into the movement for spelling reform: (1) business and industry, (2) newspaper publishing, (3) Department of Defense, (4) science, (5) organized labor.

Corpus
The inconsistencies and absurdities of our spelling are notorious and need not be documented here. We are interested in how such a cultural lag can continue to exist in our society.

Irrational support of an Irrational System in the Schools
Our spelling is an antiquated, wasteful, and inefficient, so out of place in a practical, technological, market-oriented society which needs to save energy and time, that there must be deeply-set, irrational forces holding such a system in place. It is the identification of these forces and some of the forces making for reform which is the subject of this paper.

First, consider what a marvelous subject spelling is to a school bureaucracy and to an educational establishment. Here is the chief jewel in the diadem of automatic, grind, drill, and memorize subjects.

Spelling organizes itself; it may be pounded, drilled, marshalled, and memorized. It organizes itself into a neat progression from little words to bigger words, and from letters, sounded as spoken to silent letters or letters sounded differently. Spelling may be taught by persons lacking in innovation or creativity; indeed, a case can be made that teachers who threaten tots out of their wits may turn out better spelling grades (perhaps not better spellers) than more subtle teachers, aware of inconsistencies and difficulties. To budget-beleagured bureaucracies, these are splendid advantages.

Further, spelling, as usually taught, has no grey areas; words are either "right" or "wrong". Spelling can be simple to grade, progress or lack of it easy m measure. To an extent, words may be analyzed by type. The workbooks do this, aiding professional feelings of the teachers.

Best of all, to the minds of many, spelling demands effort, care, memory, perseverance. Spelling is a ruthless identifier, revealing to the teacher who's who and what's what in a class and providing a basis for an academic hierarchy. This is a source of security to many teachers and to the system.

How splendid a jewel for the school — to push this drill and memory system on children while parents and public applaud. In presenting this subject, administrators and teachers find themselves draped in the mantles of guard ions of a priceless cultural heritage.

Spelling has been and remains a large part of the curriculum of elementary schools. Thus, spelling is to many elementary teachers, (by no means not to all) a basic element in their professional way of life. Threaten traditional spelling and you threaten their professional identification. Many teachers enjoy the quirks of our spelling; they relish the role of the all-knowing. Aware of the curves, most teachers feel some of the power of their profession in leading children thin, the labyrinth of traditional spelling. ("Of worse some fail; that's life.")

There are many exceptions; some of the leadership in spelling reform is furnished by teachers, but in general, teachers feel that simplified spelling will greatly reduce their professional role in what they perceive as a key subject. It does not reduce their defensiveness to talk of the superiority of simplified spelling from the point of view of students and from the point of view of functionality. This only increases their foreboding.

It may also be noted that early retirement is a desired budget item which can be stimulated by the adoption, nationally, of a program of spelling reform. Seeing this on the horizon, a number of additional teachers may make the decision to retire. Some teachers feel as did a graduate student of mine who made no bones about it. Said he, "I've worked hard to learn one system and I'll be damned if I'll learn another."

Another group is anchored to traditional spelling by professional pride. Department heads, administrators, curriculum specialists, professors of education, find themselves in a difficult position in regard to simplified spelling. How can they approve it without admitting at the same time that, up to that point, they have been somewhat blind and misguided all their professional lives? This is a difficult admission to make. It is much more comforting to oppose simplified spelling on every

possible ground, and to claim that one was right, is tight, will always be right, at least on this subject.

A third source of powerful irrational forces holding out spelling system in place is the economic basis of the school systems. They exist on taxes hard to come by in times of falling enrollment and economic retrenchment. Budget dollars are scrutinized as never before.

The school systems have invested heavily in materials and curricula designed for traditional spelling, including the training the teachers have received. The school, possess a vast supply of dictionaries, work-books, texts, flash cards, teachers' guide, projector materials, and so on, all designed m aid in teaching the present system. If simplified spelling were adopted, even on a gradual, step-by-step basis, this equipment would have to be scrapped. Some, or later every book, pamphlet, and piece of printed material in the school system would have to be replaced. If one speaks of the wastes of the present system and the great sums to be saved in the future, administrators and taxpayers are unmoved, for they regard such savings as pie in the sky. They see materials for which they paid good money going on the scrap heap. They see the high cost of replacement. They feel they must face costs of re-training teachers.

Fourth, among the irrational school-related forces holding our traditional spelling in place are the publishing houses which sell to the schools millions of dollars worth of materials designed to aid in teaching the traditional system. They see that sensible spelling will reduce the time and energy given to spelling by between 70 to 90%, with corresponding drop in the need for materials. Hence the publishing houses can be expected to oppose simplified spelling with every means at their command.

Irrational support continued: Spelling & class identity
We now turn to the more formidable of all the irrational supports of our traditional spelling system, the pride, prudery, and class identification of the public.

In understanding these motivations, we must mark the route by which our spelling has come down to us. Our spelling, essentially fashioned during the sixth thru eighteenth centuries, has been for most of its existence an expression of the needs and life styles of churchmen, nobility, and aristocracy. During the feudal thousand years of its beginnings and growth, hardly anyone dreamed that common folk should read and write. One's letters were an unmistakable sign that one was gentlefolk.

Thorstein Veblen (1899) [3] rightly pointed to English spelling as a classic example of conspicuous consumption, since it is so well suited to display that its users were members of the leisure class, so rich that they never worked, and with time to idle in conspicuous ways.

Our spelling has come down to us as a matter of grace and style in which ladies and gentlemen had the time and were happy to take the time to perform the niceties of gracious written forms.

We may observe in retrospect the obeisance pair: by the new middle classes to the upper classes as the new people emerged into positions of some power and influence during the mercantile and industrial revolutions. Members of the new middle classes were deeply concerned that they be accepted as ladies and gentlemen — they and especially their children. To this end, they aped the

manners dress, attitudes, speech, style of residence, recreation, written forms, of upper classes. They struggled mightily to cast off every sound and sign in speech and writing that indicated they were not to the manner born. They knew that they could not possibly be taken for ladies and gentlemen unless they spoke and wrote like ladies and gentlemen.

These aspiring, and insecure folk, as they achieved positions in business, industry, publishing, government, civil service, schools, in the professions, assumed written forms, not only modeling upper class forms, but assumed attitudes of championship and guardianship of the forms they deemed would mark them as worthy. Desiring to be the purist of the pure, they became extra sensitive and extra demanding of the propriety of written forms.

This sense of the close connection between gentility and proper form in speech and in writing is very much with us today. We may not have knights, nobles or knaves, but we have our classes and class distinctions; we retain a sharp sense of class identity. We depend more than we like to admit on our language habits to judge ourselves and others. We have critical ears and sharp eyes for the give-away error. We often bolster our security by being somewhat contemptous of another's language style. We depend on our ability to use language, more than we are aware, for a sense of who and what we are.

Thus, the great dread is among us, the dread that should our language habits fail, our masks will be torn away and we will be exposed as not gentle people at all, but as common clods, as ignorant nobodies, as miserable imposters, with only a thin sheen of polish over a crude, unlettered core.

This is why ridicule is the first and most basic weapon against sensible spelling forms; this is why ridicule bubbles up so quickly among middle classes when they encounter examples of simplified spelling. They laugh at these forms as a means of defense, to prove absolutely to themselves and to others that they have the instincts of gentlefolk. To those of real breeding, the natural reaction to something as efficient and as practical as phonemic spelling is laughter. To those springing not so far back from common folk, sensible spelling must be seen as ludicrous, for to take it seriously is to demonstrate instantly that one lacks breeding, manners, poise, taste, sensitivity, tradition, and gentility.

Thus, asking speakers of English, especially those who feel they belong to the middle classes, to spell sensibly is to ask them to abandon a basic support of their sense of worth. It is to ask them to risk slipping into the category of the unwashed masses. No one, whatever his or her class identity, wishes to be thought ignorant and crude.

Further, many people feel that they have expended much effort to learn the forms and to achieve the rewards of lettered persons in our society. They are not eager that the price of admission to their status be lowered or that the status be cheapened. If others want the rewards, they feel, let them earn them.

The above are only some of the emotional foundations connected to our sense of identity, which hold archaic and inefficient spelling forms in place in our society. For we not only maintain these absurd forms, we hug them to our hearts.

If teachers, in general, will oppose simplified spelling; if administrators will oppose it; if, altho some will support it, the vast majority of professors of education, of English, of linguistics, of literature,

will oppose it; if the inteligensia, the literati, the columnists, the pundits, the publishers, and many well known authors will oppose it; if members of government, spurred on by many voters, will oppose it; if we can expect strong and deeply emotional opposition from the public, where will there be any support, and how can spelling reform possibly succeed?

Institutional Sources of Change

Despite sources of opposition above noted, there is good reason to believe that simplified spelling is an idea whose time has come.

The most powerful current force that can be directed to support simplified spelling is the demand of the economy for better readers and writers. Our increasingly complex society and the direction of the development of our economy require citizens who can read and write at higher levels than in previous generations. School failure and functional illiteracy are becoming too widespread for the economy to bear. Low educational achievement condemns a population to a stagnant economy. A nation containing masses of poor readers and writers will be a nation of losers in the world struggle. The greatest potential force moving toward simplified spelling is the iron demand of our economy for better readers and writers. We cannot continue to load the prisons and the welfare roles with functional illiterates. We must have people who can earn enough to buy our products. Assembly line jobs are drying up; service jobs require higher levels of communication skills.

At least five institutional structures, two of immerse power and prestige, could serve to transfer this economic demand into the movement for spelling reform. These institutions have both the ideological base and the interests to move in this direction.

The first of these structures is the business-industrial complex which seeks always to maximize profits. An important element in this process is indeed the reduction of costs. Leaders of business presently desire that written forms of their companies be thoroughly respectable, and, as has been said, take their models for this from the ruling classes of yesteryear. Presently, they take these forms for granted.

These leaders, however, have strong feelings for practicality and efficiency. They do not permit the inefficiency in other parts of their operations which they overlook in the written communications of their companies. Currently there are excellent prospects to awaken them to this waste not only in extra costs in all written materials, internal and external, but also to the billions in taxes paid to educational systems which squander huge amounts in forcing inefficient spelling on students.

Business leaders and industrialists will be interested in the information that each time someone in their enterprise writes or types "are" rather than "ar", 33% of the effort is wasted; each time "through" is written rather than "thru", 43% of the effort is wasted; each time "have" is used rather than "hav" 25% of the time and effort is wasted; each time "though" is written rather than "tho", 50% of the time and effort and space is wasted. Business people will be quite interested to learn that the same content can be delivered at a considerable saving of time and money. Further, business people should be given the information that children learn more quickly to spell, to write, to read when more rational spelling systems are used, and with such systems there are much lower failure rates.

The business world is not aware that our atrocious spelling system is seriously impeding the progress of English as an international language.

A large portion of the energies and efforts of spelling reform groups should be directed at business and industry. Here are the big consumers of written communications in our society, and here are the most powerful agencies in our society, agencies which have a great stake in efficiency and in cutting costs.

Spelling reformers have not attempted at any time to reveal to business leaders the facts about the written forms they use. They need to know that the idols they have been following in written forms are false. They need to know that the so-called etymology of our spelling is often false; that the "s" never belonged in "island", the "gh" never belonged in "delight", the "i" never belonged in "friend", the "h" never belonged in "ghost", the "ph" never belonged in "phone" or "phrase" or "graph", and so on for hundreds of errors which simplified spelling would correct.

Businesses pay taxes which support schools. Business leaders should be shown the tremendous waste in trying to teach the present spelling system. Savings of 70 to 80% in the spelling curriculum could be realized while at the same time academic achievement would increase.

At the present time it is probable that business leaders can be convinced that if they act in concert and procede gradually, support will gather for the new forms because they will be found to work better than the old. For example, many teachers will join in advocating the dropping of final e's where they are unnecessary and misdirective, which is the case in words such as "are' , "have", "give", "live", "there", "where", "twelve", "objective", "directive", etc. (The final, silent "e" is supposed to signal that the preceding vowel is long, but in the above cases the vowel is short, hence the final "e" is misdirective.) There are other simple, common sense changes that could minimize objections and maximize support.

If business and industry would begin to use some of the simplest of the new forms, perhaps at first only is internal communications, and if business organizations would suggest to boards of education that they have some responsibility in this matter, the schools will listen. The schools are ever conscious that they are preparing students for jobs and careers in business and industry.

It is probable that if schools begin teaching some of the simplest of the new forms, a number of influential *newspapers* would follow the lead of business and industry on the one hand and the schools on the other. *Newspapers* have a direct stake in enlarging the public in this country which can read *at the level* needed to become newspaper readers.

For the next step, some of the new forms might be: dropping the final, misdirective *e*'s, which have been mentioned above; changing "ph" which is sounded as "f" to "f" (fone, graf, fonic, fosfate, etc.); using "e" for the short "e" sound (hed, sed, ded, helth, welth, eny, meny, etc.): change "gh" sounded as "f" to "f", drop the silent vowels in these words (ruf, tuf, enuf, etc.)

Four principles should guide these beginnings: (1) use the simplest changes which drop letters; (2) numbers of large institutions along with the schools should use them in concert; (3) changes should be introduced gradually, one group at a time; (4) institutions using new forms should be prepared to hold them long enough so that their practicality and workability can be demonstrated. As soon as their "newness" wears off, many will begin to ask why they ever used the old, clumsy, misleading forms in the first place. Newspaper usage is crucial to spelling reform.

Some persons will object, especially at the outset, but the practicality and simplicity of the new forms, together with the power and prestige of business and industrial organizations, plus the beginning participation of the schools will probably prevail. Do you ever hear any objections to "thru", used on freeway signs?

Gradually a coordinated program could take form. In the United States the fifty state boards of education could set up, with business encouragement, a national commission which would orchestrate the change process over the twenty or thirty year change period. These changes will cost industry nothing in retraining since the number of respellings introduced in any one year will be so small and so simple as to be easily learned by personnel in day-to-day usage.

The third institution, also of considerable power, which is a potential ally in the movement toward spelling reform, is the Department of Defense. This is the case because the armed services have been experiencing increasing difficulty in obtaining recruits who can handle written communications at levels required by complex equipment and operations.

If Armed Services Committees in the House and Senate, plus key officers of the administration, including the President, plus top officers of these services, are shown what simplified spelling could do to reduce illiteracy and functional illiteracy, these leaders might well throw their support to the movement for spelling reform. Further, the armed services, thru the defense industries, are closely allied with business and industry, and are likely to follow the lead of business and industry in this matter. Simplified spelling can be seen as a valuable contributing element to the military strength and to the defense posture of all English-speaking lands.

A fourth institution, one which carries great prestige, and which features attitudes and interests which could direct it toward spelling reform, is science.

Science is committed to rationality and to clear communication and description. Scientists value our number system because it is simple, clear, unambiguous — a valuable tool of logic, measurement and mathematical thought.

Many scientists will understand if the irrationality of the present spelling system and the irrationality of the forces supporting it are shown to them. Science thrives on access of the greatest number to education and to learning, to learning about science itself, among other challenges.

Spelling reform movements have never taken their story directly to scientists, to their leaders, their publications, their conferences. If this is done, it is probable that many scientists will see the confluence of the interests of science with those of simplified and rationalized spelling.

Simplified Spelling as Access to Power

Spelling reform has been seen by reformers in far too limited a role. It has been seen as an academic argument, as a debate in curriculum, as a discussion in linguistics, as a matter of pedagogy. Members of the reading establishment have done all in their power to encourage this view. As long as spelling reform is seen in this narrow perspective, little progress will be made.

Further, no progress whatever will be made thru argument, debate, discussion, experiment or demonstration before audiences and groups traditionally addressed by spelling reform movements (delineated above).

If the development of a written language is observed over its long history, this development can be perceived to follow a persistent trend; it develops from usage by a chosen few, an inner core of the privileged, to more and more common usage, to usage by more and more groups and classes. Second, the history of written communication shows that those who use it have more power than those who do not.

It is probable that priestly groups were the first to use writing. "Hierogliphics" were holy writings, or more literally, "the markings of the Priests." Only the chosen could use this writing; indeed, it was so complex involving so many characters, that only the few could master its use (Hanna, Hodges & Hanna, 1971 **[2]**).

Over the centuries the need for writing spread from the priestly class to ruling classes, to the military, to trading classes. Eventually the characters shifted, little by little, from the depiction of ideas (ideographic writing) to the representation of spoken sounds (alphabetic writing). Finally a fully alphabetic writing was achieved. This represented, from a democratic and humanistic point of view, immense progress, because, in picture writing, thousands of characters had to be mastered in order to read, whereas in alphabetic writing only a few dozen characters needed to be mastered. This marked a tremendous step, a revolution in the democratization or popularization of writing.

But the new alphabetic systems were still the property only of strictly limited groups, upper and ruling classes. It was not until the Reformation brought to the West the duty and right of every person to read the word of God in the Bible that the need was felt to teach everyone to read and to write. It was this urge to equip each person to know the word of God directly which gave rise to the common school.

It is important to note, in the long development and spread of the use of written forms, the close correlation between the possession of writing and the wielding of economic, political, and social power. Classes that have power usually have writing, and classes that have writing usually have power. Individuals who write with any skill are rewarded above others who do not.

Spelling reform should thus be seen as a part of the general democratic movement of the Western World, in which, ever since the translation of the Bible into the vernacular, power, educational and economic, has been more widely distributed in the population.

Moving with the religious reformation in Europe were the mercantile and later the industrial revolutions, serving further to break feudal institutions and redistribute power. A fundamental way in which this was accomplished was the spread of reading and writing thru the instrumentality of the common school. A "basic education," for both religious and secular reasons, became the ability to write, to read, and to do simple sums. In this development, there remained a basic holdover from feudal times, in English speaking lands; this holdover is the spelling system.

Our society today runs on four elements and only four: these are raw materials, energy, money or the market, and finally, on words, thru which the other three are organized. Thru our society, each day, there moves a veritable blizzard of paper, and each sheet is covered with words. We are, as

much as the market society, and probably more, the word society, the written word society. Power flows to those who select and cause to be printed those words. The pen manufactures and pays for the sword. The rewards of the society flow to the word-masters. Patterns of words control the decisions of the society. The originators of these patterns of words are crucial operators in the day-to-day productivity of the society. The word-wizards are rewarded; to them flows influence, prestige, power.

Every written word, depending on the document and the context of the document, contains and conveys an element of power. When a given mind gains facility with a group of written words, that mind grows in power.

Thus, spelling reform must be seen as Promethian, in transmitting writing and reading to larger groups of Man. The widening of access to written language thru simplified spelling should be seen as a portion of the continuing struggle bringing to the common man more dignity and power. Spelling reform is far beyond a debate about academics or curriculum, far beyond tinkering with the spelling of words; it is an integral part of the long, ongoing struggle for the redistribution of power.

The Fifth Institution

If this point of view about the repressive nature of antiquated spelling forms, and the relation of complex spelling forms to academic progress is made clear to today's leaders of organized labor, it is probable that large sections of the labor movement in English-speaking lands will advocate spelling reform.

What priority will be given and what energy is expended will vary from union to union. But once labor sees traditional spelling, not as neutral and innocent as a fact of life, but as an instrument to keep the children of working people "in their place," a giant may awaken, and a powerful ally may join the ranks of spelling reform.

References:

1. Paul R. Hanna, Richard E. Hodges, Jean S. Hanna, *Spelling: Structure and Strategies*. Houghton, Miflin Co., Boston, 1971, p. 3–29.
2. Mario Pei. *The Story of the English Language*. Simon and Shuster, New York, 1967, p. 337.
3. Thorstein Veblen. *Theory of the Leisure Class*. Macmillan Co., 1899; reprinted, Mentor Books, 1953, New York, p. 257.

Epilog: How spelling reform will come to the United States

Spelling reform will not come because phonemic spelling is more sensible, or more rational, or more functional than traditional spelling; it will not come because it will be a blessing for children, and for all those of the English-speaking world.

It will come because it is cheaper; cheaper to teach and cheaper to use. Economy is the driving force of industry, manufacturing and all institutions that spend money for services. Labor saving devices are money saving devices.

Consider the answer to these questions:
a) What is the dominant institution of American life?
b) What institution is the largest producer and the largest consumer of written materials in this country?
c) What institution is driven mainly by considerations of practicality and profit?

The answer to these questions is business and industry (B&I). Since this institution is so dominant, especially over education, we can say that if B&I take up simplified spelling, the rest of the country will probably follow; and if the new spelling is not taken up by B&I, it will probably fail everywhere els.

This means that the key question for spelling reformers is: How can we show B&I that S.S. (simplified spelling) will save them millions of dollars?

The first question business always asks is: How will this change either make or save money? The second question is: What will it cost to make the change? The third is: What at the public relations implications of such a change?

We can thus see that if business is to take up SS, *the costs of the change* must be minimized, as must the public resistance and shock in the change period.

If reform is to be led by B&I in this country, it will come thru:
1) simple forms, easily adopted.
2) step-by-step, over a period of years, so personnel and public can easily assimilate the changes.
3. along lines alredy popularized by advertizing and public usage [that (way), *lite* (beer), duz (soap), luv (trucks and diapers), *tho* (alredy used by meny), R (Toys R Us).,
4. over a change period of 20 to 30 years.

We must show business that it requires 50% less time to write and teach *tho* rather than *though*, *thru* than *through*. This less teaching time will allow the schools to shift time and budget to writing, reading, arithmetic, science, where additional time is badly needed. We must show B&I how SS will raise confidence, increase academic performance, help cut delinquency rates, help reduce unemployment and welfare costs, help to increase career success.

We want business to realize that the rationalization of our spelling will greatly stimulate the use of English internationally — the better for American business.

Spelling reform will advance on two legs, one of which is *usage*. B&I must be convinced to begin to use a few simple forms. The second leg is *testing* the new system on children. These tests will show that children will lern the new system more swiftly and easily than T.O. Thus, *usage* advances *testing*, and *testing* advances *usage*.

Our slogan: "Simplified spelling is good for business."

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[Spelling Progress Bulletin, Winter 1982 pp17–19, 1, in the printed version]
[Harvie Barnard: see **Journal**, **Anthology**, **Bulletins**.]

"The inevitability of change: the happy alternative," by Harvie Barnard, Tacoma, WA.

Abstract.
The fixed mode of English spellings — but there are alternative. spellings — variant spellings. Do literate persons fear and resent change? In accepting rational change, certain factors need to be considered. The computer compared with our brain: Failure to learn causes frustration. Dictionaries show pronunciation — why not use these respellings? Four types of simplification. Who would benefit from simplification?

Corpus.
In view of the gradual but relatively continuous changes in spoken language, it may seem surprising that written language tends to become trapped into a more or less fixed mode. This apparent rigidity of structure, both spelling and syntax, while varying from language to language, tends to crystalize into a traditional form for any one language. The reasons for this are not as lojical as they are materialistic. This inflexibility is based upon nothing truly rational or psychologically humanistic, but since the advent of the printing press has become essentially mechanical! Also it could be successfully argued that the pervasive economics of dollars and cents, or British pounds and pence, have had much to do with the problem.

Altho the "better mousetrap" theory has not appeared to be working out with respect to a more rational alfabet for the English language, there has been a perceptible trend toward simplification and consistency with respect to better agreement between pronunciation and spelling of names of people as well as names of products of manufacture for world-wide use. In the granting of copyrights and trademarks, the use of fonemic or fonetic spellings has been fairly obvious and widely accepted for meny years. Aside from the novelty aspects of thousands of unique trade names and copyrights, most of our English dictionaries, such as *Webster's New Collegiate*, consistently offer optional or alternative spellings, as *meter* for *metre*, *catalog* for *catalogue*, *honor* for *honour*, and even *thru* for *through*. Such choices, or reformed spellings, are also referred to as deviants or variants, and are more common than ordinarily supposed.

Variant spellings, researched by the National Collegiate Teachers of English, (U.S.A.), have been discovered to be fairly numerous. In a recent book by Donald W. Emery, *Variant Spellings in Modern American Dictionaries*, (1973), five principal American dictionaries were studied — 2494 variants are listed. If we were to assume a total of 100,000 listings, we find these variants to represent approximately 2.5% — a truly surprising proportion!

These alternatives are, of course, in addition to the usual respellings for explanations of pronunciation. The very fact that respellings are needed to enable us to pronounce many thousands of listed words is in itself proof that our traditional spellings are inadequate to indicate how to properly speak our English language. The additional fact that there are numerous pronouncing dictionaries such as the *Dictionary of Pronunciation*, by Abraham and Betty Lass (1978), testify to the confused state of our spelling, plus the peculiar truth that there are many words (in English) that have more than one acceptable pronunciation. In one such dictionary, there are 8000 commonly mispronounced words, which testify to the confusing inconsistencies of our traditionally perplexing spellings.

According to many outstanding teachers and successful scholars, "English spelling is a bewildering chaos to adults coming to it from other languages" (Laubach, Frank: *Teaching the World to Read*). And to thousands, if not millions of children whose innate sense of logic becomes shattered by rules having numerous exceptions, our traditional spellings serve only to betray their faith in the rationality of adult learning, and perhaps also in the laws, written and unwritten, of our adult society.

Among the meny remedies which hav bin proposed, the concept of fonetic or foneemic spelling appears to be the principal thread of rational thinking woven thru the fabric of spelling reform. Yet the implementation of the foneemic approach, while appearing reasonable and even simple to meny reformers, presents a forbidding succession of obstacles when viewed in the cold lite of practicability. Unless approached with utmost tact, circumspection and diplomacy, spelling changes by eny process in eny form, regardless of the merits involved, will be looked on with misgivings and doubts. Even tho substantial financial advantages could be demonstrated, as suggested by our late and respected mentor, G. B. Shaw, there will be objectors, especially among the uninformed.

Still, there is hope! America has elected to go metric. Great Britain is converting from traditional English measurements to the decimal system — or is at least trying! Innovations which were looked upon with greatest suspicion a few generations ago are now considered indispensible to everyday living. The two most populous nations on earth hav restructured their languages, and several smaller nations — Turkey, Finland, Chekoslovakia (Czechoslovakia), hav made progress in simplification. And from what we hear, it seems that both the Soviets and the Chinese are trying to learn English, but are having discouraging difficulties with the spelling — which is certainly no surprise to enyone!

One basic kwestion and incompletely solved problem still confronts us. How can English speaking peoples accomplish the conversion from traditional spelling to rational foneemic spelling with the least inconvenience, confusion, and disruption of the status quo? Altho dozens of approaches hav bin suggested, none hav appeared wholly acceptable. The basic objection seems to hav bin the inherent fear that most people are afraid of change, fear that they would hav to go back to skool agen to learn to read and therefore approach it with general misgivings regardless of the benefits to be derived. In truth, a relatively small percentage of our useful vocabulary would be altered — less than 10% — and these changes would be so obviously foneemic that their intrinsic naturalness would tend to favor acceptance after being seen in print a few times.

The alternativ spellings which would be proposed as acceptabl are essentially those alredy widely used by business executives, newswriters, and others concerned with writing efficiency, speed and even clarity. Words now spelt as they sound would remain as they are — unchanged. Words encumbered with the burdensome 'ough' combination (fonogram), such as *rough, tough, through* and *thought*, would be candidates for simplification.

A change to the happy alternativ is not intended to alter English speech, and it should be emphasised that English, or eny other language, is the language which the people speak, and that writing is essentially an attempt to express that language most effectively in the form of symbols, whether alfabetic, hierografic, or pictografic. Uncounted systems hav bin used, and while we hav not achieved perfection, a considerabl sumber of essentially foneemic systems hav bin developed based upon as few as 4 vowels, (a, e, o, u), and 11 consonant sounds. (Ref. Laubach's *Teaching the World to Read*).

The basic 44 sounds, (or fones, fonemes, or phonemes), of English, while ideally represented by 44 symbols, are reasonably well expresst by our 26 alfabetical symbols which could do very well, provided the required symbol combinations were employed with a dependabl degree of consistency. But insted of using the minimum of 20 consonants with 24 other consonant and vowel combinations, what do we hav? None other than a serious student of English linguistics could believe the truth unless time was taken to read Godfrey Dewey's *English Spelling: Roadblock to Learning*, particularly Appendix A, "Spelling of Sounds."

Dewey's exhaustiv compilation, based upon the minimum of 41 distinct sounds of English speech, reveal that according to standard dictionary spellings presently in use, there are 561 different symbol combinations, including 246 different spellings for only 9 usual vowel sounds, including the /oo/ in fool, and the /y/ as used in why. A curious kwestion mite be raised: "after committing to memory all these 561 different spellings for 41 basic sounds, who among our so completely programmed linguistic experts would want to relinquish an imposing array of academic

accomplishments?" So, could we reasonably expect very meny accomplished scholars to willingly change from T.O. (traditional orthografy) for a system as uncomplicated and rational as WES (World English Spelling)? Why should you or I, or eny other traditional orthografer wish to demolish a system lerned thru countless trips to the dictionary which could be supplanted by enything so simple as to be lerned by an infant school pupil in a matter of months, or at the most a year or two? Quite preposterous, eh what?

In accepting rational change, there are two basic factors to be recognized:

1) an attitude of reasonable compromise, which requires some degree of mental flexibility, plus a modicum of compassion for the millions of small children — those now with us as well as the meny millions yet to come, and
2) an honest concern for economy which would enable the tax-paying public of the United States alone to save at least 10 billions of dollars every year in teaching children to read, spell, write and comprehend what they are reading.

Spelling itself is definitely *not* the fundamental objectiv! Spelling is essentially a vehicle by which we approach the true objectiv, which is clear, unencumbered communication, unconfused and unimpeded by the needless maze of nonsensical, illogical symbol combinations which by endless repetition are programmed into the organic computers of students, young or old.

The human brain, our personal computer, operates on the same principles as eny other computer. Lojical, consistent and agreeable data are accepted for programming. If and when compatible with previously programmed information, data perceived as acceptable are accumulated and retained for an indefinit period, or until retrieved for later use. If the data presented for programming is incompatibl, or in some manner inconsistent, or at variance with what has alredy bin programmed, the computer will either reject, stop programming, or cancel previously recorded input.

In spite of repeated failures, frustrated children and confused computers, our insistence on traditional spelling is jambing or otherwise blocking the normal function of millions of organic computers, both young and old. Statistically, about 15% of our younger computers, public skool graduates, after a few years of confusion and frustration, simply kwit, turn off, or play a gessing game for the rest of their lives. Such semi-literates read only with the greatest difficulty and with litl comprehension. And as for writing, that's virtually a "No-No." These are branded as illiterates, uneducables, or at best, "functional illiterates."

When functional illiterates are put in a situation where they must make an attempt to communicate in writing, some rather interesting spelling results. It is essentially pidgin English, neither traditional or fonic, altho closer to the latter. The main effect of the effort is to spell accord ing to the way the words sound, resulting in a horrible mishmash of symbols, because no two functional illiterates are at all sure which letters represent what sounds. The vowels are usually confused, and consonants, traditionally used but unsounded, are omitted — especially *b, d, h, k, l, n, p*, and *v*. Other common confusions include *c, k*, and *ck; s, sh*, and *z; g* and *j; f, ph*, and *gh*; double letters used as singles; the common digrafs *ei, ie, ea* and *ae*; the /er/ sounds, *ar, er, ir, or*, and *ur* are equally often confused, to mention only a few.

Yet in spite of this "chamber of orthografic horrors," or labyrinthian confusion of sounds, the way out is amazingly straitforward and as redily lerned by adults as by 6 year olds if we would simply use our present dictionaries for correct pronunciation as well as for meaning of words.

Every dictionary worthy of the name shows accepted pronunciations by means of respellings. These respellings use conventional diacritical marks which indicate "long" and "short" vowels as well as necessary spelling changes to correct for unneeded and/or unsounded letters. *Write, wrote*, and *written* are spelt: *rīt, rōt, rĭten*, the macron abov the vowel indicating the long sound, and without, leaving the vowel sound short. But because modern typewriters and most type fonts do not hav symbols with diacritical markings, the latter, while very useful for dictionaries, are considered impractical for general use. However, a simpl and reasonable solution is suggested by our usual spelling. When we hear the long /ee/ sound, as in *beet, feed, need* and *weed*, the

obvious 'ee' is most often used. So why not adapt the 'ee' practice as a standard means of expressing the long *e*? Then it follows that the other long vowels are lengthened by adding 'e', to form the long vowels: *ae, ie, oe, ue*, as is done in World English. This makes it much easier to teach *all* the vowel symbols.

There may be an objection to this adjacent 'e' method because it is unconventional and we alredy hav a means of accomplishing the same objectiv. This is the silent terminal 'e' rule, which is an acceptable rule when followed consistently. If followed, as in *mate, rate, secrete, hide, pole* and *mute*, the terminal 'e' is workable and well established, and when applied consistently need not be changed. But there are meny words — a few taken from "Olde Englishe" — which hav bin given a useless, hence deceptiv terminal 'e'. Words ending in -ive, *olive, deceptive, love, move, above*, besides *have* which we hav shortened properly. There are meny others such as *usable, possible, liable, double, trouble*, which are not helped by the terminal 'e'. Thus we hav a rule which has bin invalidated by more exceptions than conformals (see Sartorius), but which is too useful to be abandoned whenever it provides a true and useful purpose, (at least in an interim reform).

And what about the "short" vowels? They may and probably should be continued to be used as now, as in *bat, bet, bit, not* and *nut*. And whenever the distinctly short 'e' sound is herd, why shouldn't we write it as 'e', like in Harry Lindgren's SR-1, viz: *yet, bet, eny, hed, spred, meny* and *ded*? Altho we will sometimes run into homofones such as *bred*, we hav no difficulty with these common "sound alikes" in speech or in our usual writings, such as *led* and *lead, rite, wright, right* and *wright*, which are redily distinguished by context. The subject being considered makes the meaning clear, which should apply to ritten material as well as to speech.

Another useful alternativ, redily pronounced and more redily spelt, is the customary 'f' for the /f/ sound, as used in *first, fore, fone*, and *fix*, rather than *phirst, phore, phix*, and *phone*. Altho 'ph' has an interesting etymology, as do meny of our symbols, and for those who wish to pursue alfabetical history, this should prove both amusing as well as informativ — if not useful. Such a study mite clarify the confusion between the 'ph' and the 'gh' for the /f/ sound, yet at present we are still burdened with the needlessly burdensome *rough, tough, enough*, altho most traditionalists hav finally abandoned the 'plough' for the simpler 'plow.' It has bin sad that 'old soldiers never die, they just fade away', but not "phade away."

The four eezily lerned and redily used alternatives described in the preceding 4 paragrafs are summarized here briefly as follows:

1) the long vowel sounds are indicated by an added 'e', either terminally, as in present spelling, or alternatively, immediately following the vowel to be pronounced long;
2) all vowels, used alone, except when used terminally, as in *vat, net, fit, hot* and the 'u' in *but*, are short and require no signs, aids, or signals to indicate the short pronunciation.

The #3 suggested alternativ "rule" is that the short 'e', /e/, alredy mentioned in the preceding paragraf for short vowel sounds (as suggestion #2), is to be applied more broadly whenever the short 'e', /e/, is the accepted pronunciation, as in *bet, met*, and *pet*. The 'e' will replace, or will be used alone for any other symbol or combination of letters, as *meny* for *many, eny* for *any, sed* for *said, stedy* for *steady*.

The #4 alternativ is to use consistently the 'f' for the /f/ sound to replace both the 'gh' and 'ph' , as *fotograf* for *photograph*, and *fone* for *phone*. In the case of 'gh', we also drop the unsounded 'o', so that *tough* becomes *tuf*, *rough* becomes *ruf* and *enough*, *enuf* — as we alredy use *stuf* for *stough* and *puff* for *pough*. Here there is some question (or kwestion) about the use of the doubled consonant — in this case the 'ff'. This suggests a possibl fifth alternativ which could be dropping of the unsounded, hence unneeded, double letters, since with our #2 rule the short vowel no longer requires a doubled consonant to signal shortness. But when the doubled letters are sounded, they are considered needed, as in unneeded, which would remain unchanged.

Yet in spite of the meny advantages inherent in the use of happy alternatives, their suggested usage is not to condem nor to wholly replace traditional orthografy. It would be hoping for too much

to expect that literate adults, or any others who hav successfully mastered the intricacies of T.O., would warmheartedly embrace the alternativ concept. Having bin thoroly programmed for our customary inconsistent and irregular spellings, most literate adults would hav difficulty adapting to this change regardless of the benefits to be expected.

Aside from those attempting to lern English for the first time, immigrants as well as litl children, should we show compassionate understanding for the meny millions of semi-literates, those who read with difficulty and write not at all, the meny who redily admit to spelling difficulties without realizing the causes of their confusion and frustrations? Should we disregard the millions, if not billions of non-English speaking peopl who, in addition to millions of nativ-born English and Americans, including Australians and meny others, who could communicate much better in our English language if it was not for this unnecessary roadblock of what meny intelligent, literate and well informed persons refer to as our "crazy", irrational, and confusing spelling.

The meny millions who would profit from the opportunity to use alternativ spellings would include a substantial proportion of the English speaking public, those who fear of criticism and even ridicule, hav lapsed into a state of semi-literacy, and who communicate in writing with reluctance, if at all. Those who fail to become literate, or to communicate well, will founder economically, will rarely lern to comprehend the concept of responsible citizenship, and will likely remain that segment of society most likely to spawn our criminal population, and eventually to becum those enemies of society who will require constant supervision, if not institutionalization, at tremendous public expense!

It has alredy bin demonstrated in meny lerning situations, classroom controlled and otherwise, that material which is rational and logical — that which makes sense to the lerner — will be more eezily and rapidly lerned — *as well as remembered* for future use, than that which is irrational and therefore unreasonable. Altho there is ample room as well as need for further research to sustain the foregoing assertions, there should be litl or no pressing need to offer proof that sense is superior to nonsense! Time, history, growth and human development all serve to convince us that, "THERE IS NOTHING AS CERTAIN AS CHANGE!

Altho we would like to believe that miracles hav happened, and may yet occur, experience tells us that it will be human intellect and action which will bring about beneficial and desirabl change. Thus by providing a rational alternativ for what has proved cumbersom, tedious, and a roadblock to both lerning and communication, acceptance of the "Happy Alternativ" by all those in authority should pave the way toward progress in achieving successful understanding and cooperation in our ritten English language, both here, and hopefully, thruout the world.

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