

Historical Introduction to Leonard P. Ayres’ *A Measuring Scale for Ability in Spelling (1915)*

(Prepared by Donald L. Potter from materials written
by Geraldine Rodgers on December 30, 1984)
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Brief Theoretical Background

A child who reads alphabetic print like Chinese characters has to read as the hard-of-hearing listen: by skipping over all the hard words and guessing. But the child who is taught to read by sound can hear the printed page, automatically, as well as he can hear the spoken voice. Whether he understands it will depend on his maturity and whether or not he is paying attention. Once he has learned to read, since he is reading automatically, his attention is free and it may wander. However, Horace Mann, the famed Massachusetts promoter of public schools, normal schools, and sight-words since the 1830’s, and apparently the Reverend Gallaudet, his contemporary, and most of the “experts” ever since have usually not understood this. They were not and are not willing to admit that attention can be as free when readings as it can be when listening. So, it was to protect so-called “reading comprehension” that they pushed the deaf-mute sight-word method of teaching reading, because it is impossible to read in this way and simultaneously not to pay guessing attention, even though such readers stumble badly and often spell abominably. But “experts” were and still are sure that the method improves the ability to read with understanding.

General Historical Background

Ten pages of Miss Rodgers’ valuable background material were skipped because they were not directly related to Ayres’ work. They show that phonics had been reintroduced into American schools by the early 1900’s, largely as supplemental to the sight-word readers. Miss Rodgers informs us,

But, as Stickney made clear, phonic spelling had re-entered the schools in force before 1890. Sight-word teaching of reading had persisted, and phonics did not re-enter the teaching of reading generally until after 1900, where it often was reserved as “supplemental” phonics, something to be taught apart from reading itself. But, whether letter sound are taught through “spelling” or through “reading” the effect will be the same: the children will learn to spell, and Rice’s spelling tests after 1895 reveal that the children had, once again, learned to spell.

Ayres: His Life and Times

Joseph Mayer Rice, born in Philadelphia in 1857, received the M. D. degree from Columbia in 1881, and practiced medicine successfully in New York until he went to Germany for two years to study psychology, pedagogy, and the European school systems. Rice returned to the United States in 1890 to study American schools under the sponsorship of the magazine, *Forum*. His articles were highly critical of the American public schools, which were by then fifty years old, and he found them largely dreary, unimaginative, unproductive and often downright silly. His *Forum* articles created an uproar and scandal about the state of education in America. His reports were gathered into a book, *The Public School System of the United States*, 1893. It was

his belief that rigid schools should be replaced with a freer, more progressive education with an increase in the curriculum to cover stimulating subjects, which could only be done if time could be saved on the basic subjects by better, more efficient teaching. Astonishingly, he appeared completely unaware that spelling had only relatively recently re-entered most American schools, and that bad spelling had been a severe problem in the 1880's. Rice was opposed to what he called the daily spelling "grind," and eventually wrote his own speller, which was meant to minimize the time spent on the subject. But his most important contribution is that he was the first person, ever, actually to measure achievement to any meaningful degree in American schools.

From February 1895, to June 1896, Rice traveled through America testing children on spelling. His first series of tests, on lists of words, he discarded. He had permitted individual teachers to give them, and the results were suspiciously erratic. He tried again, testing 13,000 from 4th to 8th grades, most under his personal direction, and this time with the test words written as part of sentences. His results showed excellent spelling ability in most schools on the average, and he concluded (wrongly) that the time spent on teaching spelling was wasted, as the results were the same by eighth grade whether a school was "mechanical" or "progressive."

Rice was obviously unaware of the "generation of bad spellers" which Stickney referred to in 1889.

But Rice's conclusions gave comfort and aid to the camp which wanted to teach reading "meaningfully," without spelling drill. By the late 1890's, this meant those who were psychologists (J. M. Cattell, John Dewey, E. L. Thorndike, and others) or those who were associated with the psychologists in education such as Charles Eliot Norton of Harvard, who wrote the *Heart of Oak* readers which totally dispensed with phonics in 1894. (Norton was a friend of the psychologist William James who also taught at Harvard, and had been a close friend of James's brother, Henry James, who lived in England, for thirty years, according to Leon Edel's biographies of Henry James. Norton had effectively given Henry James his literary debut by having him write a review for the *North American Review* in 1864. Henry James was rather addicted to a secretive kind of privacy, and it is possible that he is the one whom Norton mentioned in the "Acknowledgements" to the *Heart of Oak Books*, saying, "I regret that I am not allowed to mention by name one without whose help the Books would not have been made, and to whose hand most of the Notes are due." The notes are extraordinarily expert and informed literary criticism.)

E. L. Thorndike reported glowingly on Rice's conclusions in Thorndike's 1901 article in the *Columbia Teachers College Record* which he wrote on spelling, obviously very pleased that Rice had almost concluded that it did not matter whether spelling was taught or not.

By 1911, Henry Suzzallo of *Teachers College*, Columbia, wrote an article for *Cyclopedia of Education* in which he praised the so-called phonogram method of teaching spelling, by parts of known whole words, as it was "natural," and not like the unpleasant syllable method of teaching spelling, which was supposed to be unnatural. Suzzallo went on to write a two-book spelling series. *Essentials of Spelling*, with Pearson, which was involved in a textbook bid controversy in Texas, reported in the *New York Times* on December 4, 1925. Whether this had anything to do with Suzzallo's being fired as President of the University of Washington is unknown. Reportedly, he was dismissed, according to John F. Ohies' *Biographical Dictionary of American Educators* in 1926 because of his efforts to obtain public funds for university support. (He had been president there since 1915, apparently immediately after leaving Columbia and was with

the Carnegie Foundation for the Advancement of Teaching from 1926 till his death in 1933, acting as President from 1930.)

It was at this general point in time that Leonard Porter Ayres appeared on the educational scene. Born in Niantic, Connecticut, on September 15, 1879, according to Ohies' *Biographical Dictionary*, he died in Cleveland on October 29, 1946. After graduating from Boston University with the Ph. D. in 1902, A.M. in 1909, and Ph. D. in 1910, he eventually became a statistical expert. He was a teacher in Puerto Rico after 1902, superintendent of schools for the district of Caguas in 1903-04, San Juan city school superintendent from 1904 to 1906, and general superintendent of schools as well as chief of the division of statistics for Puerto Rico from 1906 to 1908. From 1908, he was director of the Department of Education and Statistics of the Russell Sage Foundation and conducted studies in 250 cities, in World War I, he was chief of the Division of Statistics of the Council of National Defense and director of the Division of Statistics of the War industries Board, as well as chief statistical officer of the Priorities Committee and the Allies Purchasing Commission. Later, he became chief statistical officer of the American Commission to Negotiate Peace. After the war, he returned to the Russell Sage Foundation for a period, until he became vice-president of the Cleveland (Ohio) Trust Company. He resumed active duty in the U. S. Army in October 1940, and was discharged in 1942 because of health, but organized a statistical service which he handled until the end of the war for the War Manpower Commission. Besides *The Measurement of Spelling Ability*, his writings include *Medical Inspection of Schools* (with Luther Gulick, 1908), *Laggards in Our Schools* (1909), *Open Air Schools* (1910), *School Buildings and Equipment* (1915), *Health Work in the Public Schools* (1915), *Turning Points in Business Cycles* (1939) and many other books on business economics and statistics. If ever a man were qualified to carry out a statistical study on spelling achievement, Leonard Porter Ayres was that man. Leonard Ayres locked horns with the "experts" very early, and it was on a matter of statistics.

According to B. R. Buckingham in his *Spelling Ability, Its Measurement and Distribution*, Teachers College, Columbia University, New York City, 1913, E. L. Thorndike had published a paper in 1907 concerning his conclusions on the degree to which children dropped out of school. Buckingham said that Thorndike drew his conclusions from "conditions in 23 cities as they were about 1900. He estimates that out of 100 entering pupils, 97 remain till grade 3, 90 till grade 4, 81 till grade 5, 68 till grade 6, 54 till grade 7, and 40 till the last grammar grade (8th or 9th)." Buckingham went on:

Ayres ('09) sharply criticized these figures, stating that they were too small. He contended, particularly, that there was no dropping out before the 6th year - a conclusion which common observation and later investigation unite to disprove. Employment certificates are granted in great numbers to 5th-grade children. Mr. Ayres' figures for (children leaving school) are as follows: Grades 1-5, 100 (i.e., no elimination); grade 6, 90; grade 7, 71; grade 8, 51.

Thorndike, using later and better reports, subsequently derived figures a little higher than his former ones, but substantially in agreement with them (Thorndike, '10)....

Another important study of this question was made by Strayer ('11), the material being used from 318 cities. His conclusions tend to group with Thorndike's rather than with those of Ayres.

It is not surprising, since Strayer was at that time a junior member of the “expert” group that his conclusions tended to group with Thorndike's. He became a highly regarded “expert” if he is the same man referred to by Helen R. Lowe in her 1951 paper. *How They Read*, commenting on her recording of 10,000 actual errors in reading with students from six to twenty-six. Mrs. Lowe said:

Dr. George D. Strayer, professor emeritus of education of Columbia University, who has the reputation of knowing more about the nation’s public school system than anyone else, asserts that children today read more and better than their parents ever did.

Although it would be pertinent to inquire what makes him think so, to debate this dictum is difficult, dull and useless. However, to discover how children really do read is easy, interesting to the point of shock, and... essential to any informed and unbiased appraisal of present day methods of teaching reading.

These misreadings... are the logical consequence of a conception of reading established in the minds of these students with the... first word they were taught to recognize by its configuration... with the first sentence they were permitted to paraphrase without effective correction....

From these errors a pattern emerges. It is a pattern with a mad consistency. When *afraid* is read *frightened*, and *glisten* is *shine* - that is consistency. When *asleep* is read *awake*, *attendance* is *absence* - that is consistent, too. But when *pig* is *lightning*, *mill bells* is *noodles*, *keel* is *on your foot* and *Massachusetts* is *Switzerland*, that is madness. Students who read *the travel worn paper bag* as *twelve onions*, and *masses of reddish gold clouds* as *molasses and radishes*, will almost certainly get odd and unfounded ideas....

If the 1951 Strayer referred to by Helen R. Lowe is the 1911 Strayer referred to by Buckingham, there is reason to question his statistical expertise, particularly since his figures on the numbers of children leaving school were not objective but derived from his treatment of 1910 general census figures which did not specifically mention children leaving school.

But it is evident that by 1910 the statistician Ayres and the psychologist Thorndike, and Thorndike’s supporters like Strayer and Buckingham, were engaged in an intellectual contest. Buckingham's 1913 spelling scale retested with Rice’s spelling sentences and came up with somewhat lower scores. But the tests were carried out in New York area schools, which probably had had the benefit of the educational expertise of Columbia Teachers College, which was stressing reading for meaning, judging from many sources, including a 1906 article in January and September in the *Teachers College Record* by Edith C. Barnum, entitled “Reading.” This appears particularly likely since he said of School IV in an Italian section, “It has long had the benefit of high-class supervision and organization.” Whether supervision and organization is “high-class” is a subjective judgment, and it is unlikely that Helen R. Lowe, for instance, would have agreed with Buckingham on what constituted “high-class” supervision and organization. Rice’s data, however, was taken at random from schools all over the country in every economic bracket, and as such was far more reliable than Buckingham’s.

After the contest over the conclusions in Ayres’ 1909 book, *Laggards in Our Schools*, which apparently included not only figures on the numbers of children leaving school but the degree to which children fell behind in school (rarely more than two years, according to Ayres, and far

more, according to Strayer), Ayres and Thorndike apparently met formally when giving papers before the Harvard Teachers Association in 1912. Ellwood P. Cubberley, in his 1919, and 1934 *Public Education In the United States* (Houghton Mifflin Company, Boston) lists in his selected references on page 715 the fact that L. P. Ayres and E. L. Thorndike gave two papers, "Measuring Educational Products and Processes," at the Harvard Teachers' Association, which were printed in *School Review*, vol. 20, pp. 289-309 (1912) with a discussion on pp. 310-319. He also mentioned on page 693 that Ayres published his first *Spelling Scale* in 1912. It hardly seems coincidental that Thorndike's doctoral student, Buckingham, should have published his spelling scale in 1913, but rather suggests competition.

But Buckingham was correct in criticizing the Rice scale on two grounds. One was that it should have contained the *highest-frequency words*, as it is of greatest interest to know whether children can spell correctly the words they use most frequently. The other was that he had not produced a scale on the relative difficulty of these words.

As the text in Ayres' work makes clear, he did deal with high frequency words, and produced a *scale* which showed precisely the *relative difficulty* of these words, in his 1915 work.

His spelling work was reviewed in the September, 1915, issue of *The Elementary School Journal of the University of Chicago*, on pages 12 and 13, in their review section, entitled "Educational Writings":

The Russell Sage Foundation has put the schools of this country under new obligation by the publication of Dr. Ayres' measuring scale in spelling (*A Measuring Scale for Ability in Spelling*. By Leonard P. Ayres. New York: Russell Sage Foundation. p. 58.) We note in passing that the Foundation has adopted a new form in which it will hereafter issue its studies. This is much more compact than the earlier pamphlet form and will be welcomed by librarians and book users as a much more convenient form to handle and keep on the bookshelf.

As to the contents of the book, it may be said in a word that Dr. Ayres has ferreted out the thousand words in most common use in the everyday world and has by numerous tests arranged these in the order of increasing difficulty, marking off the points at which successive grades are found to miss different percentages of each list. The book will be the basis of spelling teaching in every school system. The method of setting up a scale is also most significant. There is no statistical elaboration of opinion at the bottom of this classification, but a systematic series of experiments with school children. The book is one which will be welcomed by practical teachers and by students of scientific methods.

In Ayres' 1914 report *The Public Schools of Springfield, Illinois*, one of the many school surveys which he conducted, he showed lists of words for each grade from grade two to grade eight where the averages approached 70 percent for each grade. Joseph P. O'Hern, Assistant Superintendent of Schools in Rochester, New York, in an article in the *Elementary School Journal* in 1918 compared these grades 3 to 8. The Rochester average was 81.9. He then listed averages for the lists of grade level words from grade 3 to grade 8 for other cities, which surpassed the Ayres' norm of 70% and showed 80.3 for Butte, Montana, 76.5 for Oakland, California, and 86.0 for Salt Lake City, Utah. It is evident that some cities succeeded in surpassing the already high averages Ayres had obtained in testing thousands of children.

But Ayres, like Rice, had unwittingly given consolation to the “experts.” The 1889 J. H. Stickney speller, *Word by Word*, referred to earlier, was arranged dominantly on a phonic basis (though it included some standard sight-word approaches of the time). In the directions under *Method*, it stated, “Knowledge of the Powers of Letters should as far as possible relieve the memory in the acquisition of regularly formed words... Instead of studying these by letter, it will be found better to do so by sound...” This was a great change from Marcius Willson’s 1864 speller, where children were told to “call” words “at sight.” It is true that the Suzzallo speller and others like it after the turn of the century were focusing children’s attention again on whole words and parts of words, but, since phonics was coming back into reading instruction itself, the harm was minimal. Nevertheless, the “experts” since the turn of the century had been trying to put spelling back on a “word” and not “sound” basis and Ayres had given them the best argument: the need for practice on the highest frequency spelling words, for “meaning” and not “sound.”

An article appeared in the *Elementary School Journal* in 1918, on pages 464 to 469, in the “Educational Writings,” entitled, “Current Tendencies in the Construction of Spelling Books for Elementary Schools.” The first two sections were on spellers before 1880, and from 1880 to 1900. It admitted spellers before 1880 attempted to teach pronunciation. In the third section, “Elementary School Spellers Published in 1915-17,” (they had only mentioned the Pierce speller of 1912 as one published after 1900), the writer indicated satisfaction with those spellers, which listed words, based on frequency and spelling difficulty, but no mention was made that such a thing as phonic difficulties might exist.

Buckingham eventually wrote an “extension” to Ayres’ scale (1919) which gave norms on additional words, but, interestingly, while he still listed Ayres’ norms which had been obtained at mid-term, when he added his extra words he showed all norms for end-term. The net effect, of course, was to water down the Ayres’ norms!

After Ayres left the Russell Sage Foundation and went into banking, after the end of World War I, the question of spelling norms fell wholly into the control of the “experts.” In 1923, the *Morrison-McCall Spelling Scale* was published. (McCall had been one of Thorndike’s graduate students, working with him on reading comprehension tests, which he continued to work on while a professor at Columbia Teachers College). The *Morrison-McCall Spelling Scale* “simplified” Ayres work, producing “T-scores in spelling” and “Grade status in spelling,” and produced a standard “norm” for each grade, and tables of norms. The statistical jargon would be intimidating to many people, but, most significantly, it turned the attention away from the group (“How many are passing?”) and focused it on the individual (“How does he compare to the norm?”). A norm, of course, is an average: 50% at a grade level can, but 50% at a grade level cannot. What the Ayres’ figures had shown, with absolute clarity, were lists of words which 99% of pupils at grade levels could spell, and lists which 90% could spell, and 80%, and so on. What teacher, given a choice of using a rigid 50% “norm” to compare his children to, or a standard which shows what 99% of his class can accomplish, would not prefer to use the 99% figure? A statistician could have worked out the same information as the Ayres’ data from the Morrison-McCall scale, but the average teacher probably could not. Yet the earlier Ayres’ scale was so simple to read that even the children could have understood it.

But dictated spelling tests of word lists, which are obviously the only really objective test of spelling ability, were on their way out. Buckingham had preferred to use whole sentences to give his spelling tests, as Rice did. (They produce lower scores, and I suspect many of the experts may have wanted to water down spelling achievement, since children taught by “meaning” do so much worse than those trained by “sound.”) It should be obvious, however, that giving a child a whole sentence of words to concentrate on will distract his attention from the one word which (probably unknown to him) is the word being tested, and therefore lower his comprehension.

The “experts” were well aware that appearing on the horizon were the strictly controlled vocabulary sight-word basal readers, written by “experts,” which were actually published after 1930. The only phonics in these readers, which depended dominantly on sight words and context-guessing, was the rhyming type of phonics (cake, bake, make) or comparisons of beginning letters in known sight words (rat, run). A child was supposed to use parts of known sight words, in context, to guess unknown words. A child could guess “rake” if he knew “bake” and “rat,” putting together known pieces. This kind of thing is actually the visual phonics that Gallaudet used in *The Mothers’ Primer*, apparently based on methods he used to teach his little-deaf mutes to discriminate visually between known sight words. It has been in American primers ever since, called (wrongly) “phonics,” but it was to be the ONLY kind of phonics for the new controlled vocabulary readers soon to be produced and the experts obviously knew what it would do to spelling ability. Children taught in that fashion would score very badly in comparison to the 1915 Ayres’ spelling scale.

The worst of the embarrassment to be anticipated from the Ayres’ statistics was removed by concentrating from the 1920’s onwards on “norms” or averages, instead of a clear scale for achievement all the way from 0 to 100. Norms show only what the top 50% of the class can do, and reveal nothing about the failing 50%. All our testing ever since, until the arrival of the state achievement tests, has dealt with “norms” which are figures that tell only what half of a class can do.

But spelling tests were to be “improved” in another fashion, besides having recourse to 50% “norms.” It was the abolition of dictated spelling tests, and their replacement with printed tests, in which a child only had to check whether a word “looked” right or wrong. For those who believe as I do that spelling can be performed by the right side of the brain, largely by configuration, or by the left side of the brain, largely as sound, it should be obvious that the new printed “recognition” tests would take some of the pressure off the little right-brain sight-word readers. It is this kind of spelling test which children get today on standardized achievement tests in school.

In *Psychology of Elementary School Subjects* by William Henry Gray (not William Scott Gray), Prentice-Hall, Inc., New York, 1938, from page 238, he reported on the reasoning behind the move from *dictated* to *printed recognition* tests. Their advantages included the facts that they were more easily given and scored, and the student did not have trouble listening. Their reliability was presumably proved by a study by R. Pintner, H. D. Rinsland and J. Zubin, “The Evaluation of Self-Administering Spelling Tests,” *Journal of Educational Psychology*, XX, 1929, pp. 107-111, but their reliability was then thrown in doubt by Louise Weller and M. E. Broome’s “A Study of the Validity of Six Types of Spelling Tests,” *School and Society*, XL, July, 1934, page 103-104. Pintner et al had found correlations of .78 to .84 between the *recognition* tests and *dictated* tests (a very high correlation) but Weller and Broome had found correlations only from .193 to .497 (low). But Pintner’s conclusion - that *recognition* tests were equivalent to *dictated* tests - prevailed, and dictated tests for formalized testing programs largely died out. Pinter, interestingly enough, appears very early mixed in with other “experts.” In William Scott Gray’s doctoral dissertation, published by the Department of Education of the University of Chicago in 1917, *Studies of Elementary Reading Through Standardized Tests. Supplementary Educational Monographs*, Vol I, No. I, he lists in the bibliography two works by R. Pintner. One is “Oral and Silent Reading of Fourth Grade Children,” June 1913, in the *Journal of Educational Psychology*, and the other is “Inner Speech,” in *Psychological Review*, XX, 129-53. The first concerned whether subject matter retained was increased or decreased by the “supposed” help of oral reading, and the second on whether articulation could be eliminated during silent reading to increase the rate of reading and degree of comprehension. Both studies, of course, reveal a built-in bias against the

use of sound in reading (and, by extrapolation, a bias against sound in spelling as late as 1929.) It should also be noted his work was presented as psychological work, which would have been of interest to the psychologists Dewey, Cattell, and Thorndike.

The 1938 book by William Henry Gray reporting on Pinter's work also reported on Leonard Ayres' work. To my knowledge, that is the last mention made of the once-famous Ayres' scale in educational literature except for its being listed in the chronological appendix to *The American Elementary School*, Harper & Brothers, 1953, published by the Yearbook Committee of The John Dewey Society. On page 411, under a list of "Leadership Contributions: 1900-1920," appears this short note: "1915 – Leonard P. Ayres published a spelling scale." After that one short note in 1953, has come over thirty years of silence on the scale which the *Elementary School Journal* in 1915 said would "be welcomed... by students of scientific methods."

That it was mentioned at all in the 1953 publication may have been the result of chance, which would make the 1938 mention the last one - and it is certainly the last significant one. But one of the members of the Yearbook Committee of The John Dewey Society was Gertrude Hildreth of Brooklyn College, a reading expert and basal reader author who was, nevertheless, quite fair-minded. She wrote an article for *The Reading Teacher* in December, 1959, "How Russian Children Learn to Read," in which she acknowledged their superior methods. She is also very possibly the same G. Hildreth whose name appears on the check out-cards for Columbia Teachers College's copy of Ayres' scale, on January 12, 1948. It was followed with a great flurry of five checkouts before September of 1948, after having been checked out only nine times in the previous 14 years. The copy bore a printer's date of 1925, but had arrived on the shelves, apparently, only on August 2, 1934. Although the title of the book is *A Measuring Scale for Ability in Spelling*, the checkout card, which had been erased, relabeled and renumbered read Ayres Spelling Ability. Gertrude Howell Hildreth had reportedly prepared a bibliography of mental tests and rating scales through 1932, published in 1933. What may possibly be reconstructed from the above is that in 1948 she may have stumbled across the scale, of which she had not heard when she prepared her bibliography of rating scales through 1932, and attempted to re-insert the scale in the literature through The John Dewey Society publication in 1953.

The once-famous Ayres' scale has virtually disappeared, in 1981, when I attempted to get it at the Library of Congress; I was given its cover, but inside was the Ayres' handwriting scale. I could see, when I looked inside the binding, where the contents had been removed, which had been stitched into the cover.

Yet the data from the Ayres' scale, when applied to today's achievement, is extremely disturbing. The *New Iowa Spelling Scale* (State University of Iowa, Iowa City, 1954 - copyrighted) is based on spelling tests given to thousands of children. Some of the words they gave at second grade are also on the Ayres' second grade list, reported in Ayres' Springfield report in 1914. Ayres found at mid-term that 70% of Springfield second graders spelled five of those words correctly in 1914, yet on the same five words on the *New Iowa Spelling Scale* from 1954, the average for the same words (admittedly at the beginning of second grade) was only 28.6%. The Iowa Scale is unusual in reporting scores in the same fashion as the Ayres' scale, and, of course, it makes the data far more meaningful than "norms."

But even worse than the tremendous drop in the scores from the 1915 Ayres scale to the 1954 Iowa scale was the range of scores on each of the five words. They ran from 7% correct, to 47% correct on the last, although 1915 children had found the words to be equal in difficulty, 70% of children spelling the five words correctly. It was not just that the 1954 students were weaker in spelling; they were obviously looking at the same words in a different fashion from the 1915 children to scale them so differently on difficulty.

The scores make it obvious that there was a marked difference in the way the 1954 children were learning at the very beginning of school - at the time when conditioned reflexes are set. I suggest that the 1954 data showed what happened when children attempted to learn these words as memorized whole-word "totals" with conditioned reflexes drawing on the memory banks on the right side of the brain, in a "meaning" fashion, but the 1915 data showed what happened when children were trying to learn words as sequences of syllable-sounds, using conditioned reflexes drawing on memory banks on the left side of the brain.

But of the greatest interest to parents is the fact that children, on the whole, do so very much worse today than the 1914-1915 students. Absolute proof on the deterioration in American education is to be found in these scores. Leonard Ayres, a highly reliable statistician, concluded that virtually no American children of the period left school before fifth grade, and virtually no children were retained more than two years. The fifth grade scores reveal what virtually EVERY child of fifth-grade age (or not more than two years above it) could accomplish in spelling in 1915. It is a shocking contrast to today's fifth graders, many of whom cannot even read, no less spell, the words. If any parent, teacher, or public administrator wants to see the real effects of present-day methods of teaching reading and spelling, he can use the scale in this book to test the children under his charge. As the text makes clear, the use of this scale and its interpretation are exceedingly simple. If results show that present-day children are not achieving as Ayres' 1914-1915 children did, we should not conclude it is the 1985 children who are defective. It is the teaching methods which are defective. The data on the Ayres Scale, if used wisely, should provide all the proof that is required for fair-minded people to institute long, long overdue and much-needed educational reforms, and to take back the control of education from the "experts" who have spent the last 150 years ruining it.

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Those of us interested in the future of American education owe Geraldine Rodgers our most sincere thanks for making her years of research available.

Leonard P. Ayres' *A Measuring Scale for Ability in Spelling* is now available for FREE Download on the www.donpotter.net Spelling Page. Also available on my website is Miss Rodgers' 1983 paper presented at the *National Institute of Education* (Federal Government) *Competitive Hearings on Proposed Research Projects*, "TO URGE THE REPETITION OF THE AYRES' SPELLING TESTS OF 1914-15 TO CONFIRM THE EXISTENCE OF MASSIVE PRESENT-DAY READING DISABILITY AND TO ESTABLISH ITS CAUSE AND CURE."

Helen R. Lowe's 1951 paper, *How They Read*, is available on my Education Page, thanks to Miss Rodgers sending me a copy. Several other very valuable papers by Mrs. Lowe are also available for free download. I have had the privilege of corresponding with Mrs. Lowe's granddaughter.

Teachers of Ramalda Spalding's *Writing Road to Reading* will immediately recognize that the list of word that she used to teach her phonics method came straight from Ayres' work. The first edition (1957) of Spalding's book had only 1,000 words plus less than 100 added for instructional purposes, exactly. Sometime later the Buckingham Extension of 509 words was added with a few others to make a total of 1,700 in the final edition by Spalding. I taught Spalding's method one year. Today the program has 2,300 words. I have compared most of the editions between 1957 and the latest. I can detect no essential differences.

This document presents the material as Miss Rodgers originally expected it to be published in the Mott Publishing edition of the *Ayres Scale*. Readers of that book would do well to read this "Introduction" for the most correct information.

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