

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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Announcements

The annual i.t.a. Workshop will be held July 15-17, 1968 under the direction of Dr. Harold J. Tanyzer at Hofstra Univ., Hempstead, L.I., New York. It will be followed by the Fifth International i.t.a. Conference July 17-20, 1968. The purpose of these international conferences is to provide a forum for the exchange of ideas among those professionals most active with i.t.a. Professional papers dealing with theory, research and classroom practice will be presented. While some of the papers will review previous developments, most will focus on the latest thinking and research in the field of teaching reading.

Schools for the Future will hold their Third Annual Summer School for Teachers under the direction of Dr. Caleb Gattegno at 821 Broadway, New York City, from June 29 to July 12. The first week will be devoted to mathematics, followed by a week on reading with Words in Color.

From Aug. 12 to Aug. 30 the courses will be repeated, and the final week will be devoted to teaching foreign languages. Write to Schools for the Future, Cooper Sta, New York, N.Y.

The Second Annual Summer Program for Teachers will be held June 24 to July 26, 1968 at the Univ. of Calif. at Berkeley, Calif. Among the 15 different courses given, our readers might be especially interested in: Education 380A, Phonetic Alphabetical Systems, by Dr. John Downing and Ivan M. Rose. Three or more of these, including Words in Color, Unifon, and Pitman's i.t.a. will be studied and evaluated, along with the linguistic and psychological research which has formed the basis for their development and use in schools.

Also interesting should be: Education 382A, Teaching the Defiant and Disorderly Child, by Dr. Jettie Fern Grant and Robert E. Westfall, M.D., and Education 373, Improving Reading Instruction in Elementary and Secondary Schools, by Dr. Arthur W. Heilman, Director of the Read-Center, Pennsylvania State Univ. and author of *Phonics in Proper Perspective and Principles and Practices of Teaching Reading*. Some teachers will also want to know more about the New Mathematics, so should consider: Education 371, Teaching Elementary School Mathematics, by Dr. Arden K. Ruddell, who has conducted workshops and NSF Institutes in mathematics in several states for elementary school teachers.

A competition was announced recently by the i.t.a. Jurnal, London, Eng. for the best verse dealing with the vagaries of English spelling. The prize will be one guinea and will be given to three authors or senders. Poets put on your thinking caps.

From the Los Angeles Times: Beth Ryan knows where the second *u in vacuum* went. It was borrowed by people who pronounce *nuclear as nucular*. And it's surprising how many mispronounce it. As for the fuss over the first *r in February*, Frances Russell is more concerned about the one that used to be in *library* and *barbiturate*. Chas. W. Trigg of San Diego doesn't know what became of the first *r in February* but he knows that the *r* sometimes tacked onto Cuba came from Harvard. But, he asks, where did the *a* frequently inserted between the two syllables of *athlete* come from? Nancy Barney doesn't quite know what to do about people who put an extra *n* in *San Vicente Blvd*. Recently a bank sent out notices to *San Vincente Blvd*.

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[Spelling Progress Bulletin Summer 1968 pp2-6]

The Benefit of Relating all the Senses: Seeing, Feeling, and Hearing, in the Teaching of Language, by Sir James Pitman, K.B.E.*

*A talk given at the International Conference on Oral Education of the Deaf, at Northampton, Mass., June 18, 1967.

Innovation seems to be unusually difficult for their elders when they are confronted by the education of their young. Anything new tends to be instinctively rejected and even strenuously opposed. In other fields, even those who have true cause to be complacent and self-satisfied tend to be nevertheless most open minded and ready to examine any proposition for which there is any expectation of improvement. My grandfather and I have had sad reason to experience, now over 125 years, that those in Education can be brought only very reluctantly, if at all, to consider and give trial to innovating ideas.

I suppose Arnold Palmer has every cause to be self-satisfied about his mastery of golf. Because of his very excellence, however, he would be among the first to examine any innovation of golf ball or

of clubs which seemed to offer a significant improvement in his game: within a few hours of accepting delivery of the new 'proposition' he would be out on the golf course making a trial of it. Moreover, his whole approach would be as free from prejudice as it would be from adverse prejudgement. We can suppose that the gutta percha ball and curious clubs of the pioneer golfers still have some emotional appeal, but only as curiosities in a museum, not as a storm centre of a subjective commitment, to be defended to the very last ditch. We can be certain that they would not be preserved for continuing use-including use in the top-ranking tournaments.

I have written this at length to picture the unreasonableness (though it is an understandable frailty) of adults to whom young children are (helplessly) committed, because I have found that those who devote themselves to children seem rejective of innovation to the degree that the children are not only helpless but handicapped. No one could be more devoted than an educationalist, and no one more helpless in adult hands than our young deaf children.

Lest I give too great offense, let me add that it is no doubt the degree of dedication which devotion entails which tends to set apart those who make greater than normal sacrifices on behalf of children who have less than normal capabilities. Those of us who contribute nothing face-to-face to their children-particularly those who seem only to 'rock the boat' and to 'waste the time' of those who "are experienced" by propounding "ridiculous hypotheses" which hinder rather than help "the good work" of the professional in the field-must expect mistrust from those from whom alone (most evidently) worthwhile ideas for improvement can evolve.

You will now, rightly, put me in the doghouse. May I however, in order to redeem a little of my dog-house-man-ship, report not only that, protest as I may now be doing, there is evidently some good soil as well as stony ground and briars, in the field of teaching the deaf. As you will infer from the bibliography, there are those who are indeed interested in new ideas and receptive to the point of trying them. Moreover, I may also certainly compliment the teachers of the deaf in that they seem to be less possessive of their chosen territory and less rejective of incursion from outside their own select fraternity than appear to be such teachers of the blind as I have so far met. It may be that the sacrifice of those who devote themselves to blind children is even greater, and that their dedication is if possible even more commendable. At any rate, the reaction by teachers of the blind to my Initial Teaching Braille has been virtually wholly rejective - their attitude to Braille as it has been, being one of totally unquestioning satisfaction. They take it for granted that the band of Latinic Scribes, whose manuscripts of English our William Caxton needed to imitate were teachers fully knowledgeable of all the principles by which even blind children learn to read by touch, and were inspired with infallibility. At any rate, it was these scribes who, in effect, determined many centuries ago how the English language should be conveyed to the sense of touch of the fingers of young English-speaking children, who could never *see* their manuscript's or any other writing or printing. But you are not in that class. After all, you have invited me here to propound innovation, and what could be better evidence to rebut what I have earlier said.

Thus we may surely be convinced that, just as in the field of teaching the blind to read by touch, we need to modernize what is in fact archaic, so in the field of teaching the deaf to communicate and to receive communication, we need to review what Caxton and his hand-writing precursors will otherwise continue to impose upon our unfortunate learning children.

I was thus most interested to read "Cued Speech" by Dr. R. Orin Cornett. I infer from his paper that the revolution which has tended to subordinate reading and writing (and parenthetically listening and speaking) to experience and to conceptualization in the teaching of those whose capabilities are normal, has also won support in the field of teaching the deaf.

The dominant consideration must be to enable all children, whether normal or handicapped, to receive communication and to communicate with others in concepts and words. This primary end must dominate the secondaries, which are the means. The teaching of language has more and more come to occupy its rightful place in the centre of the stage, with the consequence that the three important senses: hearing, seeing and touching, [1] have come to be relegated to a secondary function as "conduits" or channels through which experiences are observed and passed to the brain, to be there sorted into concepts, to be related to their appropriate words, and then to be manipulated in the myriads of combinations which are human apperceptions.

The words are then passed back and carried to others by a variety of vehicles which are related to one or another of the three senses of a recipient as speech to the ear of another, or as writing, print, lip movements or finger spelling to the eye of another eye, or as Braille dots to a traversing finger. [2]

If we then admit that language is the end, that the senses are only the conduits and words only the vehicles, we must also admit that the deaf child, because he has one of these senses malfunctioning or possibly not functioning at all, suffers a reduced means of observation of experiences and an increase in the difficulties of learning language. He suffers also, as a quite separate handicap, a blockage in the inflow of words in one of the most important of the vehicles.

We also need to admit that when a child, whether hearing or not, is learning by inferring concepts from the experiences he observes, he is very greatly helped if there is an adult who affords to him *at the right time* the right word, the "label" or "ticket", with which the concept, when it has been isolated, is to be associated and can then be manipulated. Indeed in every language the consistent furnishing of the same "word" (be it heard, seen or touched) in every such relatable experience, acts as a catalyst in extracting from the random sequence of experiences those which share a common conceptual relationship.

Since it is so important to furnish the right ticket in unvarying form, for every single concept, it is essential that the ticket, the word, should in effect be the same "word," whichever of the three senses should happen to be its conduit and by whichever of the various vehicles the word be carried in speech, printing, writing, finger spelling, Braille, etc.

For instance, in teaching the simple concepts of *able* and *table*, the task is made much easier if in all three senses and in all their vehicles, the representational relationships recur consistently whatever the sense and whatever the vehicle. For instance, in the "sight" word, whether carried by the shaping of the lips of a speaker or by the shape of the letters in a printed book, or by a letter written by hand, or by finger spelling, there needs to be a consistent element of convention which all four - lip reading, print reading, cursive letter reading, and finger reading-ought to sustain each in common.

In other words, the elements of *table* and of *able* will be most effective for teaching only if they differ by the consistent presence, or absence, of a conventional element (*t*) which conveys the beginning, and *resemble* one another in respect of the conventional elements which convey the common ending (*able*). Furthermore, there needs to be a consistent cross-relationship between everything the eye receives (typewriting, lip movements, finger spelling [3]); between everything that the ear can receive (if only rudimentarily); between everything that the lips and other vocal organs attempt to speak; everything that the pen writes; everything that the fingers spell.

Surely the task is made very much more difficult when the catalyst which the eye receives for the concept of **table** is variously presented as:

TABLE, Table, *Table*, table, *table*, and ~~table~~,
and of **able** as: ABLE, Able, ~~able~~, able, ~~able~~ and *able*.

Moreover each word learned ought to be a help (and must not be a hindrance, as at present) to each other word and concept which needs to be learned. It is most unfortunate, for example, that William Caxton should have handed down to us across the centuries the sight words: *to*, *do* and *who*, which hinder the learning of the *concepts* (as well as the word forms) of: *go*, *no*, *so*, and *be*, *be*, *me*. Equally in their other sight forms as the lip movements in the speech of others and the residual hearing of the speech of others, these printed words belie and do not support the auditory and visual relationship and disrelationships between *do*, *to*, etc., and *to* and *go* in listening and in lip reading. Similarly, the forms of finger spelling (if any) need to support, not to conflict with the learner's appreciation that *go* and *do* need to be disrelated, and further confirm the wrong supposition that they are. [Incidentally, hand signing is shown to be the odd man out which (being non-verbal and a different language altogether) it is. Clearly, it tends to confuse and not reinforce all the other language learning processes.]

Now that the research into the potential benefit of i.t.a. as a learning medium, which I initiated in 1961 with London University Institute of Education and our National Foundation for Educational Research in England and Wales, has been completed, and now that the 83 or even more researches in U.S.A. have been completed following the one which Dr. Albert Mazurkiewicz initiated at Lehigh Univ. in 1963, surely the evidence has become overwhelming, and the acceptance widespread, that a complementary and not a confusing relationship across every one of the three conduits and across every one of the many vehicles within every conduit, is a *sine qua non* in the development of competence in language. Indeed it has proved to have been in the development of the child's language competence, even more than his reading competence, that this positive cross-relationship has made its even greatest contribution - as is clearly evidenced at one end by the astonishing output of written language everywhere found in i.t.a. classes, and at the other by the progress in language development made by disadvantaged children not handicapped by deafness.

We have here teachers of the deaf who have been willing to examine the *a priori* case which I am thus now presenting. They are those who have had faith in the proposition that the last word on the medium for teaching language and for teaching reading and writing *in T.O.*, and for teaching listening (if possible), lip reading and finger spelling (if needed), and above all speaking, was *not* finally promulgated 500 years ago: they are moreover those who have had the enterprise and courage to submit their faith to trial. I hope they will report to you their findings.

You need not believe me. I am necessarily suspect. Do not however suspect *them*. They are as independent of me as the most independent man or woman in this audience; at the start they were as rejective, and have subsequently been as cautious as the most cautious of you here today, but they will assure you that the improvement in the teaching of language in all its forms, including the improvement of the teaching of *speech*, has in their experience been great in the teaching of the deaf, greater (I can assure you) than it has been elsewhere in the teaching of reading, writing and language to hearing children. And that has been great enough all over the English-speaking world. After all the end is the same; and a principle, if in truth a principle, is applicable "across the board." We may conclude that we have been teaching the deaf too with Caxton's bad alphabet only because we have known no better one and that we have, albeit innocently, been frustrating the natural learning processes of the young deaf child. The sooner we have regard for the best interests of all learning children and give up that bad accident of our history the better.

You here are a conference of those with the devotion, the experience and the competence. There remains alone the question - have you the will?

There is, as I see it, no reason why the deaf child should be unable to learn language visually at the same early age as his hearing counterpart learns it auditorily. [4] There is now evidence that we have hitherto wrongly supposed that the ability of all young children to discriminate visually *develops much later* than their ability to *discriminate auditorily*. I believe that in this we have been confused by the accident that hearing children have so many and so favourable opportunities to develop their auditory discrimination, and so few to develop their visual discrimination. This is after all what is to be expected among hearing children, seeing that the opportunities afforded to the adult to provide the means, and the rewards which follow, are so very much greater in the language of sound.

Meanwhile the evidence of a mother smiling at a child - and the child's response even at considerable distances - indicates that the capabilities of even the very young child are there, and enable him to detect even minute differences in configuration - and could be developed into competence if only the opportunities were provided to a child who could then harvest the reward. As I pointed out in that papers, [5] whilst the task of the adult in providing the spoken catalyst for each concept as it occurs is so very simple, his task in supplying the visual counterpart is so very difficult.

There is, as I see it, every reason to suppose that if the child were given within his best conduit, the conduit of sight, comparable opportunities to develop God's unique and greatest gift to man, the ability to communicate by words, he would comparably succeed. There is every reason to assert that the first ability to convey communication, whether by one set of words to the ear or by another set of words to the eyes, or by yet another set to the fingers of another, is the major hurdle, and that subsequent additions, whether carried along one conduit or another or between one vehicle and another in any conduit, are very much simpler.

In so far as the view is generally held that it takes the deaf child longer to learn to listen and to speak if he be first taught to read and to write, to finger read and to finger spell, it is surely open to challenge, if on the grounds only that the task has been made so difficult not only to the adult teaching him, but the child learning. It is hardly surprising that there should be failure, seeing that the reading and writing, the finger reading and finger spelling, being all archaically alphabetic, are in a vehicle which confuses, and does not help, the learner in turning ability into competence.

My experience in judging the entries of the Competition for Shaw's "Proposed British Alphabet" confirms the view that alphabetic writings, if they are systematically and not confusingly based, may be quickly learned. A period of four hours per new alphabet is sufficient to begin to wean the reader from the "key" to which he must constantly refer at the outset when the process is one of deciphering.

It is surely reasonable then to assert that the interests of the deaf child are best served by using that conduit (his sense of sight) in which he is most proficient, and by employing it systematically rather than confusingly, so that he may be supplied, at the times when he is isolating his concepts from his experience, with but a single form of the "word," preferably the printed word. From this foundation, *provided always the relationships are as close as they ought to be* and not as distant as Caxton has hitherto mismanaged them, the child has solid ground for learning all the others, in other conduits and in other vehicles.

I attach incidentally great importance to the use of "World i.t.a." when teaching speech, and lip-reading and (residual) hearing [6] Stress patterns and the "rhythm of English" need to be taught if deaf children are to speak less unnaturally, and a "concrete" and lasting representation of the otherwise wholly "abstract" and evanescent touchstone is as important an aid to learning these patterns as it is to learning the sounds. Furthermore the vowel shifts between the strong and weak

forms of words, not only in the common words *that, would, for, and, be, the*, etc., but also in rarer words like *metal metallic, continent continental, Cyril Cyrillic, atom atomic, mouth Dartmouth*, etc, need to be indicated. To use i.t.a. and not World i.t.a. for the deaf is to throw away the better visual, and the most tractable, representation of what the ear should be hearing (if it can hear at all) from the mouth of others, of what the eyes of the learner should be detecting on the lips of a speaker, and above all of what the speech organs of the deaf child should be attempting. I believe that the side-effects upon speech are at least as valuable a result of the innovation as the effect upon language.

If what I have written is acceptable, at any rate to the level of serious consideration and eventual (further) trial, there needs to be recognized that my proposal is for a much wider philosophy than merely correcting the bad accident in the history of printing, writing and of spelling.

We need to teach language, and in doing so, to recognize that the child's experiences must coincide with an adult's ability to furnish to the learner - at that precise time - the needed catalyst. It needs to be furnished often, in an unvarying form and in that form of word (good clear print) which in ordinary circumstances happens to be the most inconvenient for the adult to furnish at that moment. I am not impressed with the suggestion that the very young hearing child (aged say 2) should be taught to read. He can hear and he can acquire language the easy way. I am however of opinion that the deaf child should begin at as early an age as is practical, and would call your attention to the work of Dr. John Duffy [7] The print form needs to be supplemented by the other forms - lip reading and finger reading-in a supporting relationship. The teaching of (residual listening) and of speech needs to run *pari passu*, so that the auditory and the visual may match each other, and so that the respective receptives and omissives of each may also match and supplement one another. For all this we need organized courses; we need materials; we need measuring and testing techniques, *all* of which will necessarily be new.

The fact is that the use of the English language is very wide-spread, and that the incidence of deafness among children is as widespread as the language. Surely this is a case where considerations of time, of money and of the quality with which a new idea is carried through, demand that teachers of the deaf in all countries, certainly in those where the English language is conventional, should plan, design, produce, test and report in a planned cooperation.

You here are a Conference of those with the devotion, the experience and the competence. Again there remains alone the question - have you the will?

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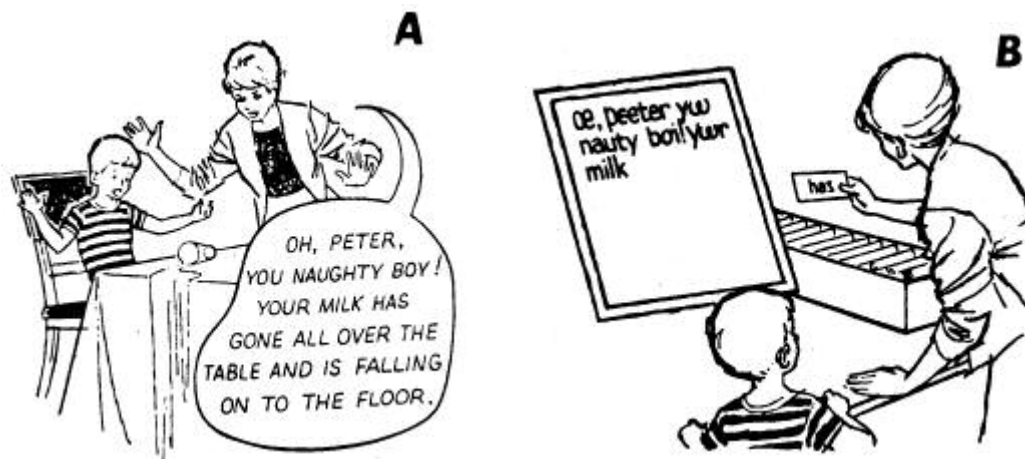
°previously *The Silent World*. °° now *Hearing*.

These two pictures show how much easier it is for the mother of a hearing child (A) to teach language to her child. Notice that in her case there are the following benefits:

- (a) Noise that compels attention and of itself establishes the communicative situation.
- (b) The tone of voice as well as facial expression and gesture which carry a supporting message.
- (c) The immediacy of the association of word to concept helps the child to establish the desired relationships.
- (d) The ability to speak words instantaneously is conveniently always at call.
- (e) The need for effort is minimal and constitutes no deterrent.

Whereas the mother of the deaf child (B) is subject to the following handicaps.

- (a) The child's attention will be directed to action on the table and floor and away from *all* other visual interests.
- (b) The mother will thus need both to divert visual attention and to maintain it.
- (c) Facial expression and gesture must be artificially repeated or sustained by the mother in order to support the message.
- (d) The "colour" of sound in conveying distress and other situational supporting clues will be absent.
- (e) The relevance of the verbal (visual) message to the situation is necessarily stale-immediacy of relationship has been lost.
- (f) The material for a wide choice of visual messages needs to be prepared long in advance and, moreover, to be conveniently accessible.
- (g) The task of assembling the words is slow and laborious and will deter even a stout-hearted mother, or child.



Notes

[1] The advertisements tell us that *Arpège* carries a message to every man, and equally we know good cooking is the pathway to every man's heart, but the senses of smell and of taste have no place in the transmission of verbal language. They have, however, a most important place in the learning of language, if not in its transmission. Experience involves all the senses, and where the sense of hearing is less effective, the other four senses become more important for observing experiences, memorizing them, and sorting out from them those concepts which may be inferred.

[2] There are other vehicles for words from the brain to the recipients of messages. The Morse Code may be written or flashed by light for the eye or tapped for the ear: the typewriter tapped for the eye, or in its talking form for the ear: and flags may be wagged for the eye.

[3] The word "finger spelling" should be read as meaning a new (not the existing) means of representing the letter elements of words. It could as well be Dr. Cornett's *Cues* or a version of any of the present finger-spelling systems, but one augmented to achieve a one-to-one relationship both with the elements (characters) employed in all the other vehicles (i.t.a, preferably World i.t.a.) and thus related to at least the diaphones of English speech.

[4] The work of Dr. John Duffy of the Division of Speech Pathology and Audiology at Brooklyn College, as listed in the Bibliography, would seem to support from observed experience what I first advanced in a paper to The Educational Records Bureau in New York - also listed in the Bibliography.

[5] *The Future of the Teaching of Reading*, Educational Records Bureau, New York, 1963.

[6] *i.t.a. and Teaching English as a Second Language*, by Sir James Pitman. Proceedings of the Second Annual International Conference on the Initial Teaching Alphabet, Lehigh University 1965, page 49.

[7] *i.t.a. and the Hearing Impaired Child*, John K. Duffy. *Volta Review*, Vol. 68, No. 2, February, 1966, pages 150-3.

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[Spelling Progress Bulletin Summer 1968 p6]

i.t.a. and world i.t.a.

i.t.a. alphabet

a	ɑ	æ	au	b	c	çh
apple	father	angel	author	bed	cat	chair
d	ee	e	f	g	h	ie
doll	eel	egg	finger	girl	hat	tie
i	j	k	l	m	n	ŋ
ink	jam	kitten	lion	man	nest	king
œ	o	ω	ω	ou	oi	p
toe	on	book	food	out	oil	pig
r	ŗ	s	ʃh	ʒ	t	th
red	bird	soap	ship	treasure	tree	three
rh	ue	u	v	w	wh	y
mother	due	up	van	window	wheel	yellow
z	ʒ					
zoo	is					

specimen of i.t.a.

this is printed in the initial teaching alphabet, the purpose of which is not, as might be supposed, to reform our spelling, but to improve the learning of reading. it is intended that when the beginner is fluent in this medium he should be confident to reading in the traditional alphabet

if you have read as far as this, the new medium will have proved to you several points, the most important of which is that you, at any rate, have easily made the change from the ordinary roman alphabet with conventional spellings to the initial teaching alphabet with systematic spelling.

Specimen of World i.t.a.

thær ar for aspects ov learniŋ
a foren læŋgwæj. first ov aull,
everywun wunts tō bē æbl tō lisen
tō it wið understandiŋ and then bē
æbl tō speek it and bē understōd.
then, ov cors, thæ wont tō bē æbl
tō reed it and aulsœ tō riet it.

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[Spelling Progress Bulletin Summer 1968 p5]

Cartoon

NUBBIN. Los Angeles Herald-Examiner. By Jim Burnett and George Crenshaw.



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[Spelling Progress Bulletin Summer 1968 pp7,8]

The Siberian Olympiads, by Helen Bowyer

Stretching 5,250 miles from the Baltic Sea on the west to the Pacific Ocean on the east, The Union of Soviet Socialistic Republics is the largest country in the world. Its 8.6 million square miles - more than one-seventh of the planet's land area - make it considerably larger than the entire continent of South America, and almost three times as large as the United States.

Most Americans think of it as a European country, inhabited by people much like the Poles and Czechs and speaking a European language like theirs. But this is true only of that lesser part of its vast extent which lies west of the Ural Mountains. From there it stretches eastward across the whole northern half of Asia, with the Arctic Ocean as its northern boundary, and Iran, Afganistan, China, Mongolian succession on its south.

From time immemorial its vast plains and the banks of its mighty rivers have been peopled by primitive tribes - Tartar, Mongolian, Lapp-speaking a welter of Asian tongues, few of which had ever been reduced to writing. For the most part, they were nomads and tent dwellers, to whom "Siberia" meant little but the area in which they hunted and fished and pastured such scant flocks

and herds as some of them raised. That in the 50 years since the Russian revolution, Siberia has become a land of steel mills, huge dams, oil and gas industries, electric railroads and prodigious airways is perhaps the most spectacular achievement which the head and hands of man have brought about from the Old Stone Age to this 1968 A.D. But it is nothing to what Sergel Sobolev, Director of the Siberian Institute of Mathematics, sees ahead not only for Siberia, but perhaps for all our planet. "How can we foresee the future?" he asks. "All we know is that there will be more changes created by science in the next 50 years than in all the past history of the world put together."

A prophesy in which Mikhail A. Laventiev concurs. He is Vice President of the U.S.S.R. Academy of Sciences and Chairman of its Siberian Branch, and founder of the Siberian Olympiad.

On the banks of the mighty Ob River in east-central Siberia, stands the booming metropolis of Novosibirsk, largest Soviet city east of the Urals, with a population well over a million. Its young have schools and a university, libraries and other cultural, vocational and recreational facilities as good as those of their European agemates and its adults share the high literacy of the rest of the USSR. But as Laventiev saw it, more than this would be needed if Siberia was to come happily thru those fateful, unpredictable 50 years ahead. So in May, 1957, in a virgin forest, 17 miles east of Novosibirsk, he got the Soviet Government to begin the building of a unique city - a city to be devoted exclusively to research and teaching in science and engineering. Now near completion, with 15 research institutes ranging from mathematics to geology, its 30,000 residents - including more than 5000 scientists - fondly call it Akademgorodok (Little Academic Town).

But scientists are mortal, and what Siberia needed was a continuous replacement of those whom death or extreme old age took from her. There are probably not many minds per million in any population which can be trained on that level for replacement, but about 7 years ago Laventiev set out to discover what there was of them-and to discover it as young as practicable.

His research took the form of a yearly Olympiad for Siberian youngsters who show unusual ability in mathematics, chemistry and physics. It begins with an examination in these three subjects open to all Siberian children 14, 15 or 16 years of age. About 10,000 of them pass it. A month later these successful contestants are invited for two days to the largest Siberian city near them, the government paying travel and living expenses. Here they are met by professors from Akademgorodok who welcome them informally and then give them some lectures. The second day, these 10,000 take a second examination. Only 1500 pass this stiffer test.

During the summer these 1500 are invited to Akademgorodok for a month's stay. They are shown in detail what is going on in the various institutes and again listen to lectures by various professors. After three weeks, the third and final examination is given. Of the 1500 competitors only 300 come thru, and they are rewarded with the opportunity to continue their education at Akademgorodok, in a special mathematics and physical sciences school which is part of the university of neighboring Novosibirsk.

Thus Siberia is assuring herself of a never lapsing scientific elite to guide her thru those years ahead which will witness more scientific changes than man has ever seen, since he chipped his first flint and banked up his first fire.

To what extent are we so assuring ourselves of that here in America? - we who face the same near future of vast changes all but unforeseeable now. Our National Merit Scholarship examinations follow much the same three stages as do the Siberian Olympiads - how close do they come to the level of science and mathematics demanded of those young Asians? Another question - do our Merit examinations come too late for maximum effect in building such an elite as Siberia is aiming

at? Most of our Merit winners are from one to four years older. Has their education during those years been equal to that which their Olympian agemates have been getting?

Indeed, has it ever been equal, from first grade on? Wouldn't the chaotic condition of our spelling make that most unlikely? Even if these Merit winners have, themselves, had little conscious trouble with their basic learning tool, haven't they been held back by the difficulties with it which most of their classmates experienced? While their teacher was spending her time in getting (or trying to get) the like of you, do, who, *too*, *blew*, *two*, *true*, *shoe*, *through*, *pooh*, *Hindu*, into the heads of her average primarites, what progress in their own education were her abler pupils making? What in the reading and writing of a vocabulary equal to that which phonemic spelling makes so easy for their Siberian agemates to acquire. As for the inanity of content, the choppiness of style which a necessarily limited word count forced on the readers and other classroom books which these Merit winners shared with their average classmates-well, in phonemic Siberia, both content and style can be such as to keep even the bright child on the *que vive*.

The 1500 early teenagers who this summer will pass a month in Little Academic Town, have had other advantages besides spelling, over the mass of their American agemates, and probably over many born with the same potential as their own. From prenatal life on, all Soviet children are under free medical care, alert to forestall illness and injury and develop the young body to its full possibility. In consequence of this, a Soviet child has a higher average chance of survival than his American agemate - the Soviet death rate ties with that of Japan as the lowest in the world. Teeth, sight, hearing are vigilantly guarded, and the child's mind is developed not only by the high level of schooling which phonemic spelling permits, but by a wide variety of out-of-school activities in which each may find an outlet for whatever special gifts or interests he may have.

Another advantage of the Soviet child from infancy on is the stability of the family. While divorce is obtainable on what the courts consider sufficiently serious grounds, the government discourages it in the interest of children's need for both parents. Add to all this, the much lower incidence of juvenile delinquency and crime and the high sense of social responsibility fostered by almost every aspect of a child's upbringing and one wonders if the setting of his American counterpart in these various respects might not profit by a thoro and dispassionate examination on a national scale.

But we need not wait for that to begin evening Johnny up with Ivan in the fundamental matter of his basic learning tool. Few things could be simpler than to start next September's beginning first graders with a wun-sien-wun-sound spelling, based on the 23 non-duplicating letters of our present Roman alphabet plus the schwa for the muttered vowel. These 24 single characters - a, b, d, e, f, g, h, i, j, k, l, m, n, o, p, r, s, t, u, v, w, y, z, ø, plus the 19 letter combinations in: *Mae*, *deed*, *die*, *doe*, *due*, *bazaar*, *haul*, *oil*, *out*, *boot*, *fuut* (foot), *chin*, *shin*, *then*, *tthin* (thin), *sing*, *vizhon*, *hwen*, will accurately encode any nativ English word in our whole vast oral vocabulary and accurately decode any such word in print.

Thruout the school year 1960-61, this alphabet - which is essentially that of the Thorndike-Barnhart dictionaries - had a tryout at a level below first grade, i.e., in the morning kindergarten of a county school in Denver, of which Dr. Helen Bonnema was Principal. It made ducks and drakes of all the weary pother on the "reading problem" which had been swamping the education press for decades before and is still swamping it today. This kindergarten class *had 40 pupils*, its teacher *had no rarefied training* in the teaching of reading even in conventional spelling, and was permitted *only 20 minutes a day* to teach it thru this "dictionary key." She had moreover, no primers or readers to work with -nothing but a blackboard and such material as she and her principal could find the time, energy (and enthusiasm) to transliterate, type, mimeograph, draw and otherwise prepare. Yet before the end of the first semester, results were such as to demonstrate that the crux of our reading problem lay not in class size, nor in teacher training, nor in the length of teaching time, nor in ghetto

or suburban home conditions, but squarely in the incredible stupidity of permitting more than 500 different encodings (spellings) of our 43 basic speech sounds.

So impressed with this finding was the Superintendent that he forthwith made plans and asked for appropriation of funds to continue the experiment thru the next three years, deferring the use of conventional spelling till the beginning of grade four.

What might have happened if that plan had gone thru? But before next September the Superintendent resigned to take a job in California, and Dr. Bonnema an Associate Professorship in the Colorado Womens College. And the new Superintendent dropped the three year plan.

What if he hadn't? What if he and the new principal had carried on with the dictionary key? Can't we be reasonably sure that before the three years were up, parents all over the country would be demanding its use not only with their primarites but with their older youngsters as as well? What point in a ten-year-old blundering his way thru the like of *height, tight, wright, cite - muscle, bustle, tussle, russell - queen, scene, mien, machine* when a touch of common sense would magic them into *hiet, tiet, riet, siet, musøl, busøl, tusøl, rusøl - kween, seen, meen, macheen*? And leave his time and attention free for more education - for the mathematics, science, history, geography, literature, citizenship, which the next 50 years perhaps the next five!-is going to demand of his generation as never in all the history of mankind before.

Adults who wanted to continue with their present spelling would be free to do so. But long before this next September's beginners finished high school, most newspapers would be using the wun-sound-wun-sien print, and parents, grandparents, uncles, aunts, who hadn't laid up an oath in heaven to resist that to the death, would be reading it with greater ease and pleasure than they do our present outrage of reason and time required. And millions of them would be giving their support to an American Olympiad equal - or more than equal! - to the one which, this coming summer, will wind up its eighth occurence in Siberia's Little Academic Town.

Note: For much of the information in this article, the author is indebted to a column by Dr. Irving S. Bengelsdorf, Science Editor of the Los Angeles Times, on Jan. 18, 1968. It bore the striking title, "*Research City in Siberia Taps Greatest Resource - Children.*" His article concludes with, "An international intellectual Olympiad, involving competition in mathematics and the physical sciences among teenagers of the world, could be a positive step towards better understanding among all nations."

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The Psychology of Mastering the Elements of Reading, by D. B. Elkonin*

*Of the Institute of Psychology, Academy of Educational Sciences of the R.S.F.S.R. Published in *Papers (Doklady) of the Academy of Educational Sciences of the R.S.F.S.R.*, 1957, No. 1, 1959, Nos. 3 and 4. Reprinted from *Educational Psychology in the U.S.S.R.* Edited by Brian and Joan Simon, Stanford Univ. Press, 1963.

The question of learning to read is basic to a number of problems in educational psychology. Nevertheless essential aspects of this process still await investigation. T. G. Egorov, when presenting his research, found it necessary to note: 'we cannot boast of great achievements in this field. It is enough to say that we still lack a generally accepted definition of the concept of reading itself [3]

In this paper we start with the proposition that reading is a reconstitution of the sound forms of a word on the basis of its graphic representation. Understanding, which is often considered as the basic content of the process of reading, arises as a *result of correct recreation of the sound forms of words*. He who, independently of the level of understanding of words, can correctly recreate their sound forms is able to read.

From this point of view it is obvious that reading or learning to read produces actions with the sound material of language - more precisely there are outlined the actions which make a reader and which, therefore, must be taught to the child learning to read.

1. Formation of the mental action of the sound analysis of words.

In order to learn to read, the child must be able to hear and distinguish the separate sounds in words, or in the case of the deaf, to be able to have a mental image of the sounds. This first point has been emphasised in the research of I. N. Shaposhnikova [8] and in the special investigations of V. E. Gmurman and R. E. Levina [4].

As an introduction to the practical learning of reading, preliminary aural exercises are a step towards familiarising children with the sound system of their native language. But this question has not been adequately investigated.

In teaching reading to children of five and six years old, the main fact we come up against is that they do not know the sounds of language, do not hear and are unable to distinguish the separate sounds within a word. The formation of this action is, therefore, difficult.

Hearing and distinguishing separate sounds within a word does not seem to constitute a great difficulty for the literate adult. This is an illusion arising from the fact that at a higher level of development the action is already an abbreviated, generalized and well automatised mental action. In reality the position is that this is only the final form of the action of sound analysis of words. This form must be achieved in the process of learning. But the mastery of a new action cannot and should not begin with the finished form. The problem is to find the elementary form from which it is necessary to start in order to guide the development of sound analysis of words as a full mental action.

The first series of researches we conducted into the psychology of mastering reading was concerned with studying potentiality for, and the characteristics of, forming the mental action of hearing and distinguishing sounds in words in pre-school children who had not learned to read. We took as a point of departure the theoretical propositions of Galperin about the process of formation of mental actions [1]. According to these the basic stages in the formation of a mental action are: (1) establishing a preliminary idea of the task; (2) mastering the action with objects; (3) mastering the action on the plane of speaking aloud; (4) transfer of the action to the mental plane; (5) final establishment of the mental action.

The sounds of speech can only be heard or pronounced. Pronunciation is simply an action adequate to the sound material of language. Therefore it might appear that, in spite of the initial stages of mastering a mental action given above, mastery of actions with sounds must begin at the third stage, i.e. with mastery of the action on the plane of speech. Both practical pedagogical experience and special research show, however, that mastery of sound analysis directly on the basis of uttering words, i.e. on the plane of speech, is very difficult for children and does not lead to positive results. Iu I. Fausk [7] has noted: 'Analysis of anything fluctuating is impossible* and therefore speech must be materialised, i.e. the word must be depicted by graphic means.'

The present author used a method according to which the word undergoing analysis was presented in a stable and materialised form. The child pointed to a picture depicting an object under which there was a schema of the sound constitution of the word naming the object, made up of horizontal squares for the number of sounds in the word. The child was asked to fill in this schema with counters, designating separate sounds, naming each sound in order.

Experimental teaching of the action of sound analysis proceeded as follows: at first the child mastered the action on the practical plane. As it was mastered to the extent that the child independently, without help from the experimenter, correctly performed analysis of the word - - filling in with counters the schema of the sound constitution of the word, and subsequently naming all the sounds making up its constitution - the schema was gradually withdrawn and then the counters. There thus took place transition to the succeeding stage - the stage of mastering the action on the plane of speech. The child was presented with the word aurally and had to name in turn all the sounds in its constitution. When this action was mastered and the children could independently reproduce it, there was a transition to the next stage - that of mastering the action on the intellectual plane. The children could, without pronouncing the word aloud, name the sounds in its constitution, designate the number of sounds in the word or say in what part of the word or one another sound had place.

Research by N. A. Khokhlova aimed to clarify the relative significance in forming the action of analysis of separate stages of mastering this action. The investigation was limited to formation of the action of sound analysis and sound recording devices on the plane of speaking aloud. In the first series of experiments the children mastered the sound analysis of words by way of pronunciation, i.e. directly on the plane of speaking aloud. In the second series, mastery of the action took place in conditions of partial materialisation: the children performed analysis using counters but the word itself was not materialised, its graphic schema was not presented. In the third series, mastery of the action began at the stage of materialised actions, then the child proceeded to mastery of the action with use of counters but without the graphic schema of the sound constitution of the word. The final tests presented the word for analysis on the plane of spoken speech. As a result the quality of correct analysis of the word was differentiated according to the criteria for defining stages of mastery of an action. The number of words learned and their character was identical.

In each series 15 children from the oldest group of a kindergarten took part, who were unable to read and who performed analysis of the sound constitution on the plane of speaking aloud. From five to seven tests were conducted with each child, lasting 20 minutes in each case. The first series did not lead to positive results. Not a single child mastered the action directly on the plane of speaking aloud. The results of tests in the second and third series are presented in Tables 1 and 2.

TABLE 1 *Number of words correctly analysed*

After mastery of action by the method of 2nd series 31%

After mastery of action by the method of 3rd series 81%

TABLE 2

Results of forming the action of sound analysis

Test	Action formed fully	Action formed partially	Action not formed
After mastery by method of 2nd series	-	4	11
After mastery by method of 3rd series	12	2	1

These data show that mastery of the sound analysis of words on the plane of materialised action (3rd series) has a significant effect. They show first, that simple exercise in sound analysis on the plane of speaking aloud does not lead to formation of the action of sound analysis; 2nd, that mastery of the action is significantly more effective in relation to the stages of its formation; third, that maximal development of the action with materialisation of the object of action, as well as the operation itself, is necessary at this stage of mastery, after which the transition to sound analysis on the plane of speaking aloud takes place very easily.

In the researches of A. E. Olshannikova formation of the mental action was conducted to the end: sound analysis was transferred to the intellectual plane itself (i.e. performed without the participation of speaking aloud). Formation of the mental action of sound analysis was performed with nine words made up of 10 sounds (of these words four were of one syllable, five of two). Mastery began with materialised actions, after which there was mastery of the action on the plane of speaking aloud, and finally, mastery of these words on the 'mental plane': the children learned to name the sounds making up the word without pronunciation. They simply answered the questions: How many sounds are there in the word? Where does this sound come? Which sound comes first, after? Which sound comes before this one, after that one? etc.

After forming sound analysis as a mental action with nine words, made up of ten sounds, in order to check generalisation of the action, the children were given for analysis words composed of various sounds and levels of difficulty, some familiar to them in meaning and some entirely unfamiliar. The investigation was undertaken with 10 children of the oldest group in the kindergarten (6-9) years who had not taken part in the first experiments in sound analysis. 9 to 10 experiments were undertaken with each child, each lasting 15-20 minutes.

The results of these tests showed that in 8 out of 10 children the mental action of sound analysis was fully formed. After analysis of some new words on the plane of speaking aloud, the action formed was easily transferred to a new word of any difficulty, including words *whose meaning was unknown to the children*.

This research showed that, with children of 6 to 7 years, formation by stages, even with a limited number of sounds and verbal material, can lead to a full-value, generalised in character, mental action of hearing and distinguishing sounds in words, up to the stage of familiarising the children with letters and learning to read. The research showed the conditions for the transition from one stage of mastery to another and the regularities of the connections between one stage of mastery and another. We have at our disposal preliminary material showing that the formation of the mental action of sound analysis considerably facilitates the process of mastering reading, at the first stage of reading. Mastery of reading is not, confined to the formation of this action. Research into the formation of other actions which enter into reading has been undertaken, and was published two years later.

2. Formation of the mental action of word changing and its significance in learning to read.

It has been shown in the preceding section and else [9] that in the period of preparation for learning to read, i.e. familiarising children with letters and their sound values, children of 6 to 7 years *may easily be brought to form the generalised mental action of sound analysis of words*. This has also been shown by the research of A. E. Olshannikova, relating to pre-school children [6] and that of A. K. Markova [5] relating to intellectually backward children. Children who form this mental action easily define not only the first and last sounds in the sound constitution of a word but all the sounds. In the process of forming sound analysis there takes place generalisation of the sounds of speech. Ability to hear the separate sounds in words, to distinguish one from another and to generalise sounds, is vitally important for succeeding stages in mastering reading and writing.

In our researches into the psychology of learning to read, we take as a point of departure that elementary reading is reconstitution of the sound form of a word on the basis of its graphic designation. Obviously, in order to reconstitute the sound form of a word, ability *to hear* the separate sounds in words, to analyse their sound constitution, though necessary, is not sufficient. To reconstitute the sound form of a word, i.e. to read aloud, it is also necessary, first, to know the sound value of letters, second, to be able to make the transition from designated letters to the concrete sounds within a word.

Experiment has shown that simple knowledge of the names of the letters does not ensure full reconstitution of the sound form of a word. Children of 6 to 7 years already know the names of many letters, sometimes the whole alphabet, but they cannot read, and if they try to do so, simply put together the names of the letters. This is one of the worst habits with which many children enter school to begin learning to read and it is necessary to teach them afresh.

To know the *names of letters is not to know their sound values*. This is particularly true of the Russian language in which consonants not only designate several specific variants of one and the same phoneme but also two different phonemes (hard and soft phonemes being designated by the same letter [1]). As a result it is important that a letter should not be connected with any single sound value and also that the given sound is connected with different phonemes (hard and soft).

In the Russian language the phoneme and its concrete variant the letter is determined by position in the word; of particular importance here is the following vowel. It must be taught that the vowels *ѐ, е, ю, я*, designate not only the vowel sounds *о, э, у, а*, but also the softness of the preceding consonant. [1] Therefore, to designate the sound form of a word and syllable it is necessary to be oriented to the succeeding letter and its sound value. Without this it is impossible to designate correctly the sound form of a syllable and word.

Learning the action of designating the sound form of a syllable as a basic unit in reading raises a difficulty in teaching children to read, a difficulty known to methodology as 'amalgamation of sounds.' This has two main causes. First, that the letter is connected with more than one sound value, with any one variant of a phoneme. This makes it extremely difficult to select the concrete variant necessary in the given case. Second, the above difficulty is conditioned by inability to orient towards the succeeding letter; without which it is impossible to arrive at the concrete variant of the phoneme required in the given situation.

Various methods have been worked out to overcome the difficulty of 'amalgamation of sounds.' This difficulty gives rise to: (a) the need for clear pronunciation of separate sounds in sound analysis, (b) an arrangement of letters in readers, whereby the first studied are the 'continuant' consonants and then the 'stop' ones so that amalgamation of consonants with vowels is easier, (c) an order of studying sounds and letters which begins with mastery of syllables made up with hard consonants and only afterwards with soft consonants, (d) various technical methods: 'reading according to analysis,' 'reading according to similarity,' etc. But all this does not lead to the necessary result, and in the last analysis the children learn simply to know syllables 'by sight' without designating their sound.

We assume that the action of designating the sound forms of syllables can be formed by familiarising children with the letters of consonants and their values. It can be formed as an internal action of *wordchanging* by which we understand a change for the child of the sound form of the word by changing one of its constituent sounds. For example in the word 'dom,' the sound 'o' is replaced by 'y,' producing the word 'dym,' etc. Since in designating the sound form of a syllable, it is particularly important to orientate to the vowel sound following a consonant, we assumed that the first need is to form the action of changing the sound form of the word by changing one of the vowel sounds entering into its constitution.

The experimental investigation into formation of the action of wordchanging and its significance in designating the sound forms of syllables was undertaken in two stages: first in 1957 with 6- to 7-year olds, then in 1958 with the preliminary group in a primary school. The results were entirely analogous.

The experiment took the following form. First we formed in the children the mental action of sound analysis of a word, according to the stages established by Galperin. The tasks were given in the form of normal lessons each lasting up to 30 minutes. For the formation of sound analysis of words 12 tasks were used. As an outcome, the children could easily distinguish sounds in words of one or two syllables (e.g. *dom*, *canu*). Although the formation of actions was undertaken with 15 syllables, made up of 10 sounds (*a*, *o*, *y(ou)*, *n(ee)*, *m*, *n*, *l*, *k*, *t*, *s*) the children began to produce sound analysis of syllables made up of other sounds, *e*, *e*, *ю*, *я* (*ie*, *yo*, *iu*, *ia*).

After forming sound analysis, we proceeded to formation of the action of wordchanging. This was conducted in two stages, (1) familiarisation with letters designating vowel sounds, and (2) forming the action of changing the sound form of a word by changing one of its vowel sounds.

Familiarisation with letters was conducted as follows: (a) there was sketched on the blackboard a picture of an object under which there was a schema of the sound constitution of the word-name (small squares for the number of sounds in the word); the children were given similar small pictures, (b) the sound constitution of the word was determined and the presence in it of the sounds studied was established, (c) letters designating vowel sounds were pointed to, (d) the children placed letters in the corresponding squares of the schema of the sound constitution of the word.

Three tasks were required for mastering the letters. After this the children could independently put a letter in place in the schema where the vowel designated is situated. At the next stage formation of the mental action of wordchanging took place. It was conducted according to the stages of forming mental actions, i.e. beginning on the plane of materialisation resting on the actual replacing of letters, then on the external plane without changing one letter for another and, finally, on the mental plane itself, according to the verbal instruction: "If in the word '*lyna*' we change the sound *y* (*ou*) for the sound *n* (*ee*), what do we get?"

In forming the action on the plane of materialisation, special aids were used in the form of narrow strips of thick paper on which the vowels *a*, *o*, *y*, *bl*, *n*, were designated. These strips could be placed in special slots under the picture in the schema of the sound constitution of the word, in the place in the word where the vowel sound came that was to be changed. Thus for instance, under a picture '*kot*' a strip was placed in the middle square of the schema in place of the vowel *o*. Work took the following form: first the children determined the second sound in the word and placed the letter 'o' in the corresponding slot, then, moving the strip along so that other vowels appeared in place of 'o', they determined how the new word, or meaningless sound constitution, had been changed by this substitution. In order to make the work meaningful, the children were set a task: find out, when you are substituting a letter, what word you get.

At the second stage of formation of this action, the children did not proceed from practical substitution of letters. The teacher set out the letters of vowels on the blackboard and the pupils laid out these letters on their desks, and only indicated by pointing the substitution and wordchanging produced. Finally at the third stage, all the work was done without pictures or schema, by ear and in the head.

The children worked very willingly. They only found some difficulty with the very first task when forming combinations of meaningless sounds. The action was formed in the course of nine tasks.

Although the basic work of forming the action of wordchanging was done with vowel sounds and letters, the action became generalised and was easily transferred to changes in consonant sounds.

It was important to establish whether formation of the action influenced the children's potentiality to designate the sound form of a syllable. With this aim, when the formation was completed a special check was undertaken to find out what names of consonant letters the child knew. Then one of the letters he knew was placed before him and after he had named it there were placed parallel with it, one after another, all the letters designating vowels. The question was posed: 'What do we get if we put in this letter?' In answer the child pronounced the relevant syllable. An analogous method was used to check the skill of constituting the sound forms of syllables with unknown letters. The experimenter placed before the child the letter unknown to him and named it. For instance, placing the letter 'f' he asked, 'Do you know this letter?' The child answered 'no.' 'This letter is 'fe,' said the experimenter and then adding to it a vowel asked, 'What do we get if we add this letter?' The child in answer either formed or did not form a syllable.

Control experiments showed that in the course of forming the action of wordchanging there were also formed prerequisites for the action of syllable-formation, i.e. designation of the sound patterns of a syllable. Of 17 children who systematically performed the tasks, not having mastered the task of sound analysis and entirely unable to read, 14 formed the action of designating the sound formation of a syllable with familiar letters, 13 with unfamiliar letters as well. In the case of the remaining children, the action of designating the sound form of a syllable was as it were in the 'zone of potential development,' i.e. they could produce this action with help, under the directions of the experimenter. To reach this stage, two or three directions were sufficient after which children produced the action independently.

The results obtained provide a foundation for the following conclusions:

- (1) Formation of the action of wordchanging is of great importance for all subsequent learning of reading, since internal to this action there arise the prerequisites for the skill of designating the sound form of syllables;
- (2) A full value, adequately generalised, action in reconstituting the sound form of the word as the basis for reading can be formed by familiarisation with the letters designating consonants;
- (3) Since in the course of formation of the action of wordchanging there develops orientation to positional sound relations, the 'difficulty of amalgamation' is excluded in reproduction of the sound form of the syllable.

3. Formation of the action of reading syllables.

The mental actions of sound analysis of words and wordchanging constitute the first two stages of the elementary learning of reading and are a preparation for the basic stage-formation of the action of designating the sound form of words, i.e. reading.

We have already shown that learning to designate the sound forms of syllables, as the basic unit of reading, raises a difficulty known to methodology as 'amalgamation of sounds.' The prerequisites for overcoming this difficulty and for mastering the reading of syllables, as has been pointed out, are formed with the action of wordchanging. But in the researches described, the formation of reading syllables was not subjected to special study. An investigation bearing on this question was specially directed to finding out whether a generalised action of designating the sound forms of syllables and words could be formed which shifted the usual difficulties that arise onto a new foundation. The experimental teaching of reading was undertaken in the preparatory class (Class 0) of school No. 91 in Moscow.

The whole process of teaching consisted of 3 stages:

- (1) Formation of the mental action of sound analysis of words.

- (2) Familiarisation with vowels (o, a, y, ы, u) and formation of the mental action of wordchanging (9 tasks).
- (3) Familiarisation with consonants (m, n, z-s, r-l, zh-sh, k-g) [1] and formation of the action of designating the sound forms of syllables and words (17 tasks).

The first two stages are preparatory to the third basic stage, at which formation of the constitution of sound forms of syllables and words should take place. Because of the characteristics of Russian consonantism (the presence of hard and soft consonants) it is necessary for correct constitution of the sound forms of words to be oriented to the vowel letter following the given consonant when selecting a phoneme. Reconstitution of the sound form of a syllable or a word in the Russian language *is impossible without such orientation*. Orientation to the succeeding letter, and the basing on this of formation of the syllable, is the primary task of the third stage.

The method of forming actions at the first and second stages has been described and it only remains to establish the method of forming the action elaborated at the third stage. Mastery of this proceeds by the stages of forming a mental action established by Galpern. At the first stage it is elaborated on the material plane and rests on the external actions of the pupil himself; at the second stage it is formed on the plane of speaking aloud. The transition to reading for oneself, i.e. mental reading as such, was not specially covered.

The schema of formation was as follows:

- (1) picking out learned sounds from a word;
- (2) familiarisation with letters which designate the sound learned;
- (3) including a consonant letter in the schema of the sound constitution of the word (under a picture);
- (4) including the vowel letter following on the consonant studied in this schema (the names of the pictures included combinations of the mastered consonant with all known vowels);
- (5) reading formed syllables against the background of a word;
- (6) formation of syllables by adding all vowels to the consonant learned and reading these;
- (7) reading syllables on a chart;
- (8) constituting words from letters;
- (9) changing syllable by way of changing one of the letters (vowel or consonant) and reading them;
- (10) reading words from a chart.

Since we attached special significance to formation of the action on the plane of materialisation (resting on the external action of the pupil himself) we produced for this stage a specially constructed aid, which we refer to as 'windows.' In a small square of cardboard four such 'windows' were cut out measuring one square centimetre at a distance of two to three millimetres. In the slots of each window there could be placed strips of thick black paper with letters pasted on them. All the vowels already known to the children were from the start pasted on the strips for vowel letters; the consonant letters were pasted on strips as they were mastered by the children. These strips were easily moved and the children could move them upwards or downwards so that a given letter appeared in each window so forming syllables and words. By changing one of the letters in the constitution of the syllable or word, they could form a new syllable or a new word. A moving strip with consonant letters was placed in the first window, one with vowels in the second, with consonants in the third and with vowels in the fourth. Thus the children were able independently to bring about the transformation of one syllable or word into others, which has a paramount importance for the development of 'positional reading,' i.e. reading in which the reader is oriented to the positional relations of sounds in a word.

In working out the reconstitution of the sound forms of a syllable, children therefore, act in the following way: placing a letter in the first window designating the consonant sound under study,

they then, by shifting the strip with the vowel letters in the adjacent (second) window, make up all the possible syllables with the given consonant. The fact that the letter designating the consonant sound remains unchanged and that there are changes only in the vowels ensures the formation of orientation to the vowel sound following on the consonant. This is emphasised by the fact that the letters designating *vowel* sounds are *red*, and those designating *consonants* are *black*. After several consonants have been mastered, the children change not only the vowels but also the consonants. Thus, for instance, in mastering the sounds and letters z-s they begin by forming all the possible syllables with z, then change the letter z for s and form syllables with this letter, and finally, placing in turn z and s with one and the same vowel, compare the syllables they get. Comparison of this kind is extremely important for the development of phonematic hearing. Only after the children had mastered the sound forms of the syllables made, resting on an external action with objects, did we make the transition to reading syllables on charts.

When working with words, the children produced any word made up of four letters in the windows and, changing one letter for another, arrived each time at a new word which they read. Thus, for instance, in studying *r* and *l*, the children produced the following conversions and read the words (transliterated): *rana-Rina-Lina-luna-Nina-Zina-zima-Sima-Rima-Roma-rosa-roza-loza-Liza-lisa*. After this practical wordchanging we passed on to reading words on charts.

For the formation of reading syllables, we used a special aid which was of great importance. Usually at the first stage of learning to read, words are divided into syllables. In reading, the child has before him already separated syllables which he either immediately knows 'in a flash' or reads through. Reading by syllables is, therefore, determined by the divisions given in the book. This seemed to us to be incorrect, since the child is given a readymade model which he simply reproduces. The child organises his own reading according to an orientation which is marked out for him by the teachers. But reading an unknown word requires that the child himself determines the orientation he must follow in reconstituting the sound form of the word.

To teach children independently to find this orientation we began by giving a word which was *not divided into syllables*. This word was printed on a special chart. The children, reading the word, joined together the sounds comprising a syllable with a pencil, distinguishing this syllable in the word and then joining it to the following one. Thus reading the word *luna*, they themselves joined with a pencil the sounds constituting the first syllable, reading it and so separating it from the following syllable and then also did this with the next syllable, not lifting the pencil from the paper. By this external action with the pencil, the children made the transition to orientation of the word resting on the movement of the fingers, and later to simple visual orientation without the support of the movement of pencil or fingers.

We attribute great importance to this method of forming successive syllable reconstitution of the sound form of words, by which the children themselves learn to determine the nodal points or orientators by which reading must proceed. The method proved fully justified.

After all ten consonant letters had been studied (half the number of consonants) we introduced a series of control experiments, in order to find out to what degree the generalised action of reading had been formed. The control experiments were conducted with each child individually. First we asked the child to read a column of words of varying difficulty, which he had not read before but were made up of letters that had been studied. The following results were obtained. The words correctly read in syllables were (1) *muka, kasha, shina* - in 100% of the cases, (2) *mir, luz, suk* - in 88%, (3) *mashina, karasi, makarony* - in 83%, (4) *zhurnal, karman* - in 82%, (5) *golos, moroz, zamok, nosok* - in 76%, (6) *grom, slon, glaz, krik* in 63% of cases. (The type of words given under 3, 4, 6 had not been met with in the preceding reading practice) Later we asked the children

to make up a series of words of varying difficulty. Out of 20 children, the numbers correctly writing the following words were: *nos*-20, *luzha*-20, *urok*-15, *marka*-18, *risunok*-11.

These data show that the knowledge of reading and writing of syllables within the limits of the given letters had been formed in the children. Further the children read not only the words which had been worked upon in lessons, but also words of another type, even those made up of three open syllables, two closed syllables, an open and a closed syllable.

It was important to establish how far the action was generalised. This can be determined by its application in new conditions. With this aim we asked the children to read words made up of consonant letters they had not as yet studied. Some children already knew the names of these letters. These did not need help from the experimenter. The children who did not know the names of some letters asked the experimenter and then when he had named them, read the word. Words were given with hard and soft consonants, i.e. with consonants in combination with *e*, *ю*, (*iu*), *я* (*ia*), which had not been studied. The words *sova*, *shuba*, *lina*, *chasy*, were read by 100% of the pupils; *vorota*, *lopata*, *zavody* - by 95%; the word *deta* - by 80%; *derevo*, *biletu*, *telefon*, *Boria*, *Liuba*, *niania* in 67% of the cases.

In order to ascertain the presence of a generalised action, easily transferable to new conditions, we asked the children to read a series of words written in Latin script. As the children did not know the significance of letters in this script, in the course of reading they asked the experimenter: 'What is this letter?' The experimenter named the letter and the children then read it. Out of 18 children who took part in this control experiment, those who correctly read the words given were as follows: *zima*-18, *Sima*-18, *voda*-18, *Rita*-17, *zavod*-18, *vorota*-15, *telefon*-12, *derevo*-8. - all spelled phonetically.

It must be noted that both in reading words with unknown consonants and in reading words written in Latin script, the children made many mistakes in combining consonants with *e*, *ю*, (*iu*), *я* (*ia*). However, reading such syllables was as it were 'in the zone of potential development,' it was enough for the experimenter to point out to the child how to read such a syllable in two or three cases for him to begin to read them independently.

Therefore, in the course of becoming familiar with ten consonant sounds and letters there was formed a generalised syllable reconstitution of the sound forms of a word. It is particularly important to emphasise that the action was formed, *not on the basis of knowing a syllable 'at sight' but on reconstitution of its sound form.*

The whole process of our experimental teaching covered 38 tasks, each lasting 30 minutes, and all homework was excluded. Of these 38 tasks, 21 were devoted to preparatory work and 17 to formation of the reading of syllables itself.

We consider that the significance of this development is that it shows the possibility of a relatively rapid development of learning elementary reading and that it discloses the genetic connection between particular stages in the formation of this action. These stages are: (1) formation of the mental action of sound analysis, (2) formation of the mental action of wordchanging, (3) formation of the action of reconstituting the sound forms of syllable and words. The establishment of these stages opens up the perspective of radically reorganising methods of teaching the elements of reading.

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*Not true today with oscilloscopes

[1] In the written Russian language whether a consonant is 'hard' or 'soft' depends in practice on the vowel following it (e.g. ду=du (as in do), дю=diu (as in dew)). The vowels, therefore are called 'hard' and 'soft'. They are as follows: the soft in parentheses: о(ё), э(е), ү(ю), а(я), ы(и=ее).

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Notes by Ivor Darreg

Russian and English are alike in these respects: (1) There is no rule in either language about where the stress should fall; (2) Both languages have 'clear' and 'obscure' vowels in stressed and unstressed syllables respectively, so that in both languages there are more vowel-sounds than there are vowel-letters.

In Russian, as in many European languages, it is easy to divide a word into syllables - the rules are clear - but in English, syllable-division is difficult, so that applying the syllable principle to teaching of reading presents special problems.

In Russian as in other Slavic languages, there are two varieties of most of the consonants, called arbitrarily 'hard' and 'soft' which really are: 'plain' and 'palatalized.' This distinction is subtle, and represents the halting at a halfway-point of a process which, in most other languages, goes to completion. For instance, in our words *press* and *pressure*, the *s*-sound changes to *sh* without stopping at an intermediate stage that could be spelt 'press-yure.' The *d* of *could*, if not carefully separated from the *y* of following *you*, fuses with it to make a *j*-sound, so that *could you* becomes *kooja* in ordinary speech. When many similar situations occur in Russian (a following *y*-sound), a soft consonant is generated, and this is shown by a special series of vowel-letters containing a *y*-sound as our 'long-U' does, or at the end of a word by a special letter called the 'soft sign.' There are exceptions: either the process will go to completion (resulting in a sibilant) as it does in English, or the sounds written as soft will remain hard, resulting in unphonetic spellings. The Russian terms 'hard' and 'soft' are only remotely related to the English terms as applied to hard and soft C and G for instance.

Of the 32 letters in the present Russian alphabet, only seven differ in their small and capital forms. (One of the real losses in abolishing four other letters was that two of them so differed.) This gives a Russian text a small capital appearance. It makes learning the alphabet much easier, but it definitely impairs the legibility of words, as there are so few ascenders and descenders, and the accumulation of capital-style serifs on the small letters is extremely monotonous and wearisome. Perhaps our Roman alphabet has too many ascenders and descenders and some future type-designer might achieve a happy compromise, in both alphabets. That is, legibility of words is just as important as any other reading problem, but its peculiar difficulty consists in its dual aesthetic and scientific nature. Inventors of new phonetic alphabets please take note!

[Spelling Progress Bulletin Summer 1968 pp14-16]

The Super Babies - do prenatal vacuum suits make babies more intelligent? by Pat Williams

The decompression suit - popularly called the 'birth suit' - is the most unusual advance in obstetrics for many years. It is a South African invention, devised and now used extensively in Johannesburg, which has spread to the United States and Britain.

This article, first published in the Sunday Times, London, tells how the 'birth suit' was devised as an aid to mothers in labour - and how, as the results were collated, it was found that it may have even greater benefits: brighter, healthier children.

At 11 months, Karl behave like an advanced two-year-old. To turn a door handle is difficult for an average two-year-old. Karl manipulated a telephone dial. He could also walk up a steep flight of steps, dragging his huge toy car behind him. Now he is nearly three and speaks four languages.

At 17 months Gerda spoke 200 words. The average 18-month-old child speaks five words.

At 3 months, Linda sat up without support - average 9-month behaviour. At 10 months she was talking. At 2½ she has a wide, fluent vocabulary. Reluctant to have her photograph taken for this story, she told us: "if you're going to take a picture of me, then I'll fetch Daddy's camera and take a picture of you."

At 2, Paul could tell you how an electric light worked. We watched him - now 2½ - playing with a radio tester, manipulating dials, plugging valves into sockets and carefully making contact between two leads so that the indicator dial would swing up. All this with uncanny dexterity, and strong, focused concentration.

These children and some hundreds like them - all born in South Africa - are clearly exceptional. What may have made them so was the treatment they received while still in the womb, and during the hours when they were being born.

The technique used on them is called Decompression, or Foetal Oxygenation. Ideally it is carried out for half an hour daily during the last ten weeks of pregnancy, and right through the first stage of labour.

Altho it was first devised to speed up labour, with no prospect or wonder-children in mind, the South African doctors using decompression now think there is a good chance that two out of five decompression babies may be gifted - or highly gifted.

In spite of such dramatic possibilities, decompression itself is a simple process: a vacuum pump lifts about a hundredweight of atmospheric pressure off the womb - which, in pregnancy, has something like half a ton of pressure on it.

In labour, this means that the abdominal muscles are lifted off the uterus, enabling the total force of the uterine contractions to speed the expulsion of the child into the world.

Normally this force is dissipated in fighting abdominal pressure and tension, making the hazardous journey longer, with more chance of the child emerging battered or damaged.

In pregnancy the same apparatus enables the maternal blood, carrying vital oxygen, to flush more freely through the dense and sometimes obstructed labyrinth of the placenta. More oxygen available to the foetus means less chance of damage to some brain cells - and many obstetricians believe that infants in the womb do suffer from oxygen lack in the last ten weeks of pregnancy.

The placenta has stopped growing by then and is not always as efficient as it might be in supplying the needs of the foetus. If there is oxygen starvation for even a short time, brain cells are irreparably damaged.

Most children, of course, are born healthy enough. But some doctors suspect that' given a better uterine environment, such as decompression seems to provide, they will grow more healthy still.

The difference is the difference of a seed growing in nutritious rather than poor soil; of a child reared in a palace rather than a slum. Tho the infant isn't in any way noticeably changed, he is stronger mentally and physically; able to make fuller use of his natural genetic potential.

Decompression was devised by Prof. O. S. Heyns, head of the Dept. of Obstetrics and Gynecology of the Univ. of the Witwatersrand, Johannesburg.

Its apparatus is a plastic suit, a fibre-glass dome to cover the abdomen, a pressure gauge and a vacuum pump from an ordinary household vacuum cleaner.

Once the mother has learned how to use it, she may take it home and do her daily half-hour sessions there. All the "decompression mothers" I met in South Africa positively liked the suit. They said it made them feel relaxed, and relieved backache dramatically. (In fact, in one Johannesburg clinic, decompression is used for many cases of backache.)

One mother said, "The first time I had it I could feel my baby kicking and stretching. I knew he was enjoying it! I sat up and laughed."

Prof. Heyns himself says of the birth suit: "This may be the age of technology, but my thing isn't a machine so much as a concept. Perhaps people would be more impressed if we rigged up flashing lights to go with it."

Flashing lights or not, the concept is gaining ground. Already something like 10,000 babies have been born in South Africa by this method in the last ten years, with what appear to be remarkable results - a harvest of exceptionally bright children; another crop of children delivered alive who may well have died of toxæmia in utero or at birth; no cases of cerebral palsy - which in Britain is expected in two cases out of 1000; and shorter and much less painful labours for most mothers.

Most mothers (tho by no means all experience this) claim the pain reduction as sufficient justification on its own for decompression.

One said: "It was awful when they took me out of the suit to be examined. I couldn't get back fast enough. I didn't care if my baby was bright or not, the pain-killer was such a relief."

And another; "When I was in the suit, I could actually talk to my husband right through contractions."

In fact, the first research into compression was aimed only at shortening labour. Heyns says: "I was thinking that if we could knock out the action of the abdominal musculature pressing down on the uterus, the uterus would have freer play and labour would be speeded up.

"Some poor girls stay in labour for so many hours.... and the longer they do the worse it is for the little guy inside.

"First we tried a drug, but tho it worked it meant anaesthetising the mothers. Now who wants to deliver babies that way? Then I hit on the idea of lifting the pressure outside the mother.

"We also devised a gadget for the second stage. A little hand pump thing, called Gasyd, with a pressure dome. With it, you get a local reduction in atmospheric pressure over the baby's head, and reduce the forces opposing the advance of the foetus.

"It's like pulling a cork out of a bottle. Use that instead of forceps, and you don't need to touch the baby. "As time went on mothers would stick their heads in the door when they came to the clinic, and say how fine their babies were.

"At first I ignored it - you know how these girls will brag. But as time went on, and they were saying how advanced these little chaps were, and then the doctors and nurses began saying the same thing.

"In the clinic and the wards they were saying you could spot a decompression baby just by the way it looked. In the nursery it would be holding its head up at ten days, and all that sort of thing, more normal at a month. And they all spoke about the brightness and the disconcerting alertness of their gaze. So we thought it might be worth taking a closer look."

From 1960 onwards, the team of gynaecologists did enough research to satisfy themselves that something was happening. They measured the fitness of newborn babies at the moment of birth by means of an Apgar Rating, which looks at tone, colour and so on - and found decompression babies scoring, on average, higher than others.

After their normal duties were over each day, the doctors would spend their free time testing decompression babies and ordinary babies too, to set themselves a norm. In a country without a national health service and registered patients, this often meant wasted days tracing families who might have moved three times in as many years.

Nor were parents always cooperative, as I discovered too. A mother refused to let me meet her child, regarded at his nursery school as a genius. "He's so bright anyway, we want to try to keep things normal around here," she said.

As they became more experienced, the doctors worked out a factor they called a Development Quotient - a kind of baby I.Q. - based on what the American psychologist Arnold Gessell had drawn up as norms for phases of a baby's life up till 30 months. Just as in the I.Q., a D.Q. of 100 would indicate average.

The first tests were run in a home for unmarried mothers, chosen because they were a group of women conveniently together, who between them could keep one machine busy from morning to night.

The results were encouraging. Of a group of mothers classified as retarded or very retarded, only one of their babies fell below 100 in the D.Q. scores. The rest ranged between 110 and 173.

In time the tests became more rigid. In one of a final series, carefully controlled and scrambled, there was an overall difference of 15 points between decompressed and undecompressed babies at the age of nine months.

The doctors who have worked on the research admit 15 that the published D.Q. results on babies a few days old - which have provided scores soaring above 200-need some adjustment. One explained: "We worked out these scores on the basis of a child of 2 days doing something a child of 30 days normally would do, and some scores were astronomical. But now we think we should regard such children as more like six months and two days old because, after all, their life really starts in the womb about then.

This brings the scores down to levels still remarkable, but not quite in outer space."

They also point out that a D.Q. may not turn into an equivalent I.Q.

Gessell's norms test a child up to 30 months, and there are no tests after that which psychologists agree can indicate a child's intelligence until the age of 10.

The oldest of the decompression babies with whom the doctors have contact is now only six. The research team is careful to point out that an I.Q. - in fact, testing of any sort - doesn't tell the whole story. "I.Q. assumes that everyone has been to school and agrees that 2 plus 2 equals 4. But we're really interested in something else, more to do with the overall quality of these chaps. For that you must surely trust your clinical judgement and experience and give weight to what your own eyes tell you, just as much as to formal tests."

Having met about 70 decompression children, I take his point. Few of the children were over four (the past four years has been the period when the real observations got going) and their characteristics of brightness and liveliness are distinct but hardly out of the range of normal.

Karl Oertlé; nearly three, is one of the babies from what the team calls the "upper crust." He sat at three months, walked at 7 months, talked at a year, and was answering the phone at 13 months.

His mother, who owns a garage, told me: "He's very useful in the workshop, passing things, blowing up tubes. He uses the air pump on his own. He speaks the four languages he hears around him: English, Afrikaans, Zulu and German. He's very independent. Goes off to the shops on his own to buy himself sweets and that sort of thing. But altho he's intellectually older, I've learned I must give him a lot of affection and never let him get frustrated.

"He rolled right over at three weeks, and I knew right then there was something special about him. When he was a year old, I took him to a pediatrician who didn't know he was a decompression child. He said: 'You're privileged to have a child like this. I've never seen one like it before. It's about a one-in-a-million chance.'"

Yet the afternoon I met Karl, five children were present, all born within six weeks of each other, all more or less as bright as he. Of the other "upper crust" children, all had certain things in common. All walked at a year or earlier, a few at six months, and most at 9 or 10 months. Most had little or no trouble with teething. Most had started speaking before a year and some have the ability to chat with adults in that fluent, unconcerned way more often found in children of five or six.

On the whole, those children sent to nursery school haven't lasted there. They were bored stiff, and their sense of outrage - 'all they do is sing or play with blocks' - makes them either miserable or mischievous. One 3-year-old waited till everyone was in the gardens and then went around locking all the doors in the school.

They are more mature and tend to look older than their years, and prefer the company of older children. They have outstanding memories for events of their early life. They have strong wills and quick tempers; immovable on matters to do with their sense of themselves.

A mother of five undecompressed children, who is also a psychologist, says of her three-year-old decompression baby: "My others were all placid, nice, easy babies. This one is very self-willed and quick on the uptake. He was lively in the uterus, and even more lively in the suit. Now he's got more energy than the rest of us. He's never really been a baby ... more like a little old man, right from the start."

At the same time as the effects of decompression at the top end of the scale were noticed, researchers found another effect at the bottom. The first case made medical history.

A 24-year-old African woman called Dora came to the hospital with severe toxæmia. The doctors all agreed to terminate her pregnancy immediately.

While they were waiting for the anaesthetist, someone suggested putting Dora in the "birth suit." By the time the anaesthetist arrived, the foetal heartbeat and the mother's blood pressure had begun to improve. They decided to continue and see what happened.

After a few runs in the suit, she was still improving. The doctor in charge told me: "From 24 weeks, when she came to us, until 30 weeks, Dora was a very sick woman. From 30 to 38 weeks, she was a healthy woman again, and at 38 weeks she delivered a live child."

Since then, decompression has been used in Johannesburg on certain kinds of toxæmia in pregnancy - a condition which kills 40 mothers and 700 babies each year in Britain.

Decompression is not an accepted technique, even in South Africa. But criticisms against it turn out, on examination, to be less forceful than the way they are expressed. There is much inertia, and the inevitable orthodox resistance to change. It has been called a "fad" or "not proved."

Some doctors freely call it a nuisance; it requires expert nursing attention. Others who have used the "birth suit" say they can't produce the Wits. results in labour.

Whenever it has been possible to investigate these statements it has been found that the equipment has either been modified, or the doctors have given up long before they learned the timing and finesse that the South Africans now have.

A man who observed three "difficult" birth-suit labours writes: "Clearly much more work must be done. Doctors and nurses have to be experienced in the use of the suit for optimum results to be obtained; if they're not, or not convinced of its effectiveness, the patient is likely to be discouraged. "Also, the snit is mechanically inefficient to the point where the difficulties of operating it effectively tend to defeat the objectives."

One very successful gynaecologist told me: "I wouldn't use it. My practice is established. But if I were a young man just starting I would, and within five years I'd have made my name."

Sporadic research into decompression in labour has been done in Britain, but no attention has been spent on the children themselves. The only sustained work on the babies is being done in Canada.

It is important to emphasise here that no one claims all decompression babies are brighter, but that on the average they may be; and that a small, but statistically significant number seem outstanding. Even so, decompression is gaining ground. In the Queen Victoria Hospital in Johannesburg there is now a daily clinic for 100 mothers. Two private clinics have opened recently.

Clinics are starting in America, and in Britain a group of people are studying the possibility of starting one in London - admitting that they hope the Health Service will finally take it over.

Two birth suits are available at University College Hospital, London. The doctor who works with them said: "If a mother asks for it, I tell her it certainly can't do any harm. She can have it if there's a suit free and she doesn't mind being a guinea-pig for certain tests and measurements." But that's all.

Heyns doesn't claim to know all the answers. No one in medicine ever can, he says.

"But we know from experience that decompression works. How is another matter. We started at the other end, you see."

Editor's note: The use of prenatal decompression in Johannesburg is the subject of a paper by R. Liddicoat in the South African Medical Journal of March 2, 1968, which reports on a piece of rigidly controlled research in this field which was spread over four years.

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[Spelling Progress Bulletin Summer 1968 pp14-16]

Learning to Spell, by Johnson O'Connor*

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When do people really learn to spell? Is it during the college years when professors deduct in various ways for errors? Are the high school years those in which a pupils spelling improves? Do poor spellers never learn?

A progress report which accompanies this is primarily for those who have taken the spelling tests in the past years and so contributed the data essential to this study.

Of the four spelling forms, A, D, E, & F, with 25 words each, some are easier than others. For fairness and accuracy, all must be adjusted to a common standard. 185 persons have taken forms A and F. With these scores, Pat Kennedy, of the Human Engineering Laboratory in San Diego, converted form A scores to form F, the easiest of the four. Had he chosen to convert F to A, scores of 1 and 2 correct on F would have fallen below zero on A.

In much the same way, scores from other groups who have taken forms D and F, E and F, were converted so that this latter could become a standard or general scale to which all others could be referred.

With all the scores in terms of form F, Kennedy next sorted men by age and plotted. For ages 16, 17, and 18, with some 70 cases per age, the medians are 14 or 15 correct out of 25, with individuals spreading from 1 correct to 25. For other ages, with fewer cases, the medians jump about, but accepting these first figures, we find that colleges contribute almost nothing as yet measurable toward better spelling, nor do even the last three years of high school. For the present, parents should take greater responsibility for teaching spelling and should not rely on high school or college to contribute.

Reliability. To measure and study change of spelling with age, which certainly seems slight, demands a more accurate measuring instrument. A preliminary computation, based on only 104 cases, all ages combined, gives a reliability for a 25 word test of only 0.60. This must be improved.

The English vocabulary worksamples, with 150 words each, have reliabilities of 0.85 or higher. Knowing these, the predicted reliability of 50 words should be in the neighborhood of 0.70.

Using this 50 point scale, spelling improves from age 12 to 16, and then levels. From age 16 to 25, median scores raise from 26 to 28 correct, with individuals scores ranging from zero to a perfect 50. From age 35 to 50, medians range higher, from 33 correct to 35 (extremes still the same). Perhaps during the first 10 years of actual work, from the age of 25 to 35, one becomes more seriously aware of good or poor spelling. Tho the cases so far plotted are insufficient, they show beyond much question that during college and the last 2 or 3 years of high school, spelling shows no unusual improvement, possibly 2 points on a 50 point scale, no more than in the 10 years after college.

Can spelling be taught? Apparently not so easily nor by present day methods. The fact that scores show no improvement from age 16 to 25 suggests that spelling is at least very difficult to teach. Perhaps good spelling depends so directly on some born aptitude not yet recognized that without this gift good spelling is nearly impossible.

How and when should spelling be taught? Is spelling worth teaching? The importance of vocabulary is the use of words, not in reading or writing or speaking, but in thinking and properly expressing these thoughts. Spelling does not play an important part in this process and certainly does not seem to be of the same value as vocabulary. If both high school and college do so little to improve spelling are they justified in penalizing poor spelling so heavily?

[Spelling Progress Bulletin Summer 1968 p17]

Book Review:
Evaluating the Initial Teaching Alphabet, by John Downing, Ph.D.
Reviewed by Newell W. Tune

Pub. by Cassell & Co, Ltd, London, 1967, 327 pp.

Thruout the history of education there have been certain milestones that changed the course of the trend of education. Sometimes these have been revolutionary ideas put forth by some masterful educator and sometimes it has been an outstanding book that greatly influenced many people and called attention to the inadequacies of the contemporary methodology. The most important book that aroused parents and teachers alike was that unforgettable book of a generation ago by Rudolph Flesch: *Why Johnny Can't Read*. I dare say there's not a teacher or a parent who is interested in their child's education who has not read it. The author admits it was an angry book and it aroused many angry parents into action. The result was that plain and simple Look-Say was disreputed to the point that many educators abandoned it in favor of several of the combination methods often known as an eclectic approach.

A decade later - just last year - another book by a prominent educator, Jeanne Chall, also made a strong impression - but chiefly on educators in the college training field. Her findings reinforced Flesch's ideas and was the result of such an extensive and comprehensive study that it too has been called a *must* for educators to read.

Just this year another book appeared that we feel will be a momentous milestone as a measure of the progress in learning to read. John Downing's *Evaluating the Initial Teaching Alphabet*, is, like Chall's book, a most comprehensively researched, extensively annotated study of the problem: *Is the traditional orthography of English an important cause of difficulty in learning to read?* Like the other two, this also should be a *must* for all educators with open minds. Those with closed minds or concrete minds (all mixed up and firmly set) will not bother to read it anyway.

Even if one only browsed thru it, they would be as impressed with this book as with Chall's for the extensive range of its investigations - over the last century - and the thoro analysis of the problems involved in the psychology of learning to read.

Historically it refers to previous investigations in experimental reading projects conducted by 15 partners of Downing headed by William Latham in the Reading Research Unit of the Univ. of London Institute of Education. They were augmented by 7 other educators who made valuable contributions in the conduct of the i.t.a. experiments. [Actually, artificial phonetic alphabets for English have been suggested for as far back as 1551, when John Hart started writing a series of books on "the vices and faultes of our writing, which causes it to be tedious, and long in learnyng: and learned hard, and evill to read."](#) This was followed by [Sir Thomas Smithe, William Bullokar, James Elphinston, Alexander Gill, Charles Butler, Ben Jonson, Alexander Ellis, Sir Isaac Pitman, and many others including Benjamin Franklin.](#) [See [Bulletin Bites.](#)] Most of these do not seem to have tried out their alphabets in classrooms and if they did, in those days there were no tools to compare the progress of learning by a new alphabet as compared with the traditional Roman alphabet and conventional spelling. Some classes were tried in St. Louis, Mo, Waltham, Mass. and a few other places, but all these suffered from an insufficiency of readers - usually they had only one beside the primer - and no practice books to read after learning the phonetic code.

Downing's book examines all the stumbling blocks in learning to read - even to the minutest details in ease of recognition of individual letters of the Roman alphabet as well as the same scrutinous examination of the legibility of the i.t.a. characters.

A review of previous investigations into the psychology of the reading process itself will clarify the minds of persons who do not have a clear concept of just how a child assimilates his knowledge of learning to read. And I'm afraid many of our educators need this re-education or they would not have accepted Look-and-Say as the best way for a child to learn to read. This does not mean that Look-Say does not have a useful purpose - merely that its use should be only a secondary part of the teaching process - and confined to achieving speed after the child has learned how to analyze the parts of words-both letters and sounds.

Many of these investigations resulted in technical reports that were buried in seldomly read educational magazines - if they were published at all (some were degree theses). Yet these reports do give a much better insight into how one is able to assimilate learning - the obstacles to learning and the helpful aids to learning - the effects of word length, phoneticness and pronounciability of words of context and lack of context - of rules and the lack of them - their usefulness for children-perceptual ability for details. All these different aspects - and many more - are discussed with a positive helpfulness to the reader. This 50 page chapter alone would be worthy of a Master's thesis.

A chapter is devoted to the i.t.a. - its background and description. While those of us who have followed the articles on i.t.a. may tend to skip this, those who read it will find many new ideas and reasons for its careful planning. Then there is a chapter on: i.t.a. - its aims, design and method (this does not mean that i.t.a. is a method of teaching reading, but explains that teachers were asked not to change their method of teaching reading when using i.t.a.

While the results of the first i.t.a. experiment are fairly well known, the discussion of these results will enlighten even those who had previously read the earlier reports. the second i.t.a. experiment was made to provide more rigorous control over all factors in both the T.O. and i.t.a. experimental classes. These results are discussed at length in the conclusions and recommendations. A period of ten years is proposed to follow the children in the i.t.a. experiments to find out for sure if the gains made by them in learning to read do continuously reinforce their original progress.

Who's to blame? by E. E. Arctier

Claudius Caesar came to me
Mad as any wop could be,
And this is what he said, said he:
"Oh, you English-speaking people
With your sieze and tease and steeple
With your you and who and glue
And your two and shoe and flew,
Be as silly as it suits you
With your spelling - an it boots you -
Continue with your whom and tomb
Gloom and plume and even rheum.
Torment your little Tom and Terry
With your misspelled bomb and bury
With your go and foe and dough
And your sew and tow and know.
Keep on mixing up your c's
With your s's and your Z's,
But not in London nor Manhattan
Can you blame it on the Latin
That I took to Britain's isle
Nineteen centuries back awhile.

Cast your eyes across the main
To the lovely land of Spain,
Where for long, long years before
I ever sought Britannia's shore,
Latin, as the conqueror's tongue,
O'er her native Celtic hung.
Then came Visigoth and Moor
Forcing their speech thru her door.
In short, she had the same excuse
As you give for your abuse
Of the one-sign-one-sound rule
Which should govern every school.

True, for centuries (to her shame)
Her experience was the same.
Half her written words at best
Failed the one-sign-one-sound test,
Come and dumb and home and foam
Torn and warn and tomb and comb,
Sir and purr and fur and myrrh
Had their counterparts in her.
But there came the time at last
When this idiocy was past
When her scholars and her king
Did the one essential thing
That made her spelling quite the best
Of all earth's major tongues at least,
Sacrificing derivations
When it need be from all nations,
Romans, Visigoths and the Moors,
Whose speech of old had mired with hers

Bringing to wide lands oe'r sea
Ease and regularity,
Holding all in willing fee
To her famed academy.

As for you, oh, go your way
What is there that one can say?
Everything that can be said,
You've already heard, or read
Re a sound orthography
Such as yours could surely be.
But --- well!
Keep on mixing up your j's
With your g's, your o's with a's,
Perplex your college Jim and Sybil
With your paradigm and quibble,
Produce more drop-outs and J. D.'s
Than any comparable culture sees
Anything -- oh, anything
If only it will let you cling
To a spelling that is treason
To all orthographic reason.
But not in London nor Manhattan
Can you blame it on my Latin ---

And from out the deepening shadow
Of what seemed an ancient meadow
Did I hear in lusty strain
From Celt and Norman, Norse and Dane
A like denial of all blame
For our orthographic shame?
I thought I caught "You boneheads, you,
The only thing you need to do
Is match some forty basic speech sounds
With one symbol each and, by zounds,
You'll have a language the whole earth
Will gladly learn, and so give birth
To a brotherhood of man
Such as nothing other can."

But this was years and years gone by,
And still we keep our eye and guy
Our much and touch our whole and bowl
Our flower and your, our coal and soul
And prate of roots and derivations
Inherited from conquering nations.
Anything, oh, anything
If 'twill only let us cling
To a spelling that is treason
To all orthographic reason.
What the end of this may be,
Only the high gods can see.
E.E.A.

Some gems o/ wisdom from Frederick E. Gymer and his "Let's have Better Mottos Assoc."

Just because we've been doing it all wrong for centuries is no reason to change now.

On what do you bias your opinion?

Minds are like parachutes - they function only when open.

If I look confused, its because I think I'm thinking.

Each noble work is at first an impossibility.

-o0o-

[Spelling Progress Bulletin Summer 1968 pp19]

[The diacritics are more like single and double quotes than acute accents and umlauts.]

World Language: *Sistemïzd Ænglish*

Boston, Mass., U.S.A.

ALL YOU NEED TO KNOW ABOUT
Sistemïzd Ænglish

Quotation marks can
be used as diacritics.

Pronounce:

a -- as in -- ma

á -- as in -- at

ä -- as in -- ate

e -- as in -- get

ë -- as in -- me

i -- as in -- it

ï -- as in -- bite

o -- as in -- not

ö -- as in -- note

u -- as in -- full

ú -- as in -- but

ü -- as in -- blue

r -- as "ur", "ir", and "er" in
"curtain", "firm", and "her".

Double consonants and double
vowels are not used unless
they are absolutely necessary.
The combinations "th", "sh",
and "ch" are retained.

Trï it. It's ëzë.

WORDS ARE WRITTEN JUST
AS THEY SOUND

iz --- is

wr --- were

wrcën --- working

lrn --- learn

bucs --- books

wún --- one

scül --- school

böiz --- boys

grlz --- girls

rīt --- write, right

dánts --- dance

ä j --- age

awr --- our

pánz --- pans

wär --- where, wear

iër --- year

chrch --- church

shöfr --- chauffeur

thot --- thought

të --- tea

sosej --- sausage

júj --- judge

*If iï lïv jïst for iïrself,
Iï wïl lënd iïp on thï shelf,
And nō wïn wïl wont iï
And nō wïn wïl cār,
Or wïl ev drēm iï wï thār.
Lïf on rïth cån bë sō gränd,
And if iï wud ïndrstand.
Bï dïuën tū wïn
äs iï wont dïn tū iï,
Thï wöld wïl sē iï thrū.*

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