a leader, and I commend him to your confidence, your loyalty and your unswerving support.

Among the Iroquois Indians there is a legend of a deathless voice. Sometimes amidst the sighing of the wind among the pines, sometimes amidst the roar and majesty of the storm, sometimes amidst the rattling of the thunder and the lightning's red glare, there comes ever and anon the deathless voice of some hero gone before, calling the chieftains and braves to deeds of valor for the honor of the tribe. And so I would bid you listen to-

night to the deathless voice of an Ames and a Bozeman, and a Lewis, and a Baldwin, and a Simms, and a Bryce, and a Cochran, and a Michel, and a Ketchum, and a Thigpen, and a Toole, and a Fletcher, and a Clark, and a Baldrige, and a Johnson, and a Parke, and a Furnace, and a whole host of others calling to you and to me from out the brilliant past to come forth and stand up for the defense and perpetuity of the splendid organization, which is the exponent of their high ideals and brilliant achievements.

RETARDATION: ITS CAUSES AND REMEDIES.*

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Our topic is better suited for a series of papers than for one brief exposition. It is worth while, however, to enumerate and to comment briefly upon the well-known factors in retardation of school children, although the complexity, as well as the urgency, of the problem does not diminish. Upon the solution of the problem of retardation largely depends the success of our massive machinery for formal education, and the matter is of more practical than of merely academic importance, because retardation means veritable waste and failure in education and life. It has been estimated that sixteen per cent of educational funds throughout the country is being spent, although not altogether wasted, in behalf of children who are repeating the work of the grades, a sum of \$27,000,000, spent, in fact, for doing work twice. In numerous cities the percentage of repeaters is higher than 16 per cent. No one can estimate the greater cost in units of physical, intellectual and moral failures or in terms of disappointment, sorrow and pain in the children. Retardation within the largest groups of children ever assembled

together, namely, the pupils of the schools of America, is related to conditions of child labor, pauperism, insanity, race conflict, crime and degeneracy, and is, therefore, of social significance and of interest to statesmen, physicians, ministers and all citizens, as well as to educators.

That systematic study into the nature, causes and cure of retardation is imperative, seems obvious to one who reads current educational and monographic literature concerning retardation, slow progress, elimination, statistical methods and the proposed remedies. The agitation is likely to bring into prominence a host of alleged curatives, which, like the nostrums of the quack, may be useless or dangerous.

It is necessary to agree upon the meaning of the word retardation. By retardation in school is meant simply, "over age for grades." By general consent the normal ages for the school grades are respectively:

Grade 1, 6-8 years; grade 2, 7-9; grade 3, 8-10; grade 4, 9-11; grade 5, 10-12; grade 6, 11-13; grade 7, 12-14; grade 8, 13-15. If we

* Read before the Southern Medical Association, Hattiesburg, Miss., November 14-17, 1911.

assign the above meaning to the term "retardation," i. e., a disparity between the ages of the children and the grades intended for them, emphasis is laid upon the general result of certain factors in school life rather than upon the recesses that bring about the result. The contention of Messrs. Greenwood and Falkner regarding the proper criterion of retardation, centers upon the question of whether we shall accept as a criterion the age-grade status or the rate of progress of the pupil. Greenwood's objection that "revolution of the earth upon its axis cannot be taken as a unit of measurement applied to the intelligence either of children or grown persons," has weight, but in view of the logical steps to be taken following the census by the age-grade method, the use of such false measures should not be charged against its advocates.

Falkner's comparisons of the actual amounts of retardation indicated both by age and by the progress standards in Boston and in Kansas City, show that the age-standard results may indicate less retardation than the progress standard, where the records of children who complete eight grades are considered. Unjustified, therefore, is the added charge that the age-grade standard causes an exaggeration of the amount of retardation. The age-grade standard of Ayres and Cornman seems entirely practical for the purpose of preliminary and quick census. It is easy and expedient, however, to compute the retardation by both methods.

Every principal or superintendent periodically should acquaint himself and the community with the extent and degree of retardation. He should ascertain periodically the number of the retarded and of other exceptional children, the extent and causes of slow progress. More and more our progressive citizens are demanding the retirement of the despicable political pedagogue who cannot deal with the technical questions of educational science, who cares more for his job than for

the children. But it does not demand a high degree of ability to gather the facts of retardation, if sensible efforts are made for maintaining and gathering simple, honest records.

Since retardation is caused in part by late entrance, it is sometimes asserted that the evil of retardation is generally neutralized by rapid progress following late entrance. Appeal here should be made to fact. Systematic observations have not proved that as a rule children who enter late are able to catch up with the child who enters early, although there is a tendency for pupils who start late to make a little more rapid progress than those who enter early. Here are the records of progress of sixteen thousand New York children, each of whom started in the first grade:

Age at Entering	No. of Children	Meridian No. of Months to Complete Course
5	1,521	82
6	5,828	81
7	2,936	80
8	721	79
9	142	74
10	26	69
11	9	66
12	2	63

It is evident from the above table that a difference from one to three years in the age of entering school, on the average, enables the child who is older upon entering to gain only from one to three months in the relative time taken to complete the full course. Furthermore, throughout the country the number of children making slow progress is far greater than the number making rapid progress. Careful estimates indicate that, in the average city, about six times as many children make slow progress as there are children making rapid progress. The factor of "rapid progress," therefore, does not neutralize the evil of retardation.

The extent of this evil is amazing to citizens brought face to face with the facts for the first time. A careful survey of twenty-nine cities made in June, 1911, a survey including the records of 206,495 children, proved

that 37 per cent of all these children were retarded. For some of the cities the percentages were as follows:

Quincy Mass.	19%
Indianapolis, Ind.	29%
Topeka, Kan.	36%
Canton, Ohio	34%
Schenectady, N. Y.	44%
Milwaukee, Wis.	31%
Passaic, N. J.	51%

The extent of retardation will vary with the school and the city. Comparative statements in some current reports are misleading because of lack of uniformity in computation as regards methods and time. In a large, typical school of Nashville, I found the average retardation to amount to 28 per cent, or to 68 per cent, respectively, according as six or seven years was considered the age of entering. In New Orleans we find the average in the schools for white pupils to be 49.6 per cent upon the six years' standard and where the basis for the census was the number of names upon the roll the day the information was obtained. The last birthday was taken as the age, a procedure that results in a slight underestimation of the amount of retardation.

An age-grade and a progress-grade census by approved methods (see U. S. Ed. Bulletin, 1911, No. 14) should be made in every school of the South every year. The reasons for this seem to demand no argument.

The responsibility for the predicament of the scores of thousands of over-age children in the schools rests partly upon the school and partly upon society, according as retardation is caused by late entrance or by slow progress in school, or by both factors.

The Russell Sage investigation in 1911 revealed in a study of 206,495 children that of every hundred retarded, 35 were retarded by late entrance, 19 because of late entrance and slow progress, and 46 on account of slow progress alone. The factors in slow progress are therefore the main causes of retardation. Excessively slow progress is not a condition affecting merely a small number of feeble-minded children, for it involves the majority of

the pupils, the teachers and finance. One fifteen-year-old boy or girl in the fourth grade may become an impediment and a burden to others and may suffer also. He or she becomes out of place and finally is eliminated to join the vast throng with whom the school is a failure. Retardation is a clue also to the prevalence of sickness and physical defects, and may indicate shifting from school to school, absences, lack of interest, poor teaching and sometimes the stress of deplorable home conditions.

About 3 per cent of the pupils in city school systems have been found mentally defective, in the sense of backwardness and of mental arrest. Here the small number of morons, imbeciles and even idiots help to swell the number of the technically retarded. If slow progress be correlated with extreme individual variation in the matter of mental functions in such cases then this is a matter for careful and sympathetic investigation by means of physical and mental tests, supplemented by a knowledge of the history and environment of the child—a work that should be undertaken by skilled and kind hands.

Feeble-mindedness is a condition difficult of exact definition. We find the condition recognized by the Orientals, the Brazilians, the Indians, the Greeks, etc. The early work of Dr. Itard and of Dr. Seguin with mental defectives is well known. Nosworthy, in the Columbia University monograph upon the "Psychology of Mentally Deficient Children," has printed a convenient summary of definitions and classifications concerning the feeble-minded by a score of authors, including Barr, Kraepelin, Kerlin, Tuke, Voisin, Seguin, Maudsley, Clouston, Galton, Johnson, Wylie, Kelly, Blackstone, etc. "It is difficult to find any quantitative description of the mental and physical make-up of defectives;" "we find scattered observations of single cases in medical records and the reports of physicians, which are concerned chiefly with causes for idiocy and the accompanying brain conditions,

with vague generalizations about defectives as a whole, and with few or no facts to support them," complains this pioneer investigator.

That distinctions must be made between backward children who can be cared for in the public schools, and those who cannot, is indicated by a glance at the classification suggested by Barr:

		Apathetic
	1. Profound idiots	Excitable
Asylum care	2. Superficial idiots	Apathetic
	3. Idio-imbecile	Excitable
Custodial life	4. Moral imbecile	Low grade Middle grade High grade
Apprenticeship and colony life	5. Low grade imbecile	
	6. Middle grade imbecile	
	7. High grade imbecile	
Trained for a place in the world	8. Backward or mentally feeble	

In recognition of this distinction, Messrs. Witmer, Ayres and Van Sickle, educational experts, have offered the following tentative but comprehensive grouping to assist and clarify the thoughts of those interested in the pedagogical treatment of exceptional children who, of course, include the feeble-minded.

1. INSTITUTIONAL CASES.

(To be dismissed from the oversight and care of the public school authorities.)

1. Morally insane children.
2. Violently insane children.
3. Demented children.
4. All feeble-minded children below the grade of middle grade imbecile. (Barr's classification.)
5. High grade moral imbeciles.
6. Severe cases of epilepsy.
7. Cases of contagious and infectious diseases. (Some to be dismissed temporarily; some for prolonged periods.)
8. Children helplessly crippled or suffering from revolting physical deformity.

2. CHILDREN FOR SPECIAL CLASSES OR SPECIAL INSTRUCTION IN THE PUBLIC SCHOOLS.

1. Foreign.
2. Late entering.
3. Backward but capable of rapid restoration to normal grade.
4. Dull and feebly gifted.
5. Children requiring vocational training.
6. Children of precocious physical development, especially of precocious sex development.

7. Exceptionally gifted or able children.
8. Children suffering from various physical defects of minor character but interfering with their progress and unfitting them temporarily or permanently for the grades.
9. Speech cases.
10. Social cases; those whose retardation is chiefly due to home conditions calling for the services of a social visitor as well as a special teacher.

3. CHILDREN OF UNCERTAIN CLASSIFICATION, INSTITUTIONAL OR SPECIAL CASES.

1. Blind and semi-blind.
2. Deaf and semi-deaf.
3. Delinquents, including persistent truants.
4. High grade imbeciles. (Barr's classification.)
5. All feeble-minded children of higher grade than high grade imbeciles.
6. Crippled children.
7. Children suffering from epilepsy in mild degree or from nervous or other diseases rendering them difficult or improper members of ordinary classes.

It is easy to think of many possible causes of slow progress and retardation. Unfortunately opinion, guess-work, debate or indifference have often either paralyzed our efforts to ascertain the true causes or led us into reform efforts of the crude kind. Despite the lives and the vast sums of money at stake in education, we do not always rely upon quantitative measurement as we would in less serious undertakings of business.

It does not suffice to discover the causative factors of retardation in a school system merely to select a few unfortunate children and subject these alone to searching investigation. We need investigations both upon promoted and non-promoted pupils, so that comparisons will disclose the actual causes operative for retardation in a particular school or system. The following abbreviated outline indicates the scope of an investigation that would certainly help us both to discover the retarding influences and to seek intelligently for remedies.

RECORDS OF PROMOTED AND NON-PROMOTED PUPILS.

	Number among children promoted at end of year	Number among children not promoted
Boys		
Girls		
Average age		
Average days attended		

From non-English-speaking families .....	.....
Foreign born .....	.....
Suffering from malnutrition .....	.....
Mentally defective (a) (b) (c) .....	.....
(d) .....	.....
Defective vision .....	.....
Defective hearing .....	.....
Adenoids .....	.....
Other throat troubles .....	.....
Enlarged glands .....	.....
Defective teeth .....	.....
Other defects (a) (b) (c) (d) .....	.....
Home environment .....	.....
Grade— School— Teacher— Date—	.....

Irregularities in attendance are a cause of slow progress, and the cause is obscured in reports which base percentages of attendance upon average enrollment or even average attendance. Ayres' calculations for duration of attendance, for one-fourth, less than one-half, less than three-fourths, and more than three-fourths of the year, show that in many cities less than three-fourths of the children enrolled continue in attendance three-fourths of the year. Persistent disclosure of status of actual attendance by reliable statistical methods might aid to bring the school and the community into better cooperation and therefore lessen the evil of irregularity in attendance by destroying complacency over existing conditions.

Related to slow progress is elimination, which is excessive at the age of fourteen and fifteen. Though a boy may enter late, say at nine years, if he is retarded he will probably drop out at fourteen. Age has been found to be a strong factor in the matter of elimination. The studies of Thorndike and of Ayres vividly exhibit the increasing elimination from the first grade through the high school. Stated conservatively, the tendency in city school systems of America "is to carry all of the children through the fifth grade, half of them to the final elementary grade, and one in ten to the final year of the high school."

The following tables show the percentage of students enrolled in the elementary schools of New Orleans and also percentages for average American cities, as published by the superintendent in New Orleans:

	Boys	Girls	%	Aver. %
	1910-11	1910-11	1910-11	386 Cities
First Grade	3,546	3,133	23.0	21.21
Second Grade	2,759	2,410	18.5	15.39
Third Grade	2,465	2,321	16.5	14.73
Fourth Grade	2,166	2,250	15.6	13.61
Fifth Grade	1,436	1,672	10.0	11.75
Sixth Grade	940	1,291	7.1	9.83
Seventh Grade	581	926	5.2	7.84
Eighth Grade	361	706	3.6	5.69
Total	14,254	14,709		

In all of these matters we need constant getting of reliable data in every city as a chart for our efforts at amelioration. It is important for us to secure the facts in each community as accurately and as soon as possible. For example, if experience shows that one in every 500 of actually feeble-minded needs protection, segregation, study, and, if unprotected, training in special institutions—then we must find such of these unfortunates as appear in the lower grades and treat these children with the greatest of care and most exact discrimination. Once the number and identity of the technically retarded is known, it is possible to sift out the various kinds of retardation, and in these cases of extremely sub-normal children, there should be entire and organized cooperation between physician, teacher, consulting psychologist, sociologist and parent. The work of research in behalf of the subnormal child should be undertaken by our colleges and universities, and also by educational laboratories maintained by school boards and manned by specialists. Organizations of this kind are effective in Chicago, Philadelphia and New York, and the movement is beginning in the South. It is expected that the new psychological laboratory being established at the H. Sophie Newcomb Memorial College, of Tulane University, may find a place for this kind of work in the largest city in the South. An opportunity in many cities is open for cooperation in behalf of the unfortunate child, the feeble-minded, the truant, the incorrigible, upon the part of physicians, trained psychologists and teachers and in connection with

the schools, juvenile courts and individuals.

As important as is the discovery in early years of the congenitally feeble-minded, yet the institutional provision for protecting such boys and girls from evil-doers and evil-doing, also is of grave significance. Such individuals can never complete the work of the grades. Under the proper environment they may be trained to manual activities in part yielding self-support. Orphanages, pauper houses, insane asylums, jails, etc., are improper and unsafe places for the feeble-minded child and adult. Their custody in suitable institutions, such as that at Vineland, N. J., relieves the schools of their troublesome presence and makes possible a degree of happiness and of self-support for them. There, too, without injury, they are made subjects of psychological study; they there are segregated and society is protected from the menace of men and women with strong impulses, weak inhibitions and feeble intelligence. Goddard's charts showing ancestry and progeny of typical cases of this class are compelling evidence that we need more and better organized efforts at research, as described, and also that the state, or private philanthropy, should establish training schools for the feeble-minded, for the four-fold object of: (1) segregation, (2) research, (3) self-support (4) and humane care.

The following chart represents the results of one such study upon the family connections of one of these children.

When one contemplates the number of such people of both sexes who fill the long caravan that passes annually into jails, houses of prostitution, or who live abroad as social parasites, one would think that our statesmanship in the South would at once provide both for the discovery of this hopeless condition early in life among our massed children, and also for the scientific care and segregation of these unfit beings.

Because ill-health and physical defect are related to retardation and general development of the child, the school today needs help from

the best physicians. Adequate medical inspection of school-houses and of school children, by specially trained physicians and nurses, has never been abandoned where once tried in large cities. But there is a dearth of doctors who know educational science. This is due to the fact that doctors are not trained as teachers, and also to the fact that most medical students in America have relatively less academic training than students in other than medical schools. For example, the percentages of students having a literary degree are as follows for law, medical and theological students (U. S. Education Report, 1910, Vol. 2, page 1,017):

	Schools	Students	No. Having Lit- erary Degree	%
Theological	184	11,012	3,064	28
Law	114	19,567	4,107	21
Medical	135	21,394	1,883	9

The increasing and united activities of bogus health movements, mind-cures, medical cults and faddists, in their efforts to modify and even prevent state control of health measures, is added reason for the choice only of specially trained physicians in dealing with our school children. And the noble medical profession should see to it that not one child suffers because of lack of money to pay.

It is a gratifying symptom that such institutions as the University of Pennsylvania and the Tulane University of Louisiana are offering special courses in school hygiene for physicians and other students. An actual affiliation of courses in the medical and in the educational departments of Tulane University is now being effected by Professors Wellman and Hill for the work in hygiene.

With all our training of teachers, let us not omit to train them to conserve the physical and mental health of the child and of themselves. Preventable and remediable physical conditions cause some of our retardation. The states should in our normal school demand courses in school hygiene for prospective teachers, *i. e.*, (a) hygiene of the child, (b) of instruction, and (c) of administration. In the case of one

public normal school of the South, for years school hygiene, a persistent candidate for the required course of study intended for elementary teachers, met defeat to give place to trigonometry. For a normal school to neglect accurate instruction by trained men and women in school hygiene in its scientific aspects is a violation of sound pedagogy, and often means actual diversion of public funds to useless ends. Many obvious things need to be done at once to safeguard the health of pupils and teachers, such as building of school houses to relieve congestion, improvements of illumination and heating, removal of the common drinking cup, sanitation of closets, and the installation of screens where flies and mosquitoes abound.

Too much work in the grades is one cause of retardation. Available figures indicate that in a score of cities it takes more than eight years for the average child to complete eight grades. This is a condition significant because it points plainly in such cases to the need of adjustment of courses of studies and of methods to the capacities of the average rather than of the brighter pupils. Flexible grading, the Cambridge plan, the Batavia plan, reduction of passing limit, reduction of size of classroom mass, semi-annual or quarterly promotions, free electives, special credits for high quality of work, classification, the assignment of skilled and well-paid teachers to the lower, crowded grades rather than assignment of tyros in teaching, separation of boys and girls, more emphasis upon old-fashioned virtues of industry, the use of the rod, or, on the other hand, a soft, pink-tea type of pedagogy—are samples of various remedies proposed to facilitate progress and promotion—remedies some of which are good, some bad.

By the way of summary, let us single out nine concrete measures which are worthy of serious consideration in seeking the causes and applying the remedies for retardation:

(1) Provision for regular and scientific tabulation of the number of the retarded, of

those making slow progress, of the repeaters, and of the beginners in every school in the respective states. Permanent and accumulative records should form an essential part of the system. Here exists an opportunity for state superintendents of the South to emulate upon a wide scale the beginnings made by progressive city superintendents of the South.

(2) Adequate medical inspection, utilizing physicians and skilled nurses with pedagogical training and with attention to certain tried health measures such as open air schools, baths and supervised playgrounds.

(3) Educational laboratories for the study and observation of exceptional children, with the cooperation of skilled physicians, trained psychologists, teachers and parents.

(4) Special teachers, special classes and day schools for backward and disciplinary cases.

(5) The control of the increase of defective minds and of criminals by the permanent segregation of imbeciles and feeble-minded in institutions where they may receive kindness, some training in self-support by industrial activity and be utilized for scientific research.

(6) Normal school instruction in school hygiene in its modern aspects by educational specialists and cooperation in certain courses by medical and educational departments of modern universities.

(7) Compulsory education laws which will adjust the permissible age for leaving school to the length of the course of study intended.

(8) Campaigns of education to arouse and direct a sane sentiment in behalf of our schools and the cooperation of parents and citizens. This should be undertaken by responsible persons through the press, general literature and lectures.

(9) Publicity of abuses which long remain neglected or unremoved. The public schools belong to the people, not to boards, superintendents or principals, societies or churches, and the people have a right to know the facts, but let us protect the people from the muck-

raker, or the sensationalist seeking only an avenue of self-exploitation. A persistent publicity of the necessary facts in regard to our school business, facts got fairly, periodically,

should in the long run secure deeper interest in, and better financial support for, our efforts gradually to change thousands of children into men and women of the best human types.

DUPLEX UTERUS.

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Duplex uterus (or uterus didelphys) is an anomaly due to a faulty coalescence of the lower portion of the Mullerian ducts. The interruption in development takes place before the eighth week of fetal life, and such cases are usually, though not always, associated with a double vagina, which also results from an arrested coalescence of these ducts.

usually patent throughout and continuous with the patent cavity of its oviduct above and cervical canal below. There is usually a faulty development of one or more of the adnexa.

As a result of the presence of duplex uterus and of faults in its development, we find a tendency to several pathological conditions, the more common of which is hematocolpos, owing

PHOTOGRAPH FROM ACTUAL SPECIMEN, TWO-THIRDS ACTUAL SIZE.

The essential features in a case of true duplex uterus are the presence of two distinct uterine and cervical bodies united at the cervix, each uterine body possessing an oviduct, ovary; broad and round ligament, which are given off from the outer surface of each uterine body at the normal points of origin. There are no similar structures on the median aspects of the uterine bodies. Each uterine cavity is

to the stenosis of the cervix, double pregnancy with dystocia, and, occasionally, menorrhagia.

The following case is of interest, because of the persistent menorrhagia and the presence of all the features required in a specimen of true double uterus.

Patient—Aged 46, white; the family history and past history are unimportant in relation to the present illness. Menstruation began with