

Spelling Progress Bulletin

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

"A closed mind gathers no knowledge; an open mind is the key to progress."

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1. Editorial

The school year 1963-64 saw a number of our leading educational journals at least break their silence – or near silence – on the challenge which phonemic spelling was offering their traditional dealings with the Number One headache of our schools. Besides a number of state journals, nearly a dozen nationally circulating ones came out with articles on i/t/a, then in its third year of spectacular success in England and in its first year in the U.S.

This new school year, 1964-65, the other lay periodicals were joined by: Atlantic Monthly, Sept, 1964, The Saturday Review, Sept. 19, IW, The Ladies Home journal, Oct. 1964, Good Housekeeping, Oct, 1964, Pageant, Sept, 1964.

Of the academic publications, the most thoro treatment was that accorded by the Phi Delta Kappan in April, 1964. Along with an article by John Downing, Director of the i.t.a. project in England, the Kappan carried A Short History of Spelling Reform by Richard E. Hodges and a review by Helen Bowyer of Dr Abraham Tauber's book: Shaw on Language.

Of the lay periodicals, perhaps the most informative was the U.S. News & World Report of May 18, 1964 which dealt primarily with the i/t/a project in Bethlehem, Pa. In May, 1964, this consisted of 15 classes of first graders totalling an enrollment of 22. All were under the direction of Dr. Albert Mazurkiewicz of Lehigh Univ. Within seven months, the article states, 60% of the children were reading at regular 3rd grade level or above, 25% at 2nd grade level, the remaining 15% at 1st grade level, but with not a single non-reader in the whole 522 enrollment. The year before, in the corresponding seventh month, five times as many children – 75% – were working their way thru their T.O. basal series at no more than first grade level, with 1070 not yet able to negotiate even their T.O. primers.

This new school year has seen the number of i/t/a classes doubled – next year will see the whole first grade population of the Bethlehem City Schools turning too reed throo this happy wun-sien-wun-sound medium. Tho they probably have little comprehension of the importance of the national role they are playing, this year's 1100 little Bethlehemites constitute a unit of the Co-operative Research Program on which the USOE is expending some 800,000\$. In a later issue, the Bulletin hopes to cover this big governmental move to find the most effective ways of teaching beginners to read. Incidentally some 2500 observers visited the Bethlehem project this last school year.

An arresting piece in the lay press is, What Forty-Four letters Can Do, in the Saturday Review of Sept. 19, 1964. Its author, Nancy Garrick, a former president of the IRA, was especially impressed with the amount of reading these first grade i/t/a books provide. They run to a total of 822 pages and a vocabulary of 557 words. Contrast that, as she does, with the Laidlaw first grade series' 235 words, and the 543 words of the Macmillan. That six and seven year-olds can handle the i/t/a 1557 easily, even delightedly, is evidenced by the fact that they get so absorbed in their reading that frequently some of them have to be shood out to play at recess.

In the Ladies Home journal, George Riemer, too gives a very appreciative report of the Bethlehem project, particularly emphasizing the amount of spontaneous story writing these first graders do, But in the Atlantic Monthly of Sept, 1964, Donald D. Durrell of Boston Univ. sees i/t/a as a wholly unneeded intrusion into a reading situation which can be handled equally well with T.O. To begin with, he believes that the problem of beginning reading instruction has been greatly over dramatized. "There are," he says, "many communities in many parts of the country in which reading failure is seldom encountered in the first grade. (? , ours, Ed.). Psychological, psychiatric, neurological and sociological explanations of reading failure," he says, "appear to us to be unimportant and misleading. *Nor do we find any need for reconstructing the nature of English Orthography to simplify the reading task.*" What constructive suggestions *does* Durrell propose? Is he willing to sponsor reading research projects to prove the validity of his opinions?

None the less, Dr. Durrell's emphasis on the perception of the separate sounds in words and familiarity with printed letters is well worth careful attention.

2. End of First Year Results, Lehigh Univ – Bethlehem Public, Schools – i/t/a Study, by Albert J. Mazurkiewicz, Ed.D.

As reported in the summer issue of the Spelling Progress Bulletin, word recognition skill was demonstrated to be significantly better for the Bethlehem, Pa. population at the beginning of the seventh month of instruction in i/t/a. The test of reading ability generally accepted, however, is one which reflects the child's ability to deal effectively with a given reader not only in recognizing words but also in understanding its content.

The levels of the i.t.a. taught children in the eighth month of school, as noted below in table 1, indicates that 24% of these first grade children are instructionally placed in third reader materials, 51% are reading second reader materials, 15% are reading first reader materials, and 11% are reading at or below a primer level. In contrast, only 6% of the children taught using the traditional alphabet (T.O.) are found in second reader materials. 74% of this group are found in first reader material and a larger percentage (20%) are found in primer or below materials than is seen in the Experimental group.

(Tables I, II, and III are based on returns on 95.3% of the population.)

Table I.

Teacher-Determined Instructional Levels of the Total Population

Reader Level	i.t.a., N=451	T.O., N=814
3rd	24.0%	0.0%
2nd	50.7%	6.1%
1st	14.0%	74.4%
Primer or below	11.3%	19.5%

Since over one-third of the experimental population is made up of the group children usually described as "culturally deprived", a comparison of the achievement of the two groups shows a somewhat distorted picture. This large portion of the experimental population includes most of the children of Puerto Rican and Negro ancestry in the Bethlehem first grade population as well as most of the children of low socioeconomic status and as such (because of verbal or language deficiencies) negatively weights the experimental population.

Examining achievements (Table II) of children with a similarly good socioeconomic status, a greater disparity in achievement in favor of the i,t,a. population is seen.

Table II.

Instructional levels of the experimental and control populations from good socioeconomic levels

Reader level	i.t.a.,	N=270	T.O.,	N=612
3rd	103	40.0%		0.0%
2nd	144	53.3%	50	8.2%
1st	15	5.6%	496	31.0%
Primer or below	3	1.1%	66	10.3%

Over 93% of the i.t.a. population are reading second reader or above material (with 40% at third reader) as compared with only 8.2% of the T.O. group who are found at the second reader level. A significantly smaller group of the i.t.a. children are at the primer or below point, seemingly indicating a virtual elimination of *the non-reader* in the i.t.a. population while the frequently expected amount is found existing in the T.O. population.

An examination of the low socioeconomic groups previously identified as containing children with bilingual and other language difficulties subsumed under the category "culturally deprived" shows marked achievement differences in favor of the i.t.a. trained population.

Table III.

Instructional levels of low socioeconomic populations

Reader level	i.t.a.,	N=181	T.O.,	N=202
2nd	85	47.0%	0	0%
1st	48	26.5%	110	54.5%
Primer or below	48	26.5%	92	46.5%

Though reading levels and the degree of achievement found in the two populations favor the i.t.a groups, (differences in achievement in writing (as shown in creative compositions) is marked. Furthermore, informal spelling achievement tests indicate that the i.t.a trained group is experiencing high success (86% accuracy) on words regularly spelled in either i.t.a. or traditional orthography.

Transition, begun by children in the top groups of each class in November and December, was started in April, 1964 by the top groups as a formal procedure. This is based on a recognition of the most frequent traditionally spelling patterns for sounds. As such it is seen to be the beginning of a formal spelling program. Teacher reports indicate that 64% of the good socioeconomic population were (and have been for some time) reading traditional alphabet library materials of varying levels of difficulty.

Since the goal of i.t.a. instruction is reading in our conventional alphabet, standardized tests for measuring reading ability were used in their T.O, (traditional orthography) form to document the status of both the control and experimental populations. This procedure seemed unfair to i.t.a. taught children, who commented, "We'll take this test if the other kids take a test printed in our alphabet." Though the advantage in such testing at this early point seems to be on the side of the child taught only the traditionally-spelt materials, a fair test of the i.t.a.-taught child's ability to deal with traditional orthography at this point in the evaluation seemed possible.

Since one of the first administrative questions is shown as a concern about the ease of moving from an i.t.a. class at the same point in a school year to a T.O. classroom elsewhere, it was felt the i.t.a. group's ability to deal with T.O., even though relatively few (26%) of the total population had made the transition to T.O. by the middle of May, might answer this question.

While transfer of reading ability from i.t.a. to T.O. by various reading populations has been shown, little knowledge of T.O, reading ability when still being taught i.t.a., has been demonstrated.

Raw scores from the total population on the California Reading Test as noted in Table IV suggest that no difference in reading achievement (T.O. basis) between the populations exist at this early point when no consideration is given to the differences in the populations.

Table IV.

Total reading results for the experimental and control populations using T.O. standardized tests

Total Raw Scores	i.t.a.		T.O.		
Calif. Reading Test	Mean	S.D.	Mean	S.D.	Test
Lower Primary	59.60	17.42	61.15	16.16	0.433
Calif. Reading Test					
Upper Primary	41.11	19.28	41.29	16.90	0.064

The tentative conclusion might be drawn that though two similar populations differ in their media learning mode, no differences in their T.O. reading performance will be shown to exist near the end of a year's instruction. The data may be interpreted further to indicate that when the i.t.a. taught child abruptly transfers (in this case to a T.O. test), his performance in T.O. will be at least as good as the child taught only in T.O. as this is measured by standardized tests.

Since the experimental population was skewed by the inclusion of a larger percentage of the culturally deprived segment of the total population (see the Interim Report in the summer issue of the Bulletin) and since a relatively small percentage of the population had formally transferred to T.O., the conclusion that no difference in T.O. reading ability of the i.t.a. and T.O. populations exists was checked for validity by examining the reading achievement of matched populations (matched within two points on I.Q., on socioeconomic status, sex, age, and including only those from the i.t.a. population who could be considered to have made transition by being solely in T.O. materials for at least a week).

A difference in the distribution of test scores is readily apparent in Table V. Some 91% of the i.t.a. population achieved at the second grade or above point as compared with 67.4% of the T.O. population. Better than 29% of the i.t.a. population achieved third reader or above grade levels as compared to 10.8% of the T.O. population. An examination of the portion of the population below the second grade level norm for year, end testing indicates that 9% of the i.t.a. group scored below that grade, while almost 33% of the T.O. group were below it. While none of the i.t.a. population achieves below the 1.5 grade level, over eleven per cent of the T.O. population do.

Table V.

Calif. Reading Test (Lower Primary) Reading Grade Equivalent (Total Reading Scores)	i.t.a. N=114 %	T.O. N=114 %
4.0 +	1.570	0.0
3.5-3.9	4.070	2.370
3.0-3.4	24.070	8.570
2.5-2.9	37.075	28.670
2.0-2.4	24.070	27.070
1.5-1.9	9.070	21.070
1.0-1.4	0.0	11.670

Since grade equivalent scores are often misleading, raw score data on the above population were statistically treated to check for the significance of these differences. Table VI shows that the populations are well-matched (I.Q. correlation, .996) and though slight differences do exist, these are non-significant.

Table VI

Statistics of matched samples from both populations

	i.t.a. Mean	N=114 S.D.	T.O. Mean	N=114 S.D.	s.e.	z	Interpretation
Chronological age (months) as of Sept. 1964	74.33	3.57	73.65	3.97	.492	1.39	N.S.
Intelligence Quotient	109.16	10.66	108.78	11.05	1.223	.31	N.S.

Table VII shows the raw score achievements on the two forms of the California Reading Test and on the Stanford Achievement Spelling Test.

Table VII.

Reading and Spelling T.O. test raw scores results of the matched population.

	i.t.a. Mean	N=114 S.D.	T.O. Mean	N=114 S.D.	s.e.	z	Interpretation
Calif. Reading Test (Lower Primary)							
Word Recognition	66.21	6.49	59.87	10.43	1.088	6.78	V.S.
Comprehension	9.42	3.60	8.62	3.92	.511	.54	N.S.
Total Reading	75.53	9.28	68.33	13.56	1.493	4.8	V.S.
Calif. Reading Test (Upper Primary)							
Word Recognition	33.27	5.39	25.97	6.96	8.56	8.49	V.S.
Comprehension	26.20	8.07	21.60	9.21	1.219	3.71	V.S.
Total Reading	59.50	12.67	47.47	15.94	2.026	5.9	V.S.
Stanford Achievement Spelling Test (Primary)	13.82	4.3	13.81	5.58	.686	.01	N.S.

The lower primary reading results suggest that the i.t.a. population is superior to the control population in word recognition and total reading but no different in comprehension. The upper primary form, however, indicates that the i.t.a. population's results are superior. The apparent contradiction of comprehension test results from the first form to the more difficult form may be attributed to the i.t.a. child's ability to sustain attention during the longer test of comprehension or to his greater opportunity to profit from the learning experience of the previous comprehension test (no parallel to the comprehension test-type items contained in the basal reader workbooks exists in the i.t.a. material), but may be due to other factors.

It is further noted that no difference in the T.O. spelling ability of the populations exists.

While data reported in previous reports permits the conclusion that normal spelling (T.O.) of English frustrates children's attempts to recognize words in print and that the use of i.t.a. brings about rapid and early reading ability in excess of that achieved by the T.O. population, data on i.t.a. and T.O. test material at the end of the first year were sought to check the above conclusions.

Table VIII shows results of the Schonell Graded Word Reading Test of sample populations which are equivalent to the major population. – Selection of the three classes from each population, however, was guided to match the ability of the teachers in each group so that the results would reflect teacher competency in instruction.

Table VIII.

Schonell Graded Word Reading Test (translated to grade scores)

Grade scores	i.t.a. N=99	T.O. N =87
7.0-7.9	4.0%	0.0
6.0-6.9	14.1%	2.3%
5.0-5.9	19.2%	0.0
4.0-4.9	19.2%	0.0
3.0-3.9	16.2%	2.3%
2.0-2.9	8.1%	12.6%
1.0-1.9	13.1%	42.5%
.0- .9	6.0%	40.2%

The higher level of achievement by a larger percentage of the i.t.a. population suggests the ease with which reading skill, as measured by this i.t.a. test, is attained when compared to the achievement of the T.O. population on the same test printed in T.O. The concentration of the T.O. population at a low point appears to be the result of the difficulty experienced in recognition of the same words in T.O., The conclusion that traditional English spelling frustrates children's word recognition development made early in the evaluation seems to be confirmed by these results.

Within the limitations of this study, tentative conclusions at this point in the three-year program of i.t.a. evaluation are as follows:

1. Traditional spelling of English is a significant source of difficulty in beginning reading though not the only factor in reading retardation.
2. Children can learn to read more rapidly (and with less observable frustration) when their beginning reading program is printed in a reliable phonetic medium such as i.t.a.
3. Children learn to encode sound to communicate through writing with a high degree of facility when taught using i.t.a. i.t.a. seems to have a releasing effect on the child's ability to communicate through writing.
4. The first grade classroom according to teacher reports, is more easily controlled, fewer organizational problems occur and more individualized teaching is accomplished within a grouping structure. These reports indicate that the child develops independent work habits much earlier than usual, appears to have better test-taking ability because of his improved work habits, has a greater capacity for work, and appears to be more self-motivated in learning situations.
5. Through the use of i.t.a. the sentence structure and vocabulary of first grade material can more closely approximate the vocabulary and sentence structure of the child at an early point in the first year of school. His wide interests can be more widely met in such reading material,
6. Reading performance by i.t.a. taught children in T. O., post-transition, as measured by standardized tests in the ninth month is significantly better than that developed by children taught by similar procedures but in which the medium is T.O.
7. T.O. spelling achievement, post-transition, for the i.t.a. child in the ninth month of school is no different from that developed by children taught only T.O. spellings. Much of this spelling is not consciously taught but is developed by teachers in i.t.a. or T.O. as a part of a phonic or symbol-sound emphasis.
8. Confirmation of the earlier experimental findings in England, though using different materials and approaches, is suggested.

Further evaluation of these tentative conclusions is structured during the second year period, including the extent of retention or forgetting of i.t.a. skill during the summer vacation, the incidence of self-transfer to T.O. during the summer, progress during the second year, post-transition reading skill needs, etc. The replication of this year's activity with 2/3 of the new intake to first grade will be made and will include an evaluation of achievement under the effect of teachers with one year's experience as compared with no experience in the use of i.t.a.

[Spelling Reform Anthology §16.3 pp223,224 in the printed version]
[Spelling Progress Bulletin Fall 1964 pp5,6 in the printed version]

3. Numeric Reform in Nescioubia, by Charles H. Grandgent*

*Deceased, Professor of Romance Languages in Harvard University.

*President's address read at the Eighth Annual Meeting of the Simplified Spelling Board, New York, April 7, 1914.

The partizans of an arduus and unpopular movement ought to be interested, even if they cannot be cheerd, by an account of a bold attempt at betterment in a different but similar field in a distant cuntry. Of course you all kno as wel as I do where Nescioubia is; and it is doutless unnecessary for me to remind you that the Nescioubians, while they hav long enjoyd the advantages of a rational orthogرافy, hav retaind to our day the practis of computing solely with Roman numerals.

It seems almost incredible that a people should hav simplified either its spelling or its numbers without having sense enuf to reform the other; but such is unhappily the case. A few years ago this inconsistency became apparent to some thoughtful Nescioubians; and, after much private deliberation, they began openly to discus the possibility of substituting for their cumbrus notation the Arabic figures long since adopted by other nations. As the American papers hav furnisht but scanty information on the subject, I venture to present to you such authentic facts as I hav been able to gather concerning the crusade that folloed.

The would-be innovators brought forward, it would appear, several fairly cogent arguments. Firstly, they said, the teaching of mathematics is so impeded by the use of Roman simbols, especially in that Nescioubian children ar fully two years behind the youth of other lands, spending as they do upon the mastery of needless mecanical difficulties the precius moments that might better be devoted to things of intrinsic worth. The vast majority of them, in fact, never learn to reckon at all, and simply put down as their result any alfabetical combinations that association may suggest, blindly hoping that the outcome may not be too wide of the mark. They hav indeed almost lost the sense of number. Besides, they ar so generally dispirited by their futil efforts that they lack the courage to attack their other studies with the vigor requisit to success.

Secondly, an incalculable amount of time, patience, and energy is wasted by the Nescioubian all thru life in dealing with irrationally complicated sequences of signs.

Thirdly, the commerce of Nescioubia and her national influence (which might be so beneficial to the world) ar suffering from the inability of Nescioubians to count as wel as other people do. Even professional mathematicians ar seldom quite sure of their results. A curius vagueness and uncertainty hav come to pervade all Nescioubian thought. The Arabic notation, they urged, is so simple and logical that it can be learned in a few hours and can be ritten without continual reference to a table. Why, then, should we not adopt it?

You would scarcely believe what a storm of protest was aroused by this seemingly commendable proposal. Bitterest among the opponents wer the jumalists (or, as they ar called in that cuntry, the Osteocefali), and particularly those who had never been able to count with accuracy beyond thirteen. "Underminers of our civilization, destroyers of Nescioubian mathematics," "grotesk iconoclasts" – these ar a few of the epithets hurld by the Osteocefali at the startled reformers. Arguments seemd unnecessary – the Arabic numbers wer so funny! When, however, the "grotesk iconoclasts" pickt up curage to ask for reasons, the Osteocefali responded with one voice:

"The arithmetic of Romulus and Julius Caesar is good enuf for me!"

"But," said the reformers timidly, "Romulus and Caesar calculated somewhat differently. Which stile do you advocate?"

"The arithmetic of Romulus and Julius Caesar is good enuf for me!"

"Allow us to point out," insisted the iconoclasts, "that your use of numbers is not exactly that favored by Caesar. For instance, on your library, erected in 1900, you have inscribed MCM, which, on a public monument, would not have approved itself to Caesar's contemporaries.

"The arithmetic of Romulus and Julius Caesar is good enuf for me!"

It became evident that the Osteocephali were like those talking dolls which, no matter how hard they may be pressed, can only say "Mama!"

Disappointed though they were, the reformers continued their propaganda, and now and then made a convert. A good many mathematicians admitted, in theory, the superiority of the Arabic system, but denied the possibility of its application to Nescioubian problems. Others, more independent, thought the change might very conceivably be advantageous, but declared that it should come about spontaneously, without concerted pressure from any self-constituted body. The Arabic numbers, apparently were to fold up their tents and silently steal in without anybody noticing them.

Others still conceded that the substitution might perhaps be assisted by conscious effort on somebody's part (not their own), but stoutly maintained that it should be effected, if at all, very gradually, by the adoption, let us say, of one Arabic figure in a generation. The number nine, they thought, might be a good one to begin with, as it is written in two ways, IX and VIII, neither of them wholly convenient in complex computation.

Not all mathematicians, however, were so revolutionary. Some of those, who adorned the higher walks of the profession were convinced that the introduction of Arabic signs would destroy at one blow the philosophic spirit of their science. How, they asked, could one speculate on the fourth dimension unless four were written IV? What impression would their beautifully elaborated deductions make, if they were associated in the student's mind with a horrid Arabic 4?

The conciliatory mood exhibited by a few influential scientists began to alarm the conservatives, especially the manufacturers of those ponderous tomes of numerical reference tables which the Roman notation renders indispensable. In self-defence they enlisted the services of an eminent pedagogue, who proved, by a series of psychological experiments, that children can perform long division more rapidly, more correctly, and with less mental strain, by the use of Roman numbers than by the use of the Arabic.

The Osteocephali were triumphant. Vainly did the innovators urge that the psychological experimenters in charge of the laboratories had possessed but a misty idea of the values of the new signs, being generally under the impression, for example, that the figure 7 represented sixteen. Such details were deemed irrelevant. It should be explained that in Nescioubia the exponents of Psychology (and, above all, Experimental Psychology) are looked upon as the recipients of divine inspiration. To doubt one of their utterances on any subject is sacrilegious – and dangerous, too, since the occult powers bestowed on the Psychologist may, in popular belief, be used for destruction as well as for enlightenment.

Despite such crushing rebuffs, the cause of reform slowly went on gaining adherents – most of them, to be sure, of the acquiescent rather than the militant type. But at this point a new obstacle arose. "The advent of Arabic numbers," declared the Osteocephali, "would ruin the continuity of

mathematical thought." This argument made a profound impression on the non-mathematical public. "If," continued the newspaper scientists, "we should write four with a single Arabic figure, we should lose sight of the fact that four presented itself to the Roman consciousness as five minus one, and we should be thus cut off from all contact with our ancestors."

"But the Romans were not the ancestors of most of us," objected the reformers.

"That makes no difference. They were somebody's ancestors. Besides, they were our predecessors, anyhow; and they invented our numbers. How are we to think consistently if we throw away the reminder that for them four was not four, but five minus one?"

"In any event," answered the radicals, "the Roman numerals would not perish from the face of the earth; and the knowledge that four is five minus one would still be accessible to persons desirous of that information."

"Ah! but our youth would lack, at the most impressionable age, the ever present and suggestive record of the Roman conception of four."

"But," urged the innovators, so far recovering from their consternation as to be able to collect some of their wits, "the Romans did not conceive of four as five minus one. When they wanted to express it properly, they wrote 1111, and they regarded IV as a handy but rather undignified abbreviation."

"The advent of Arabic numbers," replied the Osteocephali, would ruin the continuity of mathematical thought.

On this point, it was generally granted that the Osteocephali had scored a victory. Following up their advantage, they proceeded to display the ridiculousness of the new mathematics. The papers, from time to time, published numbers written and sums done (incorrectly, of course) in Arabic style; and that part of the public which could read neither notation roared with laughter.

"How," it was asked, "could a schoolboy be expected to keep a straight face when he encountered eighty-eight disguised as two donuts, instead of seeing it in its simple and natural representation, LXXXVIII? How could any of us preserve his respect for the Number of the Beast" – which is held sacred by the Nescioubians – "if he saw it appear, not in its ancient, venerable, and perspicuous image of DCLXVI, but transformed into three giggling polliwogs?"

"You should not balk at the strangeness of our system," faltered the dismayed reformers. "Everything new is strange. You should consider its simplicity."

"Simplicity!" sneered the conservatives. "Have you the face to call it simple, when it employs more signs than the old one? For the numbers up to and including one hundred, your method requires ten different symbols, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9; ours, only five, I, V, X, L, C. The Roman notation is, then, just twice as simple as the Arabic, as far as these numbers are concerned. When it comes to the smaller numbers, those under fifty, which one oftenest meets, the superiority of the old way is still greater; we use three signs, you still need ten – we are therefore three and a third times as simple as you."

The reformers were discouraged and no wonder. Friends of the movement began to suggest compromises "Let us keep the Roman signs, to which the people are so passionately attached," they counseled; "but let us use them with Arabian directness." This proposition met with considerable approval. When, however, the question arose, how Arabian directness was to be infused into the Roman numerals, there were more minds than men. . . .

One enthusiast, profoundly moved by the simplicity argument of the Osteocefali, expressed his conviction that only one symbol should be employed, preferably the letter I, which should be repeated as many times as the number to be written exceeded unity; thus, he declared, would be attained the maximum of practical simplification; although in the abstract (he reluctantly admitted) a still higher degree of simplicity might be reached by using no symbol at all.

Another philosopher discovered that, inasmuch as the real basis of Roman counting is duplication, systematic perfection is to be won only by carrying out that principle consistently – for instance, to express two, we double 'one, to express twenty, we double ten, and so forth: we ought therefore to write eight IVIV, eighteen IXIX, thirty-four XVIIIVII. Against him arose a third, affirming that the foundation of Romanism, as we now practice it, is not addition, but subtraction; hence we should write six, for example, not VI but IVX.

A middle course between these two extremes was advocated by a Radical-Conservative member. "We must distinguish," he said, "between long and short numbers. Then we can express long numbers by subtraction, short numbers by addition. Eight, which is short, we may continue to write VIII; but eighty-eight, which is long, we shall write XIIC.

When asked where he would draw the line between short and long, he replied that being strictly a practical man, he left these details to the mathematical theorists.

Such was the situation last winter. Because of recent storms, I have been for several weeks without news from Nescioubia. According to the latest advices, the reformers were full of good hope. But the Nescioubians were still using the Roman numerals,

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Comic Dictionary

Grade School

The place where a schoolboy's original ideas are usually confined to his spelling.
Copyright, 1962, by Evan Esar.

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When the English tongue we speak,
Why is 'break' not rhymed with 'freak'?
Will you tell me why it's true
We say 'sew' but likewise 'new'?

from Rhymes without Reason.

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4. The Process of Learning to Read, by Beatrix Tudor-Hart.

The protagonists on either side of the controversy of 'Phonics or sight reading' have become so passionate of late that they have quite forgotten that there are other aspects of the problem 'how best to learn to read.' One of these, probably the most important, is what kind of a mental concept a small child has of his spoken language before he becomes acquainted with the written speech. Until we know whether, or how, he analyses and synthesises the sounds he makes and hears, we can have no idea of what 'words' printed on a page may mean to him. From listening to teachers and psychologists talking about how to present written speech to a child one would suppose that these people take for granted that any child capable of using all parts of speech and thus making up long, meaningful sentences, is aware of the separate existence and meaning of all words, whether they be concrete nouns, active verbs or abstract words and passive verbs. 'We have no reason to believe that this is so. On the contrary, we have many reasons for supposing the opposite.

If we study carefully the way in which normal children achieve speech, we notice that at first the only part which they can reproduce is a concrete noun. A concrete noun is the symbol of something real and solid, an object the child can see and hold. He may understand the general meaning of a whole sentence such as "Let's go for a walk in the pram," but he reacts to a single – altho complicated – sound, of which one part 'pram' has meaning; 'pram' will be singled out for this reason and the child will learn to repeat it. Later on, for the same reason, because he can see them visibly portrayed, active verbs are recognized, singled out from context and learned. Many children may remain for months at the stage of speaking in noun-verb sentences. 'Mary pram walk,' 'Me run garden.'

Deaf children show very clearly the difference between 'concrete' and 'abstract' words, they learn relatively easily and quickly to recognize, understand and speak concrete nouns; they do this also with active verbs. They learn again relatively quickly and easily to speak 'pidgeon' English in the form of the 'noun-verb' sentence of very little children; after that correct grammatical speech takes many years to learn. Some deaf children never learn to speak correctly, altho they may read fluently and lip read accurately. A little girl, whose deafness was established only after she began attending the nursery class of a primary school, returned to that school after four years in a deaf school. She could read fluently, but understood almost nothing of what she read. Her spoken language showed fairly good pronunciation but she omitted almost all abstract words. When she wished to ask if she could go out and play she would say 'Margaret go garden play boys and girls?' It took her more than two years to begin talking correctly. The use of abstract words to form grammatically constructed and meaningful sentences does not appear because a child knows and understands these words and their significance. They appear in the child's speech simply because as he grows older, his auditory discrimination increases and his own power of reproduction becomes more acute. He simply learns to imitate better and better. It is very important to remember that all speech is entirely learned from imitating others. Concrete nouns and active verbs are the only parts of speech, with a few concrete adjectives and adverbs, that children become aware of before learning to read because they are the parts of speech which can be associated with visible reality. All abstract words, nouns, pronouns, prepositions, conjunctions, articles, simply add to the complexity of a given sentence-sound. 'Come along into the garden' carries the same meaning for a small child as 'Come garden.' The only difference is that the first is a longer sound than the second but both are each a single continuous sound, 'Comealongintothegarden' and 'Comegarden.' As children grow and learn they collect many hundreds, possibly thousands, of sentences using a large number of abstract words in all kinds of contexts and in varying orders of sequence. These collections of sentences do not presuppose intelligence – some defective children can learn, and reproduce, an astonishingly large vocabulary – the difference between them and normal children is that theirs (the defectives' speech) is

meaningless and that of normal children meaningful. This seems to point to the fact that young normal children are able, in any given situation, to sort out the appropriate verbal response from among the thousands stored in their brains. They do not grammatically build up a sentence word by word, as adults do when deliberately writing an essay, for instance.

Children learn only through reading that spoken speech is, in fact, a series of separate words. Even then it takes them a long time to grasp this fact. Most little children, when writing, tend to run words into one another, particularly words which are frequently heard together in a fixed order, such as 'once-upon-a-time.' 'come-along-quickly,' 'here-you-are.' Semi-literate adults do the same. All of us, when listening to a foreign language, even if we are familiar with it, but do not read it, find it extremely difficult to distinguish the end of one word and the beginning of another. How does this affect the way in which children should be taught reading? Reading should be started in the same way as spoken speech, if it is to be meaningful. Concrete nouns, because they are already understood and are meaningful in themselves, come first, then short sentences made with concrete noun and active verb.

Lastly longer, but simple, single sentences which will introduce the child to the nature and use of abstract parts of speech. These sentences, each using three or four abstract words, such as article, pronoun, preposition and concrete adjectives and adverbs must not include any clauses whether causal, temporal, spatial, adjectival or adverbial. The children should have, at this stage, no more grammatical difficulty than the mastering of abstract words used in stating simple concrete actions. Thruout, the reading material should consist almost entirely of monosyllabic words.

When children have learned to read some hundred such sentences, they have, unconsciously, learnt to read by sight and finally fluently. They are then ready to read simple children's books. The early ones should still carry few words of more than one syllable.

Another very important aspect of learning to read is the use of material which allows for individual self-help. For children all learn at different rates and the fact that a child can 'discover' for himself is of immense importance to his self-confidence and for his pleasure and interest in reading. It is here that the i.t.a. (initial teaching alphabet) is so important. Having but one sound for each visual symbol in this language, it is possible to present the early stages of learning in the form of letter-picture, word-picture, short sentence-picture, long sentence-picture games on cards which children can use individually or in groups. This obviates all class teaching and enables each child to work at his own speed. No child need be bored, marking time until the others catch him up, no child will panic as he tries to keep up with the others who are quicker than he. All the children will realize, from the moment they grasp that the letter symbol reproduces the first sound of the object portrayed in the picture that they are truly 'teaching themselves.'

Few children, however, are sufficiently mentally advanced in their sixth year to make this analysis or the synthesis of two, three or four sounds to make up a word; more can do this in their seventh year; most of them can do it in their eighth year. A few cannot do it until their ninth year.

It is this capacity to analyse and synthesize sounds which makes any learning interesting and enjoyable. If all children could attend a good nursery school from about three years of age, they would have sufficient stimulus for full development and in particular linguistic verbal development, to be ready to tackle abstract and symbolic thinking earlier than most of them can at present. They might then be ready to learn to read earlier if they had this logical phonic system.

"We wish to apologize to Miss Tudor-Hart for omitting a sentence from her article, "Learning to Read," in our [June 1962 issue](#). At the time we did not know Miss Tudor-Hart's address and could not get in touch with her.

The omitted sentence, "No child should be forced to learn to read before it is at least six years old—preferably seven," seemed to require an explanation, which, of course, we could not get without her address. This omission (in her opinion) wrongly gave the impression that children could learn to read in six months regardless of age. This unfortunate implication was not foreseen by the editor.

In further explanation, Miss Tudor-Hart says, "Children do not need to have a stick wielded behind them to experience 'pressure' to learn to read. Conformity is quite sufficient to make any child desperately anxious to do what the grown-ups want of him.... I only think that a child can learn to read in six months or so if they start at seven, when they are ready to learn to read."

"In the Pitman experiment, at the end of the first six months of learning some 25% of the children on i.t.a. did not recognize one printed word – 52% of the children on T.O. could not do so." (These were children who started at age 5).

"What, one imagines, happens to the feelings of the five-year-olds who, after trying to learn every school day for six months, fail to learn anything? Of the 20 lectures in the two conferences held in Oxford at the end of July, five were entirely on 'backwardness'; of the others, most finished by referring to backwardness and all discussions invariably finished on that subject. Why are around 30% of English children backward in reading at seven? In the countries where reading begins at seven, there is no backwardness to speak of."

The author overlooks the fact that in those countries – Czecho-Slovakia, Finland, Italy, Russia – they are blessed with a phonetically spelt language, so learning to read is easy. It's their grammar that needs age seven.

This editor poses a dilemma. The author admits that some 50% of the children in the i.t.a. experiment did learn the letters and their sounds and to recognize some words in six months. Is there any good reason why these capable children should be kept cutting out paper figures till they are seven merely because 25% of the class could not catch on so quickly? Which is better – to frustrate the 50% or more capable children who are anxious to learn to read or to allow the 25% who are slowly absorbing some phonetic knowledge but require more individual attention than the teacher is able to give, and take chances that these 25% will develop inferiority complexes? Often they catch on suddenly from the examples of the brighter pupils and their accomplishments.

Probably the logical procedure would be to separate the slow learners from the fast learners and put them in a remedial reading class. But this is expensive and requires higher teacher-pupil ratio, extra classrooms, special books, etc. And the stigma of requiring 'remedial reading' is in itself a discouragement.

Let me quote from G. Stanley Hall, *"How to teach reading, and what to read in school,"* D.C. Heath & Co., 1886, page 14, "There appears in many children a period, lasting many months between the age of 5 and 8, when both interest and facility in learning to read culminate, and if this period passes unutilized, they learn it with greater difficulty and at a certain disadvantage."

Just what is this magical age? and how does one determine it by what tests? Aye, that is the question, Q.E.D.

5. Teaching Spelling, by Leslie De Mar

I saw a pretty teacher hold the queerest spelling class.
It was so very awful, hardly anyone could pass,
I sat and watched them thru a hectic spelling flight.
They spelled and spelled and spelled, yet seldom got one right.
They had such an awful spelling, as folks should never see.
And plenty times, for meanness, they'd want a silent "e",
But if the sound was ē, I never could tell why,
They want, at times, a crooked little "y"
"Ph" did make an "f", and "ei" was never I.
I got so aggravated, I thought that I would cry,
For "a" was seldom ā, twas aa or ah or aw.
Just to be contrary or for no use that I saw,
If they wished a "c", I'll bet you couldn't guess
They'd use, of everything, a crooked little "s".

For "s", to fool you further, they'd have a silly "c".
Twasn't possible to tell, what had or ought to be.
If they had a rule to cover "c" and "k" and "s",
Then no one knew the rule, for they always had to guess.
At last, I got as mad as a bull up in a tree.
I saw its really bad, as bad as hell can be.
The teacher glared at me, her pitchfork at her side,
"If you're not a little careful, Bud, we'll take you for a ride."
But up there jumped a dude; his tail was like a spear,
And he spoke out loud, so everyone could hear,
"I'm so shamed, too shamed to really tell.
"I wouldn't want it known that we had this in Hell."
"Let's return their alphabet to Jack and Nell and Freddy.
"If this' the way they spell, they've had their Hell already."

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Random Thots

Memory and boredom
Not really the same
Both the same father,
Repetition's his name.

Tis plain what we need
To improve this great nation,
A reliable alphabet,
The mother of education.

The present shapes the future
So if leaders disagree,
Then many folks may suffer
In our own futurity.

There's a queer thought
The young take to heart.
How can folks so dumb
Have kids so smart?

Leslie De Mar

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6. The Third "R" in the Age of the Computers, by Ivor Darreg.

Twenty years ago, the word "computer" was just another term in the dictionary, seldom used, and when it was employed it meant a person who calculated. But now! quite another story – it means a peculiar kind of electronic machine that has literally changed the world so fast that few people have been able to realize or evaluate the consequences. Along with this, mathematics has extended its role in engineering, technology, and consequently in our everyday lives, just one generation ago, "higher" mathematics was the proud possession of an exclusive, esoteric intellectual élite, the ordinary citizen was content with a moderate skill in arithmetic and a slight exposure to algebra and geometry in high school that generally "didn't take".

Until quite recently, algebra and geometry (anything beyond these was scarcely mentioned outside colleges) were valued, not for their usefulness to the students, but as "exercises for the mind" or "something to make youths THINK" or as some kind of arduous ascetic discipline for discipline's sake. The more obscure, the more abstruse, the more revolting and boring it could be made, why the more effective training the educators thought they were administering. No wonder most of us forgot it as soon after leaving school as we could.

Along came Sputniks. Gradually the realization dawned that these spectacular achievements in space and on earth – buildings, machinery, aircraft, weapons of war, and consumer goods, too – all would not have been possible without higher mathematics. If we are to hold our own in the world of today, and to realize our national purpose and fulfil our dreams of progress, nearly everyone must become mathematically literate. Arithmetic alone is not enough. And this fact is now reflected to some extent in the curriculum – some notions of higher mathematics are now being introduced to children in the elementary grades.

Nay, more than that, symbolic logic (which was shown to be at the foundation of even the most elementary mathematics) is being more extensively taught. Many electric, electronic, mechanical, and pneumatic machines can be analyzed on a logical basis, if you push this, something happens to that, and so on. The very innards of computers are logical rather than mathematical in nature – they operate usually on an if-then basis, and certain circuits are usually called ANDs and ORs and NORS.

The need for more mathematics is not confined to children – adults are having to go back to school to be fitted for the new jobs in an automated world. Computers may be working thousands of problems, but what goes into them must be predigested, and what comes out of them must be interpreted, in both cases by humans.

But most people are "allergic" to mathematics, they are scared of it, they avoid it as much as they can. Why? You can get some hint of the reasons by listening to someone doing arithmetic problems, "Nine and three are twelve, and nine makes twenty-one, put down one and carry two", or, if it happens to be a multiplication problem, "Six times seven is forty-two So far so good. Ordinary languages – English or French or German – offer no insuperable difficulties, where ordinary elementary arithmetic is concerned though there are some awkwardnesses – we write "14", but we say "fourteen" in *reverse order to the written signs*. This custom breaks down when we want to read a decimal such as .00015. (Confess now. How would you read this fraction?)

When a student begins algebra, the reading out loud of $2x - 8y$ as 'two eks minus eight wye' presents no real problem – but this easy beginning is dangerously deceptive.

It offers no hint of the booby-traps that lie ahead, When someone wishes to talk about $-(\sqrt{a+b})$ and has to resort to such an awkward circumlocution as "minus the quantity, the square root of the quantity 'ay plus bee'", any enthusiasm he might have had for algebra is bound to suffer. This is no longer merely reading out loud, this is translating from mathematical notation into English – and a very twisted kind of English at that!

It is bad enough that those little superior figures called exponents are so tiny as to be hard to read, and their small size belies their tremendous effect. It is much worse that the numeral 2 by itself is called "two", but almost disappears from "earshot" in the word "twelve" for "12", and is further transformed phonetically in the word "twenty" for "20" – but alas! this is not all – when "2" is written above the line and tiny as an exponent, we call it "square" or "squared". And of course $\frac{1}{2}$ is called "one-half".

Now, the average person's phobia of mathematics begins just at the point where reading-out-loud, or saying over-to-oneself, becomes difficult; and that is shortly after one has graduated from arithmetic to algebra. Even mathematicians who are quite proficient on a visual basis are at a loss when deprived of pencil and paper. This could well be why teachers are anxious to give mathematics courses over television, but were reluctant to do so over the non-visual radio they subconsciously felt the frustrations which would have resulted from the necessary use of awkward circumlocutions for reading mathematical symbols out loud.

Early speakers of English led the "simple life"; they had no telephones, so the similarity between the sounds of the words "five" and "nine" did not matter. Today, this similarity can cost you money – as you know from having argued with long-distance operators. Back in the middle ages, there wasn't any numeral 0 to confuse with the capital letter O – indeed, most people hadn't even seen a letter O, or any letter for that matter.

The recent "all-digit-dialing" was inaugurated primarily because a large percentage of wrong-number calls are from confusing the letter O with the numeral zero. Our natural languages just weren't designed for the needs of electronic communications and machinery. As has been said, we can put up with this so far as elementary arithmetic is concerned, but when everyone now will have to know algebra and symbolic logic and calculus and other higher mathematics, the situation will rapidly become intolerable. Present-day mathematicians are getting along in spite of the difficulties, not because of them. The emphasis on visual methods in mathematics teaching, and the relegating of the auditory accompaniment of teaching and discussion of mathematics to a strictly unmentionable necessary evil, has disguised the real issue, *so far*. How many promising students, we wonder, have failed in mathematics or have dropped it. because they were audiles rather than visiles – they were ear-oriented rather than eye-oriented?

In a few years, this issue can no longer be "swept under the rug": we will have machines that can speak and machines that can recognize human speech,. These are already laboratory realities, but progress in this field is being held up for want of a satisfactory spoken mathematics.

All ordinary languages were spoken for centuries and millennia before they were ever written. Our mathematical notation directly contradicts this principle – it is an effective international written language, but without a legitimate spoken form – as we have explained, beyond the most elementary forms, everything is a translation or talking about mathematics, not in it.

Someone will ask, "What does this mean in dollars and cents? Spoken mathematics may be wonderful and intriguing, but will it save money?" The answer is Yes. If the voice-operated machines just mentioned have to be made 'to respond to a vocabulary of English words, or for that matter, *words* in any other ordinary language, they will cost more to build and will make expensive

mistakes, which could be avoided if they can be built to respond to a special mathematical speech-code invented with machine requirements in mind. Not only are the numeral-words confusingly alike (five/nine, seven/eleven etc.) but there is a homonym problem: for/four, one/won, to/two/too, eight/ate – right where mathematics calls for precision, English and other languages offer ambiguity.

Six years ago, this author constructed such a code. It is called NUMAUDO, a term derived from Latin and meaning "audible numbers". Numaudio is not a language in itself; it doesn't need to be, because mathematics and symbolic logic, taken together already function as a written language, saying things ordinary languages cannot say. (In the song title, "Two Hearts in Three-Quarter Time," the number-words certainly do not have their mathematical meaning.)

Numaudio is thus not a substitute for the numeral-words of English. It is the "voice" or the "mouthpiece" of the existing mathematical and logical symbols, and can be used with *existing* textbooks and written materials, printed just as they are now.

Numaudio can be spoken by people of any nationality, and is designed to lower the cost of machines used with it. *Syllables*, rather than single letters or entire words, stand for each number, letter, or special symbol. This syllabic principle has been proved by over 900 years' successful use of the do-re-mi-fa system in singing and musical training generally, to be quite valid. Just as sol-fa-ing has not hurt, but rather has tremendously helped, in the teaching of regular musical staff-notation, so will Numando, the spoken code, be of the greatest assistance in teaching with the same mathematics books we use at present.

When the spoken form of mathematics corresponds exactly with the written form (no irregularities like "half" or "squared" or "cubed"; no reversals like "sixteen" for 16 every symbol like – or + or 0 having its consistent syllable), the auditory learning channel (speaking and listening) will *reinforce* the visual learning channel (reading and writing) instead of fighting against it as it does now. Obviously, much more will be taught and learned – really learned – in a given lengthy of time.

Computers already talk over telephone lines to other computers, in a weird and totally inhuman series of twittering noises. With Numaudio, people will be able to talk to computers over the phone, using the same "vocabulary" they have learned at school.

Are you worried about memorizing difficulties? Don't be. Two dozen syllables will do for ordinary arithmetic; 65 syllables will take you as far as calculus and you will speak it like a native.

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Pronunciation of Numaudio syllables follows general European practice, much as singers pronounce the solfeggio syllables: *do re mi fa sol ...* with Italian vowels. Every example in the Numaudio book is followed by an English pronunciation guide, and sound recordings will be issues later on.

Examples:

$2 + 3 = 5$, *ze pa fi fe pu*. $4 \times 7 = 28$, *vo mu te fe zedi*. 1000, *sagugugu*, 10^3 *sagu-po-fi* (regular exponent notation); *defi*, (special abbreviated form). 0.17, *gunasate*. 2.3×10^3 *zenafi-desapu* (special abbreviated form). $(x - y)^2$, *tolimilotu-poze*. $\sqrt{x-y}$, *ra-limilo-re*. 2π , *zepi*.

(In symbolic logic:) $p \supset q \vee \sim r$, *pe ta ku-ve-ne-rer*.

The book of NUMAUDO (copyright 1960), 60 pp. 8½ x 11 is available at \$2.00 from *Ivor Darreg, Los Angeles, Calif.*

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7. We Are Asking for it by Denham Court.

What wonder that Russia's education is so alarmingly challenging ours? Some forty years ago, her government took a step which virtually guaranteed that it would. Unless, of course, we countered with a similar step. As to date, we have egregiously failed to do so.

And that step? Get it from this bit of English verse re-spelled in one-sign-one-sound consistency, Pronounce ae, ee, ie, oe, oo, as in "maelstrom, tee, tie, toe, tool" – aa and au as in "bazaar and because" – oi, ou, uu, as in "foil, foul, full" – u as in "mud, murmur, minus" – zh as in "vision, pleasure" and tth as in "think". Give all other letters and digraphs the sound they most commonly have in our spelling "az iz."

Childrun, bihoeld the chimpanzee,
Hee sits in the ansestrul tree
From hwich wee sprang in aejiz gaun,
Ie'm glad wee sprang; had wee held on,
Wee miet, for aul that Ie kan sae,
Bee horid chimpanzees toodae.

"Oe yes," laft the boi. "that's Jelet Burjesis' vest poket vurzhun, izn't it, ov our riez from munk too man?"

"Az faer az it goez," ansurd hiz faathur. "it shuud hav sed a tthing or too about the munk's riez too chimp-huud."

Here we have the 40 basic speech sounds to which our language reduces, each transcribed by a letter or digraph which is never used for any other sound. They classify into five short vowels with single letters (a,e,i,o,u), ten vowel digraphs (ae, ee, ie, oe, oo, aa, au, oi, ou, uu), 18 single consonants (b, d, f, g, h, j, k, l, m, n, p, r, s, t, v, w, y, z), and seven unitary consonantal combinations (ch, ng, hw, sh, zh, th of then, and tth of thin). Together they constitute a phonetic alphabet which would do for us what hers does for Russia. It would make us a country without a "reading problem."

And Russia is that? She is – at least to the extent, the enormous extent, to which spelling conditions reading. She does not waste her children's unreturning time on an oo-sound which cavorts thru a dozen capricious spellings as ours does in *who, do, two, you, true, grew, shoe, through, gnu, lose, booze, cruize*. Nor conscript their memories for the wholly needless like of *any, penny, head, said, says, leopard, heifer, friend, merry, very, bury, guess*. Nor stymie their burgeoning reason with anything approaching the irrationality of *err, were, her, sir, fur, purr, myrrh, myrtle, word, courage, colonel*. What she *does* is to provide them with 33 characters, phonemic to a degree which, applied to our language, would stream-line these aberrations into *hoo, doo, too, yoo, troo, groo, shoo, thoo, noo, -looz, booz, krooz, eni, peni, hed, sed, sez, lepurd, hefur, frend, meri, veri, beri, gestur, wur, hur, sur, fur, pur, mur, murtl, wurd, kurij, kurnl*.

Need it surprise us, then, that in three months her beginners have so nearly mastered the relations between sight and sound that they "move on to short prepared passages and stories from famous Russian authors?" [\[1\]](#) To fairy tales and fables, hero stories, verses, bits of history, geography, nature study such as our first semester kids love to listen to but, except for the merest few, can't begin to decipher for themselves.

From there on the gap between the two widens more and more. The small Russki leaves Grade One in virtual reading command of his whole speaking-understanding vocabulary, and our defrauded young Amerikanski with an average reading recognition of some 250 words. And all too many of those dependent on the context of the pictures of his babyish primers and readers. With young Vanya and Katinka, moreover, equipped to broaden and deepen their achievement by vacation reading on their own, while about all that our Johnny and Jane can do in their summer months is to lose varying degrees of such reading skill they may have acquired the preceding autumn, winter and spring.

In Grade Two, they may add 400-500 words to their visual vocabulary, or they may add a few, or even none. They may become so confused by the occurrence of *but, put – done, lone, gone, one, son, fun – city, kitty, pretty – both, broth, brother*, that they give up the struggle to try to link print with sound or meaning. And yet be shoved on into Grade Three, Four and even into Five and Six, practically paralyzed before the inconsistencies of *ocean, motion – ever, fever, beaver, deceiver – indict, invite, delight – physical, quizzical, fish, fission*. While in the U.S.S.R.? Says our former Commissioner of Education, Derthick, reporting on his observations there in 1958 – "In a Kazan Boarding School, we asked a sixth grade literature teacher if the children had any reading difficulties. She said they had not and seemed to think the question a little foolish as the children had learned to read long before sixth grade. [\[2\]](#)

Certainly as long before as the end of Grade Three, for here is an excerpt from the history text with which they start Grade Four. [\[3\]](#)

"..... our government completed with Germany a treaty of non-agression. But the Fascists did not keep their word. They concentrated a big army on our border and perfidiously attacked the U.S.S.R."

"The attack was sudden. The Soviet people were peacefully working. Time was needed to mobilize them into an army. Moreover, we had fewer tanks, aircraft and cannon than the Germans. For they had the equipment of nearly all of Europe. Therefore our units who were fighting retreated and the enemy burst ahead towards Moscow and Leningrad. Hitler boasted that the Soviet armed forces were smashed and that within a few weeks the whole Soviet Union would be conquered. But at the head of our Motherland stood Comrad Stalin. He knew the strength of the Soviet people he called upon us to defend every inch of Soviet soil, to fight to the last drop of blood."

Now you know and I know a young American or two, who at the end of his third school year, could tackle the vocabulary and construction of this excerpt and come up with a good grasp of its meaning. But how many of our nation's 3,800,000 of his agetates could you vouch for? Let the "controlled vocabulary" of the readers of our first three grades reply.

Well, with the symbol-sound tie-up now practically automatic, the Soviet school can cut down on the class hours devoted to the mother tongue *per se*, and relegate more and more of the study of it to out-of-school assignment. By grade six, these class hours have dropped from thirteen to eight, but each child must read and account for at least thirty books a year – books of 150-300 pages. And in the boarding school of which our Commissioner wrote, there were children who read a hundred.

This cut in class time increases till in grades nine and ten, it falls to only four periods a week – and no harm done. So high is the national literacy which this in-school-out-of-school schedule achieves, that one fifth of the whole world's annual output of books is printed – and read – in the U.S.S R. And none of it trashy, licentious or crime-inciting.

So, if her educational showing alarms us, there is just one thing we can do about it. Give our Johnny a chance to keep abreast of Vanya. Did you ever wonder what must be the reaction of Russian educators to all that perturbation, warning, exhortation anent our schools which our press is turning out? The "Challenge of Soviet Education," you can almost hear them jibing, "and their kids with a basic learning tool of 251 jumbled spelling units, and ours a streamlined 33.

Well, if so, who can blame them? They know that any time we summoned the simple horse sense to do so, we could change that monstrous situation almost overnight. For there in the parentheses of our Thorndike-Barnhart Beginning Dictionary, they find 208 of these spelling units sent to the limbo of reading saboteurs, and the remaining 43 each sworn to the transcription of just one sound. To be sure, the diacritics of the long and special vowels are a hindrance to cursive writing – most of us find it nuisance enough to cross our t's and dot our i's without stopping in our tracks to crown the ubiquitous a,e,i,o,u, with macrons, dierises, circumflexes or dots, ($\bar{\quad}$, $\acute{\quad}$, $\hat{\quad}$, \cdot).

But what could be simpler than substituting standardized vowel digraphs such as those in the foregoing demonstration?

The life long protest of G.B.S, against the enormous cost in paper, ink, typesetting, wear and tear of machinery involved in using two letters to transcribe one sound, was wholly valid in his day, but cybernation is probably right on the eve now, of making these costs immaterial, and reform imperative. As for that outcry that spelling reform would make unreadable to our young the whole rich treasury of English literature, can't you see the Russians quirking a lip at it? We can take it for granted that their educators have been keeping tab on the i.t.a. projects in England and here, and that they know how readily-reading-wise-even a primary child, fluent in this phonemic code, can switch to our malphonic one. Tho I can also bear them asking, "But why under Heaven should anyone want to?" The new publication processes which cybernation is about to usher in will make short of the transliteration of whatever of that treasury should be kept current – and of providing museums for the rest of it, to which those interested can search.

In view of what G.B.Shaw called our impermeability to "logic, reason, even self interest" in this matter, isn't it possible that the Russians may themselves take over the respelling of our mother tongue? Along perhaps with the Chinese, Hindoos and the new nations of negro Africa?

Among them, they are training far more school children in English than is our whole English speaking world – and they may well ask themselves why they should put up any longer with our hide-bound stupidity as to its spelling. So if we wake up some morning to find a reform as to its spelling, taken out of our hands, well, isn't that just what we've been asking for?

References.

[1] C. B. E. Bulletin, March, 1957.

* Vanya is the Russian diminutive of Ivan, just as Johnny is of the English John.

[2] *Soviet Comitment to Education*, pg 45.

[3] William Benton, *This is the Challenge*, appendix.

[4] Ibid.

[5] Counts, Geo. S. *The Challenge of Soviet Education*.

8. The Dime that Brought Two Million Dollar Smiles, by S. C. Seegay.

Did it ever occur to you how sad is the lot of the reformer? Ordinarily he is not a single-track-minded individual. More often he is by nature an exponent of a bevy of causes, more than likely lost causes. His sympathy is usually with the underdog. He diligently burrows; he carefully and constantly assembles his facts; he argues loud and long – mainly on deaf ears, and whatever little satisfaction he derives from his persistent efforts is no more than a deeper and more thoroughly entrenched conviction, in spite of any and all rebuffs.

Once in a while, if he is lucky, he finds a kindred spirit with sentiments that bind them together in a cursory and temporary alliance, but eventually because of the nebulous nature of the variant and divergent untried and untested panaceas proposed, they too, find areas of disagreement in the midst of their agreement. So that in the long run it is a lonely and unending pursuit after an elusive pot of gold at the end of a mirage.

This is the story of a little incident in the life of one such reformer.

About twenty years ago, after a twenty-year period of experience in every phase of the printing business, I quite accidentally became a teacher of printing in the New York City public school system. As a printer, I had held several very responsible positions as either or both proofreader and editor of some rather technical publications. Under the circumstances, I quite modestly thought that I had become somewhat an authority in the field of both oral and written English.

Upon making the decision to become a teacher, I successfully passed a series of qualifying examinations for admittance to the requisite teacher-training courses. The next step, concurrent with enrollment and prior to being appointed as a regular teacher, was to get some experience as a substitute teacher. This too, required a special license. Fortunately, I found a principal who was anxious to fill a vacancy in his organization and offered to install me. Even for this, it was necessary to pass what is known as an emergency examination.

These were not exactly lush days in the economic history of our country, and the Board of Education in this period of retrenchment was not what might be called profligate in its bestowal of licenses of any kind. In fact, its favored and favorite weapon for suppressing a plethora of licenses was what was known as an "oral" test, which entailed an interview and readings of stipulated subject matter.

Imagine my consternation and grief when I received a notice of failure in the orals. Just as in the case of thousands of other candidates, I had been trapped by such snags as: *habitué*, *lamentable*, *formidable*, *naivete*, *caoutchouc*, *brougham*, etc. When I reported this debacle to my principal he was greatly disappointed. Nevertheless, he did want this vacancy filled, and he extracted a promise from me that I would study exhaustively; for which in return he would arrange for a re-oral test. This he did, and I did too. In the intervening weeks I spent all my time with a tutor, with many books in several libraries, until the scheduled day when I did succeed in passing the oral test, in getting the license, and in acquiring the post. Whew!

Whew is just the right word for it. I had thumbed through every current dictionary and with each thumbing I noticed the many variations amongst them. Each had its own system of pronunciation, with its own system of denotations; and even with their universal use of respellings, there was much to be desired in the way of some uniformity and precision, I must have struggled with a thousand symbols. In utter disgust, I made up a system of my own. With a dozen diacritical marks and a

masterful stroke for silent letters, I found that I could accurately indicate the pronunciation of any and every word in the English language without respelling – an original and unprecedented lexicographic feat. I was very proud of this brain-child, and in displaying it to some of my friends and colleagues, I became aware that there were hundreds of other people actively concerned with the simplification and revision of English orthography.

In short, I became a spelling reformer. I perused and examined a hundred time-worn and contemporary systems; I subscribed to a dozen publications in the field; I joined every organization I could find; I corresponded and harangued with every known alphabet dabbler. Meanwhile, in endless revisions, I chopped my dozen diacritical marks in half and in half again. Finally I worked out a "Global" alphabet of only 18 characters with which I made transliterations in 18 languages, a copy of which I promptly dispatched to that world famous proponent of spelling revision, the late and great G. Bernard Shaw.

With a receipt of a response on one of his famous blue correspondence cards saying: "The Seegay Alphabet is good," in his own personal handwriting, I was transplanted into the seventh heaven of delight. G.B. went on to mention some other cogent points of agreement and dissent which led to a correspondence of some two *years* duration until his sudden demise. In conformance with some of his corrections and suggestions, I revised my alphabet and system considerably, especially in the elimination of all diacritical marks, and I knew now that I had the ultimate in a 100% strictly phonetic alphabet. Some time later, a little recognition came in the mention of my work by Dr. Mario Pei in his book *One Language for the World*, and again in Dr. Tauber's Columbia University doctoral thesis, *The History of the Spelling Reform Movement in the U.S.A.* – a couple of heart-warming ups in years of depressing downs.

I had been in the habit of teaching my Phonetic Alphabet and System of Orthography to specially selected and interested boys and girls, extra-curricular. But one day something strange happened. A young boy came to me with the sad tale that he was being expelled from a printing course in a vocational high school because he could not read. When I questioned him as to how he ever got into high school without learning to read, he told me that all through his grammar school career his classmate Jimmy had done his homework and prompted him when reciting and passed notes to him – for a consideration. Now that they had parted, he was "stuck." Having heard from some of the children on his block about my easy system of learning English, he wanted to know if I would help him. In a diagnostic test, I discovered that he was indeed a non-reader, for he could not even recognize words like *the, each, heart, climb, draw, took*.

I, of course, explained to him that learning my system, while a delightful experience, per se, was a separate end in itself until and unless it was ever adopted. We discussed the matter further and decided that there might be some transfer value in the system, even as there is in almost any educational pursuit and regimen. He was so despondent with his present situation that he felt it imperative to be able to learn something – anything – with some small measure of success. We decided to meet for a three-quarter hour session daily.

The Seegay System employs 25 of our Roman characters, including two with considerably altered denotations and 14 digraphs for a total of 39 sounds. Each of these characters and denotations have been given new names. Every day Clifford had to study and master the names and sounds of from 3 to 5 characters and denotations.

Each group was used to assemble a number of words that I supplied for him; and for homework Clifford had to assemble more and different words. Each lesson included a review of the sounds and words previously employed. I must say Clifford worked on this very conscientiously, and at the end of three weeks he not only knew the names and sounds of all 39 denotations, but he was already

reading some sentences that I typed out for him. Indeed, in the middle of a lesson one day a visitor stepped into my room, He glanced at the somewhat strange looking sentences that Clifford was reading so adeptly. I explained to him that Clifford was classified as a non-reader up to a few weeks ago, but that now Clifford could anything in this special system of orthography. In my enthusiasm I wrote a dozen long erudite words on the blackboard which Clifford read off glibly. I even wrote several sentences in three foreign languages which Clifford read correctly although he did not have the slightest idea of their meanings. The visitor was amazed; I was delighted and proud; Clifford was beaming with satisfaction.

I told Clifford that it was time to start on a conversion to traditional English; we planned to start with the simple first-grade reader, *Dick and Jane*. This book is printed in rather large letters and with rather wide spaces between the lines. I first transliterated the entire story into the Seegay System interlinear. I told Clifford to read only the interlinear, to get acquainted with the content before we attacked the conventional spelling. This happened on a Friday afternoon; Clifford took the marked book home for the weekend.

On Monday, two hours before he was due for his lesson, Clifford burst into the room, his face was aglow with excitement, his eyes popping-big.

"Guess what, Mr. Seegay," he said, "I won the dime!"

"The dime? – what dime – when – where?"

"Last night – at home – from my cousin Alice – I won the dime."

"O. K. Clifford, calm down and tell me what happened."

"Well, I was sitting at the kitchen table reading my copy of *Dick and Jane* when the doorbell rang. My mother went to the door and I heard the voices of my Aunt and her daughter Alice as they went into the living room. I joined them, too. Alice is almost exactly my own age and she is supposed to be very smart. She is finishing the second year of high school.

"Pretty soon Alice asked me what I was doing and I told her I was just finished reading *Dick and Jane*. Well, she laughed and said I was kidding, for she knew that I could not read at all. So I explained that this was a special book with a special kind of spelling, and she said she wanted to see it. I brought the book in and when she looked at it she said that nobody could read the silly stuff between the lines. I said I could, she said I couldn't. So I offered to bet her a dime that I could read the writing between the lines faster than she could read the printed lines. We agreed that her mother would time us and hold the dimes."

"I read first. Before I started I pictured myself sitting next to you, Mr. Seegay, and I sailed right into the book. I read and I read for what seemed like hours but I managed to finish the book. My Aunt announced that I had taken seven and a half minutes. Then Alice began to read the printed lines. I was shaking with fear. I did not want to lose that dime. Not for the dime's sake, Mr. Seegay, but for your sake. I waited, I listened – I could hardly breathe. Every word that she read seemed to stab right into my heart. All of a sudden my Aunt got right up out of her chair, and handing me the two dimes, she said, 'Time's up, Clifford wins.' Alice was still reading. How do you like that, Mr. Seegay, how do you like that 1"

"Good for you, Clifford, I'm really proud of you. I think I'm even happier than you are. Let's both have a good laugh."

"Gee, Mr. Seegay, I wouldn't trade this dime for a million dollars,"

"Neither would I, Clifford, neither would I."

S. C. Seegay, New York.

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9. The United Nations International School Introduces the Initial Teaching Alphabet, by Valerie I. Kemp.

There are many international schools but only two United Nations International Schools – the one in New York having a different organization from the one in Geneva, Switzerland. I will tell about the school in New York, as I now teach here.

The U.N.I. School is a co-educational day school which provides schooling with an inter-cultural curriculum from the age of five to the college or university entrance levels. It is primarily intended to meet the needs of children of parents from many lands and cultures who work directly for, or in close contact with, the United Nations, and also includes children of parents who have come from abroad to represent international concerns. In addition, there are children of internationally minded American parents, who, while having no close ties with the United Nations, wish their children to take part in the curriculum offered.

The school has an over-all objective – to promote and provide an international education conforming to the spirit and principles of the United Nations for children of persons officially connected with the United Nations, as well as for children of other persons desirous of obtaining for them a similar education.

This objective is attained through the following four specific aims:

Firstly, to ensure the harmonious development of the child in relation to his age and environment, to his national cultural characteristics, as well as to the wider community of the world.

Secondly, to provide instruction of such kind and at such level that the child may, with a minimum of difficulty and loss of time, transfer to a school in his own or another country.

Thirdly, to establish a programme in keeping with the spirit of the United Nations, that is, one making no distinction as to race, sex, language or religion, and one laying the foundations of a truly international education combining the best from the different school systems of the world.

Fourthly, to contribute to the intelligent and comprehensive adjustment of the child to American life, in which he will take part for a number of years.

The U.N.I.S. was begun in 1947 as a nursery school on the site of the United Nations headquarters at Lake Success. Provided with substantial support and assistance of a non-financial nature by the U.N., the nursery began with twenty children of fifteen nationalities who were taught by four teachers, each from a different country. Step by step the school increased in size, moved its premises until now it provides a full range of elementary and secondary education.

The school is divided into two establishments. Parkway Village is purely a primary school, covering the first six years of schooling from entry at age five plus. The Manhattan School, in addition to a similar primary department, has a secondary department of four years and a pre-university department from which pupils graduate to college or university, depending on their nationalities and needs.

The precise composition of the school varies from year to year, but one typical year showed 475 pupils representing 59 countries and speaking between them 38 languages. Approximately sixty per cent of the children were from Secretariat, Delegation or International families, while the other forty per cent are children of American citizens. They are taught by a staff of 50 of different nationalities.

There are many distinctive features about the education offered at the U.N.I.S. Pupils benefit from the fact that they work and play with children from many lands and cultures, are taught by a staff drawn from a variety of countries, and learn at least three languages in the course of their school career. The curriculum of the school is also designed to combine some of the most outstanding features of various national educational systems, and these are available to all students, irrespective

of their nationality. The students at this school are educated in an atmosphere of international understanding, learning that they are part of a large community, while at the same time their ties to their own nationality are maintained.

This then, is the U.N.I.S., and it is, at Parkway Village that the Initial Teaching Alphabet (i.t.a.) is being introduced into one of the Junior A classes. After seeing a television film and reading reports of the research into the use of i.t.a. taking place in England, where it began in 1961, the director of the school became interested in this new approach using a new alphabet for the teaching of reading. There is no need to go into the details or even the principles of i.t.a. here, as there have been several articles in previous issues of the Bulletin, and other publications giving very full explanations and results obtained by the classes using the alphabet. I will, however, emphasize again – that this is not a new method, it is a new medium – an augmented alphabet designed to help the beginner learn to read, and designed to, assist the child to transfer his reading ability and become a fluent reader in traditional orthography.

There is no formal research being carried out at the U.N.I.S., and there will be no testing of the children except that required by the school. It will, however, be interesting to watch the progress of the children, when one thinks of the composition of the class. There are 16 children of 8 nationalities, and they have not been specially chosen. Fourteen of the children speak English with various degrees of fluency, while the other two little Russian girls, speak no English at all.

The children all entered school on September 10th and their ages range between 4.10 and 5.7. This class, like the reception class in an English school, has a reading programme. The children follow what, is to me, a teacher from a British school, a normal programme for a reception class (i.e. children in their first year of schooling). There will be a large amount of time allotted to play activities, discussion, experimenting with a variety of materials, music, stories, poetry and all the other activities that will help to widen the children's experience and knowledge of the English language. They will, in addition, be learning a second language – French – this of course is a third language to those children to whom English is not the mother tongue. As well as these activities, part of the day will be used for activities designed to encourage the children to want to read and write. The reading programme, like all the other work with children so young, is necessarily elastic, but by the end of the year – if they follow the pattern set by the children in the major research in England, some of the children will be fluent readers, not only in i.t.a, but also in Traditional Orthography, that is *before they enter grade one*.

This year will be of great interest to me, having taught i.t.a. in England since the Research Project began, to children to whom English was their only language. I am naturally wondering what the results will be with children who speak little or no English. Even at this early stage it is interesting to hear the little Russian girls, while never speaking a word of English at any other time, taking delight in prompting their contemporaries when reading sentences that are matched with pictures.

The U.N.I.S. is well equipped to introduce i.t.a. having supplied the children with all the books and apparatus that belong to the Downing Reading Scheme, and also a number of "book corner books." This school seems to be the right place to introduce i.t.a., for in this one school we have children from many of the countries that are beginning to introduce this alphabet into their own schools. And again the U.N.I.S. is carrying out its third aim "..... combining the best from the different school systems of the world." Having had experience with i.t.a. and seen the practical results in the classroom, I am convinced that, this is one of the best ways of helping the young beginner on the way to reading for enjoyment.

Valerie I. Kemp, United Nations International School, New York.

10. Teaching Reading, An Indefinitely Renewable Problem, by Caleb Gattegno, Ph.D.

Although tens of thousands of people are involved in studying the teaching of reading, it is very rarely that some really new idea makes its appearance. The reason is to be found in the fact that people prefer to discuss pinions rather than take the trouble to look deeply into the problems.

Genesis of an Approach

It happens that I came to the field of reading in 1956 from scientific research; and as a mathematician. Rather than spend time looking into the vast literature in the field already available, I attacked the problem from scratch with actual learners. My students were adults who could not read their mother tongue. Their language was Amharic, the official language of Ethiopia, This language is written by making use of 251 different characters, some corresponding to the same sounds. That is, Amharic is not a phonetic language. It takes from six to eighteen months to teach reading there through traditional church school methods; that is, memorization and repetition. Twenty projects of reform of this complicated script had been made before I started my work but were unable to gain acceptance.

For me the problem was one of teaching, not of spelling reform. This line had not been investigated except by advisors to the Ministry of Education who proposed experimentation with look-and-say books and techniques, and through this found it possible to shorten the time to six months.

When I tried out my ideas, I found that from six to ten *hours* were sufficient to master the reading of words using 231 of the most important and most common of the signs. I worked with adult groups at first and once with a group of children, but with no beginners, (i.e. six-year-olds). It was clear to me that I had been lucky in finding a line of attack that was useful. I called it the morphologico-algebraic method of teaching reading and writing. I applied it to Spanish and Hindu, knowing that this could help many illiterates in various areas of the world. I then studied the literature and found very little that was connected with my approach. Consulting with experts, I was told that my approach was really original,

In 1959, I applied it to English. I reasoned that if illiterate Amharas can master 231 characters in six hours, English speaking people should be able to master as many English graphemes, should we find that many in written English. As I worked with each language, I discovered it had problems of its own which had to be met for what they were. I did not feel entitled to change anything in Amharic, nor did I feel that I should propose changes to traditional English. My task was to adjust to each language as it was and invent new techniques of teaching it. This I did successfully, and we find now that English can also be mastered in hours instead of months.

Linguistic Abilities of Learners Can Now Be Taken Into Account

Indeed reading is a *very easy* task if we can meet its challenges rather than be carried away by our preconceived ideas. This can only be understood if the users of English ask themselves a number of questions.

1. Have children not learned to talk between the ages of one and three, and done so on their own?
2. Are spoken words less conventional than written words? Don't they represent classes of vastly different objects gathered under one label? (For example, *table* and *glass* are words which each represent a huge class of objects.)

3. Are not spoken words, in addition to expressing such ambiguities, also carried by voices that have a number of varying attributes (rhythm, tone, timbre, intonation) which increase their ambiguity?
4. Have not most children learned by three or four to talk in sentences using the structure of English and the proper tenses related to the past, present and future? Does not this show a more superior relating to speech than any requirement made by teachers of reading when they call for a relating of a static page of print to speech?
5. Have we not forgotten altogether this component in any one of the proposals made to help children in reading? That is, have we not been carried away by our own idea rather than meet the powers of children that are at work?
This applies to i.t.a. as well as to look-and-say or phonics or any other combination of these.
6. Yes, written English is ambiguous, but is it not far less ambiguous than any spoken language? Whoever has learned to talk can *ipso facto* learn to read since so much of language has already been integrated and so little is left to be overcome in order to own also the transcription of sounds into signs.
7. Have we not forgotten that reading is not only concerned with grapheme-phoneme relation, but with the insertion of time into the spatial arrangement? – that reading is scanning a page and inserting an order of sounds and spaces and thus creating a sequence with the words, order that can vary from culture to culture and therefore is not necessary by its own nature but is another convention?

Have we not missed the ability of children to recognize similar sounds hidden in different words so as to be able to reproduce sounds after hearing them? This is one of the aspects of playing with words and sounds in which all children delight. Without this ability we would not succeed in learning to talk. Such awareness of speech is necessary even before imitation can take place. Have we used this awareness in working with children? I do not think so.

Instead of taking these basic questions into account, we have on the contrary, in our usual approaches, created any number of obstacles. To list them all would be too long for an article. But one or two could be mentioned. Take any group of teachers or parents and show them a picture simple enough not to be distracting by including too many details. Then ask them to write a caption for it spontaneously; gather the various results. Would it ever be possible that all would provide the same caption? Since a picture, however simple, will contain a very rich set of stimuli, the caption should differ according to the ones selected by the viewer. This indicates clearly that the use of pictures to teach reading creates a source of doubt for the learners when in standard texts one caption is selected among the many that may be associated with it. It is customary, also, to separate either *spelling from reading* or *reading from comprehension*, as if spelling was not part of the image one forms of the words, and words are not meaning carriers. Because of our preconceived ideas and our techniques of presenting written speech, we lose sight of the intimate relations between images of words and their sound even though so many of us are good spellers. Comprehension is definitely an ally of reading and speed of reading, hence it has to go hand in hand with the technique of associating sounds to signs. We now know this can be done far more safely by using techniques which put stress on time, on intonation, on natural speech rather than by providing a picture.

Grapheme-Phoneme Relationship Can Be Solved Quickly Without Disturbing Spelling

i.t.a. has wanted to help, but its stress on graphemes only shows clearly that it is a preconceived idea. *Words in color* is the trade-name for the morphologico-algebraic approach as applied to the English language; a teaching and learning approach in which teaching is definitely subordinated to

learning. Nothing in this approach is rigid and the guide lines given to users are themselves as flexible as the materials. Color is only used to play the role of the augmented Roman alphabet. It *does* unify the various signs that have one sound in English, but color is as transient as sound and from the beginning is a dispensable clue to the reader. In the following sentence, the italicized letters would have the same color if written in *Words in Color*, since they have the same sound:

My friend says I said that my pet leopard did not eat any of the dead heifer that we are to bury!

While the following italicized letters would have all different colors because they represent different sounds:

all was dark, the mare left the village lane and, *as* many forecast, this led to her fatal accident.

Thus, color can serve the purpose of unifying English, though it does not change the spelling. A phonic code shows that 48 colors are sufficient to account for almost all sounds of English as spoken all over the world. Dialects will only require that certain signs be shifted to columns of signs indicating the sound they carry when the dialect is spoken (the *au* in *laugh* is one that may shift).

For example, let us consider the set of spellings given above for the sound of *e* in pet. These are *a* as in any or many, *u* as in bury or burial, *ea* as in dead or lead, *eo* as in leopard, *ei* as in heifer, *ie* as in friend, *ai* as in said and *ay* as in says; these would appear in one column in the same color. In contrast the sign *a* has nine sounds and so will appear in nine different columns, its color being different in each column, so would *o*, while *u* appears in eight columns and *i* and *e* in seven.

By listing a set of spellings, any one column of the phonic code (printed in its own color) will produce an impression with people who know English (written and spoken) that leads to the association of a given sound with a given color.

The Most Important Contribution of the Approach

Though color can achieve the unification of sounds of different spellings and the contrasting of different sounds associated to one spelling, thus proving it is not necessary to resort to any change of spelling in English, it is not the most important contribution the scheme makes to the solution of the problems of reading for beginners or for those who fail to learn to read. Indeed, the other techniques of *Words in Color* go straight at the roots of some of the problems met by most teachers of reading.

1. *Dyslexia disappears for most.* This is obtained by using time as the guide of order and not space that *cannot* by itself indicate an order. For example, *pat* and *tap*, *top* and *pot* are met in the same time in visual dictation. Hence, pupils must distinguish one from the other, and as they follow a pointer moving upon the component syllable, they cannot fail to notice which is first and which is last. No mirror reading ever takes place for users of *Words in Color*.
2. *The fusion of syllables so as to produce one sound out of two is used from the beginning.* So here there is no sounding of consonants and the naming of vowels, which are both alien to the job at hand.
3. *Every experience is used to enlarge the capacity to attack new words.* Thus, if one listens to one's voice uttering *sat* and stops before *at* is uttered (a thing a speaker can easily do), this makes available the hissing sound that can be made and followed by another known word, such as *top* to produce *stop*. Similarly, reversing the sequence will produce *tops*, and the two exercises put together give us *stops*. Similarly, *pit* yields *spit*, *pat* yields *spat*. *Pet* yields first *pets*, and then by reversal *step*, and so on.

4. *All this is algebra as seen to apply to sounds*, Operations on operations on sounds and signs generate a manner of obtaining more and more words out of a small stock. This is obviously most interesting, for now with the same effort and the same time consumed, pupils can gain much more.

Thus, the old but still current idea that pupils written vocabulary in the beginning should be restricted to a number smaller than 200 has been exploded forever. During the first week of learning to read, five year olds know over 30 words and can make literally scores of sentences such as "step it up pat" or "is it as it is" or "pat's pet stops at spots." During the next two weeks the same children have met about three or four hundred words, and can use them in sentences which they can write in black and white with the conventional spelling without mistakes under oral dictation. One example will suffice to indicate the level of achievement reached in these three weeks of work through the schemes "my older brother uses logarithms in his math, I do not." Three weeks later examples of any kind have been met during the study of the "irregular" parts of English. The colored charts carry over 620 words that show most all spellings of English. The three primers propose another additional 600 and the Book of Stories, to be read concurrently with Primer 3, has no vocabulary restriction within children's experiences and covers thousands of words not met in the rest of the materials.

Words in Color as a scheme naturally shifts from the technique of coding spoken speech and decoding written speech to the study of English as an objective process involving learners in the study of grammatical categories through another use of color (via the word cards) and of Phonetics, special spellings, through the phonic code. These materials could be used by people who can already read up to the level of teachers and students of English in college work.

A New Type of Research

Let us end this brief report by saying that *Words in Color* has therefore been received by teachers and linguists with unreserved enthusiasm and a sense that something significant has at last appeared on the reading horizon. Since it is awareness of one's linguistic powers and knowledge that *Words in Color* fosters, it is not simply a device to facilitate the grapheme-phoneme correspondence, but rather the first language laboratory that takes as its instruments the-minds-that-function-linguistically. A new type of research can now follow that will leave current educational research far behind in the count down. A study of people-in-the-process-of-being-aware-of-language-and-its-numerous-facets is what can be offered as reward for the penetrating investigation made possible by some of the premises involved in the developing and in using of *Words in Color*.

Dr. Caleb Gattegno, Educational Explorers, Ltd., Reading, Berks, England.

assisted by

Dorothea E. Hinman, Ed. D., Nat'l Consultant, *Words in Color*, Encyclopedia Britannica Press, Chicago, Illinois

Book Reviews

11. **Teacher and Technology, New Designs for Learning, by Wm. Clark Trow***

"Education is an enormous enterprise." So begins the author of this recent survey. With the population explosion causing a sharp increase in sheer numbers of school-children, and the new call for retraining and other increasingly necessary forms of adult education, Dr. Trow's observation becomes almost an understatement. Since education admittedly is Big Business, getting bigger all the time, it is logical enough to ask, "Can technological advances solve, or alleviate, pressing educational problems?"

It is unfortunate that the author does not devote more space to adult education, as the technological aids he discusses have as much, or greater, value with adults as they would have with children.

As would be expected, there is considerable discussion of "teaching machines" and "programmed learning" devices and books. A great advantage claimed for these is that they permit bright pupils to advance as fast as they want to and slow pupils to proceed at their own pace without holding back the rest of the class, as too often is the case at present.

Our readers may well wonder if these teaching machines requiring at least some basic skills to operate, would have much effect on the teaching of reading to six-year olds. In the later grades, of course, they may be used in teaching spelling.

More pertinent to our interests, perhaps, is the *Language Laboratory*, quite well described in the text. While it is treated there as a means for imparting foreign languages in spoken form and at an earlier age than is now customary, it has obvious applications in the teaching of reading and spelling, in correcting mispronunciations and faulty diction,

It does not require too much imagination to conceive the application of such language laboratories to the teaching of a new alphabet or system of spelling to adults and children alike. Language laboratories utilize tape recorders, telephone channels, and in their more sophisticated versions, slide projectors, film strips, closed-circuit T-V, and other visual accompaniments to the audio channel. Already they are becoming common in schools; before long they will be classed with the necessities rather than the luxuries.

Dr. Trow's work closes with two chapters of forecast and examples of what the new schools would he like. An adequate bibliography is appended, and the index is quite satisfactory. It would be only fair to emphasize the author's statements that (1) Practically all the futuristic educational aids he describes are now in rise somewhere; and (2) the fact that teachers will be using machines does not mean that our teachers have to *become* machines themselves.

Published by Appleton-Century Crofts Div. of Meredith Publishing Co., New York, 1963. 8 1.95 pp. x + 198

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The quickest way to get a lot of undivided attention is to make a mistake,

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12. i/t/a books six and seven, by Tanyzer and Mazurkiewicz, reviewed by Helen Bowyer

Like Book 5, its delightful predecessor, Book 6 draws its stories from Humpty Dumpty, the high grade little monthly for young children put out by the publishers of *Parents' Magazine*. "The Three Wonderful Seeds," "Pepe and the Dragon," "The Sheep of the Lal Bag," "Pigs and Pirates," – these titles will give you some idea of the world of wonder and adventure, of the here and far-away, of the now and long ago, which its 163 big-type pages offer the lucky little enrollees of an i/t/a project. It adds 396 words to his reading vocabulary – among them plurisyllables such as the i/t/a version of packages, somersault, expecting, comfortable, favorite, impossible, confused, Korea, centavos, Krishna. As for sentences, they may run to the length and structure of: "Now, strange as it may seem, and much to Kim's Surprise, the tiny yellow bowl quickly filled with rice again." And even to: "They came to see the big white flowers opening and closing in the pond; and all of the plants in the glass house; and the flame-of-the-forest-trees, which filled the sky with orange; and the water in the fountains making beautiful splashes."

But, by the time Book 6 takes over, the i/t/a year is approaching its end. So its little enrollees had better begin a formal transition to the traditional printing thru which the remaining eleven years of their school life are now slated to proceed. I say *formal* because, reading-wise, most of them are already tackling this as proficiently as most of the two million second semester moppets thruout the land who have learned their reading thru the doings and sayings of *Dick and Jane* and their inane prototypes of the other basal series in general use. Their out-of-class exposure – in the home, in the street, thru the headlines, the billboards, the comics, the primers and readers of the little chum next door, has achieved an all but automatic word recognition in it, while their greatly larger vocabulary has done a handy context job. But the usual second grade to which they will be shifting the coming September will demand a second grade proficiency also in the writing and. spelling of its malphonic print.

This will include the use of capitals for proper nouns and the first word of sentences. This convention i/t/a has met just by enlarging the appropriate lower case letter – a device so simple and sufficient that one wonders why all textbook publishers, and indeed, the entire English press hasn't adopted it long ago. Especially as 8 of our 26 capitals, C, O, P, S, U, V, W, Z, have set them such an encouraging example. So nearly identical are these with their lower case configurations that the i/t/a teacher can dispose of them in just the time devoted to Story 8, A very special ride. But, I, J-Y, L-K, N-R, F-T, D-B, G-N, E-A, M, are sufficiently different to require careful attention and are studied in this order in stories 9 thru 16. Also in stories 11 thru 16, six augmentations drop their ligatures and thus transmute themselves into the T.O. symbols ee, r, au, ou, wh, oi. The remaining five stories of Book 6 content themselves with habituating the children to these transitions.

Then Book 7 takes over. Its 245 pages offer 32 stories of which a few titles – The Wishing Bottle, Cassim's Black Bag, Moon Mouse, The Spacemen, The Runaway Baby – bespeak their range and allure. *Together they bring the year's vocabulary up to some 1500 words.* As for their sentences, they may assume the compound-complex structure of "If Tommy's mother looked out of her kitchen window, she could see the spacemen climbing up the steps, or standing on the blocks ready to take off." So, if your bright first grader is getting pretty well bored with the meager vocabulary and stilted structure of his *Dick and Jane* books, why not get this i/t/a Book 7 for him? From page 96 on, the spelling is wholly conventional, and for many pages before, so nearly so, it wont interfere with his enjoyment of its content. As for the earliest pages, which are still largely in i/t/a. he'll have a wonderful time working them out with the aid of the i/t/a alphabet at the back of the book. He'll revel, however subconsciously, in the consistency, true analogy, sequence of cause and effect which their spelling displays – high human attributes which his conventional first grade books have been

violating all along. If he wants more of this mental-emotional fulfillment, get him book 5, the last of the i/t/a series to come wholly in its spelling. Be sure, along with the readers, to get their respective workbooks, about the best devices I've yet seen for getting first graders to use their heads – and love to do it.

But to return to the transition to T.O., which is the main business of Book 7. With the foregoing six augmentations standardized into ee, r, an, on, wh, oi, it starts right in with the remaining ones. The i/t/a symbols for *sh*, *ch*, ng begin, in Story 1 to show themselves as in *ship*, *wish – chin*, *bench – sing*, *morning*, and pages 1-8 of the workbook give absorbing practice in writing them thus. Story 2, alas, takes on three regrettable jobs – all of which you'd think our reading specialists would protest in loud outcry. The first of them reduces to just one, the two i/t/a symbols for the *th* of *then* and the *th* of *thin*. The second discards the reversed z which is the i/t/a buzz that the *s* of *has*, *is* should be sounded as in *jazz*, *quiz* and not as in *gas*, *sis*. The third drops the broad Italian *a* which the children hear in *father*, *balm*, *car* and lumps it with the *a* of *lather*, *bamboo*, *carol*.

With the Moon Mouse (story 3) comes further change dealing with i/t/a augmentation for the long vowel *e*. For its change to *ee* meets only *some* of the requirements of TO. Along with *meet* and *feet*, the children must now learn *beat* and *seat*, along with *bee* and *sea*, they must master *be* and *see*, and *key* and *she*, and *ski*.

With Thumbelina (story 4) the unequivocal *s* of the i/t/a *sity*, *sircus*, *pensil*, must give way to a chancy *c*-chancy because look at: *sit*, *sir*, *pensive*. This lesson also drops the beautiful stylized *w* which has thus far depicted the *oo* in *food*, *cool*, *noon*. That would be no tragedy if T.O. didn't also use it for the vowel sound in *good*, *hood*, *wood*, and further complicate the situation by spelling both sounds in so many other ways. Just witness: *do*, *two*, *shoe*, *blue*, *flew*, *through*, *truth*, *youth*, *fruit – would*, *pull*, *wolf*, *woman*. After which it throws all common sense to the winds, by using these multiple depictions of two given sounds to spell a raft of wholly different ones – *go*, *wot*, *won*, *hoe*, *rough*, *thought*, *mouth*, *soul*, *glamour*, *guise*. Even on no more evidence than this, of the irrationality, impracticability, memory burden of conventional spelling, it should come as no surprise that, as things now go, some-third of the year's first graders, outside the i/t/a projects, will reach high school reading at no more than fifth grade norm – when even that.

Ten more stories and workbook lessons finish the formal transitions and the remaining 149 pages offer their vocabulary, their fluid sentences and their absorbing content in fully conventional print. So now, not only are the i/t/a youngsters ready for whatever reading Grade 2 will demand of them, but they have a summer ahead in which they can raid their nearest children's library as few of their agemates thruout the land can do.

But what of the ultimate outcome of this unusual first year program? What will it do for them later on, in their third year, their fourth, their fifth? As far as prospects now look, you can get that from the report of Dr. Albert Mazurkiewiez, in this same issue of the Bulletin. Certainty must wait another few years. But those of us who have followed the now completed three years of i/t/a projects in England, are not worried on that score.

**13. Phonics in Proper Perspective, by Arthur W. Heilman,
reviewed by Helen Bowyer**

Few books on phonics which have come to the Bulletin's attention have dealt so simply and cogently with this theme. About the only change this reviewer would suggest, would be that its title should have been *Phonics in proper perspective for a grossly malphonic tongue*. However, the writer wastes little time in himself recognizing this malphonicism. "One factor," he points out, "which limits the efficacy of phonic analysis is the fact that the pronunciation of English words does not follow any consistent pattern. Altho English is an alphabetic language, in its written form it is also one of the least lawful. There is nothing like a one-to-one relation between letter spellings and letter sounds in English."

A given letter or letters may have many different sounds in different wording – cow (ow), low (ō) – can (ā), cane (ā) – cap (k), city (s) – bus (s), his (z), sure (sh), measure (zh). And in thousands of English words, a letter may have no sound: (~~k~~now, ~~k~~iek, ~~l~~isten, ~~l~~ight, ~~pl~~umb, ~~w~~ring).

"In a number of different sources one might read that 85% of English words are phonetic. It is not clear what this statement means; but it was probably meant to imply the possibility of formulating enough phonic rules to cover approximately this percentage of English words. As rules become more involved and cover fewer and fewer actual words, one may question the relationship between learning these rules and learning the process called "reading."

How many rules would be enough? Certainly not just the 28 or 30 usually advanced by the *How to* books on beginning reading. "As an example," says Dr. Heilman, let us look at the most widely applicable rule relating to vowel sounds:

"A single vowel in medial position in a word or syllable usually has the short sound."

This generalization is quite helpful to children learning to read but it should also be pointed out that there are a great many instances in which the generalization does not hold.

Exception A: hold, cold, bold, gold, colt, bolt.

New rule: The single vowel *o* followed by *ld* or *lt* has its long sound.

Exception B: car, fir, fur, her, for, part, bird, hurt, perch, corn.

New rule: A vowel followed by *r* has neither its long nor short sound – the vowel is modified by the *r*.

Exception C: wild, mild, child, find, kind, blind.

New rule: The vowel *i* followed by *ld* or *nd* has its long sound.

Exception D: fall, call, ball, salt, malt, halt.

New rule: The vowel *a*, followed by *ll* or *lt* has a pronunciation like *aw* (ball-bawl).

Exception E: high, sigh, light, night, bright, flight.

New rule: The vowel *i* in *igh* or *ight* is usually long. Note that usually.

New rule B itself has exceptions,

baron, barracks, barrel, barren, barricade, carol, barrier, carrot, carry, marry, tarry. What new sub-rule does one propose for these words and the many others of their ilk? And what for chary, Mary,

wary? And what for war, warm, warp, warrant, warrior? One rule for one-syllable words and another for two-syllable words?

New rule C does not cover derivatives of child, wild, kind, as in children, wilderness, kindred.

On the whole, Dr. Heilman favors beginning phonics with consonants rather than vowels. For one thing, 15 of them – b, d, f, h, j, k, l, m, n, p, r, t, v, w and consonantal y have just one sound apiece. For another, far more words in first grade reading begin with consonants rather than vowels and thus conduce to more consistent left-to-right eye movement across the page.

Of the single letters with more than one sound, *c* and *s* gang up to give an inordinate amount of trouble. *C* says *k* before *a*, *o*, *u*, and at the end of such words as *picnic*, *frolic*. It says *s* before *e*, *i*, and *y* (cell, city, cynic). As for *s* in its own configuration, it thinks nothing of dragging in *c* in both its hard and soft capacities to spell so simple a word as *scenic*. In scores of words like: *is*, *has*, *wins*, *dogs*, it ousts the *z* which would regularize. In *sure* and *sugar*, it brazenly changes its sound into that of the digraph *sh* and gives us *shoor*, *shoogar*. And in many another word it takes over the office of the digraph *zh* and has us pronounce as *plezhur*, *azhoor*, words which we spell as pleasure, azure.

G is another anarchist of our present alphabet. The trouble is that it is sometimes hard even before *ie* and *i*, as in *get*, *gilt*. But generally before *e*, *i*, *y*, it usurps the place of *i* and thus distorts into *gem*, *gin*, *gypsum* what we should read as *jem*, *jin*, *jipsum*.

Of the consonant digraphs which we hear in English, only *sh* and *wh* can be depended upon to transcribe just one sound (shut, tush – which, when). *Th* must serve the two different sounds in *then* and *thin*; *ch* must serve several jobs in *church*, *chorus*, *chef*; *ng* must do double duty in both *singer* and *linger*. As for *zh*, neither the schools nor the press have incorporated it into their print. Of further defects in our use of consonants and consonant digraphs, Dr. Heilman lists these:

1. K is silent in *kn* (knew, knee).
2. Double consonants – only one is sounded (summer).
3. When vowel *i* precedes *gh*, the latter is silent (light)
4. W is silent in *wr* at the beginning of words (wring).
5. When *t* follows *s* or *f*, the *t* is sometimes silent (often, fasten).
6. In *ck* combinations, *c* is silent (saek, cloek).
7. B is silent in *mb* at the end of words (comb, lamb.)
8. Ph = *f* (photo = foto; graph=graf), (when both letters are in the same syllable).
9. Q has no sound of its own. In English spelling, it is always followed by *u*. This digraph is generally sounded as *kw* (quack = kwak), At the end of words *que* is sounded like *i* (antique = anteek).

While the teacher should be clearly aware of these and such other generalizations as Dr. Heilman discusses, he thinks that learning them in isolation has little value for the young child. Working with a series of stimulus words will do more to help him gain insight to their pronunciations.

Table III should do a good job along this line:

Task I: Pronounce all words in each column.

Task II: Strike out each silent letter in column A, (The first one is done for you),,

Task III: In column B write the dictionary pronunciation of each word.

A	B	A	B
sight	sit	knight	
hasten		glisten	
knew		comb	
rabbit		right	
thick		write	
climb		black	
debt		doubt	
soften		listen	

Now comes the question which even the most competent of studies such as this book arouses in this reviewer. Why should column A need to be taught at all? Why, from the very first chart and primer, should not the spelling be that of column B? Whether the dictionary used be the Thorndike Barnhart Junior, the Merriam Webster Elementary or any other standard wordbook for the first six grades, it uses a key matched one-to-one with the 40-43 basic speech sounds into which it breaks down its entities.

Dr. Heilman is very competently versed in these keys. Aware, too, of the many ventures – that in St. Louis lasting twenty years – in the use of similarly phonetic alphabets in teaching beginning reading. Aware, too, even as he was preparing this book that the Augmented Roman Alphabet (now renamed Initial Teaching Alphabet) was achieving in England such results as no application of phonics to our conventional spelling has ever achieved among any large heterogeneous enrollment of beginning first graders. Yet all he has to say on this subject is that "a reform of our spelling along phonetic principles has been suggested in some quarters; but while this has some merits, no wholesale revision bar, as yet been accepted." And even that much is more than many another book on first grade reading has said.

Well, this school year 1964-65 may see a change of attitude in our reading experts, clinic directors et al. In England, September saw 100,000 beginners and remedial reading cases enrolled in i/t/a with the blessing and financial support of the British Ministry of Education. In the U.S.A., it saw the i/t/a enrollment double to over 1200, with new projects organizing here and there over the country from Long Island to California. If this sort of thing keeps up, what is the future of such books as this however applicable to spelling az nou iz? Shouldn't someone at least warn new candidates for the doctorate in English to wait a bit before deciding on a thesis concerned with the current mechanics of our first two r's?

But for the beginning first grade teacher, who wont have the good luck to participate in an i/t/a project this year, we would say, "If you are at all hazy about the sounds and signs of the vocabulary you are setting out to teach – here is a book which will do more to clarify them for you than all but the merest handful of others – that have come my way."

Published by Charles E. Merrill Books, Columbia, Ohio. 1964. \$ 1.95 pp. vii+ 103

14. The Parrot, by Frank Du Feu, in the author's Revised Spelling.

"Our reputaetion's waning," sed the chairman, Maejor Carrot.
"The Club must get a specimen of Poll, the cross-graind parrot.
The skeme is sponsord bie our shrewd advisor Laedy Woddle.
Poll's features ar familiar from her taxidermic model.

Yung Don, hoom we propose to send, allowiung his expenses,
Will get the bird houeever well immured in its defences."
His luggaje packd, his roote mapd out, thiss man, no idle dreamer,
Secured a berth without delay and saild away upon a cargo steamer.

A four weeks' voyaje to the Cape, then north to the equaetor.
The vessel reachd a coastal toun perhaps a fortnight later.
Don spoke to naetivs of the port in quest of informaetion.
A wurd of English here and there with much jesticulaetion.

Wun sed the bird wos quite robust, anuther cauld it fragile,
But aul agreed that parrot wos astonishingly ajile.
So Don, equipt with nuthing else but common sault for sprinkling
Upon its tail, became alarmd –. A bird that in a twinkling
Cuud disappear wuud quite ignore such ultra-tender wooing;
His purpos cuud best be acheevd bie dexterous lassoing.

A yungster hoom he found asleep beneath a spredding banyan,
Consented to becum his gide and travelling companion.
A trek of meny days began thugh valleys long and wiending,
In serch of that eluesiv bird they soon despaird of fiending.

Till quite bie chance a nest of eggs attracted their attention,
And carefuul scruetiny reveald – I hardly need to mention.
An our's virjil, then they made the easiest of captures;
Such rare guud luck amazed them boeth and sent them into raptures.

The jurney to the coast thogh long, wos smooth and uneventfuul.
While Poll seemd quite resiend and not the smaulest bit resentfuul.
Indeed, on board the ship, I'm told, the Portugese and Arabs
Converced with Poll and braught her food, from millet seed to scarabs.

A meeting of the Club is held the day of Don's arrival,
And each affirms in glowing terms the prospects of revival.
Then Don himself gets up to speak, in wurds discreetly chosen
He tells of thirst in torrid heat, of fingers nearly frozen,

Nou from a smaul adjoining room they braught the cross-graind parrot.
She luukd serenely round before adressiung Maejor Carrot
In lanwage that I greeve to say wos positivly awfuul.
A member from the toun polece described it as unlawfuul.
The laedis present vewd the bird with absolute revulsion
Immeediate deth appeard to them a matter for compulsion.

But in the end Poll found a friend, a harty Captin Spooner
Agreed to take the bird on board his well-appointed skooner.
While Don, ejected from the Club for moest unseemly lafter,
Wos pardond and alloud rejoin about a twelvemunth after.

Frank Du Feu, M.A., Jersey, Channel Isles.

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