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NATIONAL
EDUCATIONAL
ASSOCIATION

PROCEEDINGS

OF THE

Department of Special Education

IN THE ANNUAL CONVENTION AT

BOSTON, MASSACHUSETTS

JULY, 1903



Gift, Dec. 31 - 03
Mr. E. E. Allen,
Overbrook, Phila. Penna.
NATIONAL EDUCATIONAL ASSOCIATION

PROCEEDINGS
OF THE
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REPRINTED FROM THE BOSTON VOLUME OF PROCEEDINGS

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E. E. Allen

1892

DEPARTMENT OF SPECIAL EDUCATION

SECRETARY'S MINUTES

FIRST SESSION.—WEDNESDAY, JULY 8, 1903

The department met in the First Baptist Church at 9:30 A. M., and was called to order by President Edward E. Allen.

The following program was carried out:

President's Address—Edward E. Allen, principal of the Pennsylvania Institution for the Instruction of the Blind, Overbrook, Pa.

Topic I: "The Influence of the Study of the Unusual Child upon the Teaching of the Usual"—Frank H. Hall, ex-superintendent of the Institution for the Education of the Blind, Jacksonville, Ill.; George E. Johnson, dean of the Lower School, University School, Cleveland, O.

Discussion—Francis Burke Brandt, professor of pedagogy, Central High School, Philadelphia, Pa.; Charles F. F. Campbell, London, England.

Topic II: "Should the Scope of the Public-School System Be Broadened to Take in All Children Capable of Education? If so, How Should This Be Done?"—Mary C. Greene, ex-superintendent of special classes for the blind in the board schools, London, England.

Discussion—Thomas D. Wood, M.D., professor of physical education, Columbia University, New York city; Ellen Le Garde, director of physical training, including that of backward children, public schools, Providence, R. I.; John T. Prince, agent of Massachusetts Board of Education; Walter E. Fernald, M.D., superintendent of Massachusetts School for the Feeble-Minded, Waverly, Mass.; Mr. B. Pickman Mann, Washington, D. C.

The president appointed as committee on nominations:

A. L. E. Crouter.

F. H. Hall.

E. A. Fay.

G. E. Johnson.

W. E. Fernald.

SECOND SESSION.—FRIDAY, JULY 10

The department met at 9:30 A. M., President Allen in the chair.

The following program was presented:

Topic III: "How Can the Term 'Charitable' Be Justly Applied to the Education of Any Children?"—Edward A. Fay, vice-president of Gallaudet College, Washington, D.C., editor of *American Annals of the Deaf*.

Discussion by William B. Wait, principal of New York Institution for the Blind, New York city.

Topic IV: "What Teachers Need to Know about Sense Defects and Impediments: Messages Chiefly from Specialists in Medicine"—Clarence J. Blake, M.D., professor of otology, Harvard Medical School, Boston, Mass.; Myles Standish, M.D., instructor of ophthalmology, Harvard Medical School, Boston, Mass.; Allen Greenwood, M.D., ophthalmic surgeon, Boston City Hospital; Eugene A. Crockett, M.D., assistant in otology, Harvard Medical School, Boston, Mass.; Mrs. E. J. Ellery Thorpe, specialist on speech defects, Newton Centre, Mass.

Topic V: Report of committee on statistics relative to children in the public schools of the United States who need special methods of instruction.

The president appointed the following committee to continue the investigation into the number and conditions of pupils having defective faculties who attend the public schools, and to report at the next meeting of the department:

F. W. Booth, Mount Airy, Pa., *Chairman*.

Percival Hall, Washington, D. C.

O. H. Burritt, Batavia, N. Y.

Clarence J. Blake, M.D., Boston, Mass.

F. Parke Lewis, M.D., Buffalo, N. Y.

The following minute was presented by Dr. E. A. Fay, and adopted :

The Department of Special Education of the National Educational Association desires by this minute to express its high appreciation of the character and services of its late member and former president, Dr. Joseph Claybaugh Gordon, who died April 12, 1903. Dr. Gordon was active in the meeting of the Round Table of Teachers of the Deaf, held in connection with the meeting of the Association in Milwaukee in 1897, which resulted in the establishment of this department. He was elected the first president of the department, took a prominent part in all its meetings, and was a strong believer in the possibilities of its usefulness.

In his death we mourn the loss of one whose work as teacher, superintendent, writer, and speaker gave him a high place in our ranks, while his amiable disposition, attractive personality, and genuine friendship won our affection and esteem. We offer to his bereaved wife and children the assurance of our sincere and respectful sympathy.

Officers were elected for the ensuing year, as follows :

President—J. M. Jones, Columbus, O.

Vice-President—F. W. Booth, Mount Airy, Pa.

Secretary—Elizabeth Van Adcstine, Detroit, Mich.

Upon motion, the department adjourned.

SARAH FULLER, *Secretary*.

PAPERS AND DISCUSSIONS

PRESIDENT'S ADDRESS

EDWARD E. ALLEN, PRINCIPAL OF THE PENNSYLVANIA INSTITUTION FOR THE INSTRUCTION OF THE BLIND, OVERBROOK, PA.

When President Eliot last winter summoned the presidents of the departments of the National Educational Association to meet him in Boston, he stated that he wished each department to limit itself, if practicable, to four topics to be treated in two papers and four discussions each. He then called upon each president in turn for the subjects he wished to have discussed in his department. My turn came last. I then said that every topic or subject that had been mentioned by the presidents of the fifteen other departments had definite relation to some phase of our special work of educating and training children requiring, in some part of their schooling, special means of instruction. I brought forward about twenty topics suggested by our own work, every one of which could with just as much propriety be discussed in one or another of the other departments of the Association, thus showing that at one point or another our special work not merely touches their work, but is their work, as theirs is ours.

Now, if this be true, what need is there for a department of special education? My answer is, first, that if the work of teaching and training children hampered by defective faculties not merely presents questions of interest to general teachers, but can also help them solve certain difficult problems in their own work, then it is imperative that the best means be had for bringing these matters into full and proper notice, and neither a good nor a proper place can be found for them in departments where hosts of questions of much moment would certainly crowd out our ques-

tions; and, secondly, that any instrumentality, such as our department now is, which will offer to our special teachers a program sufficiently attractive to bring together from twenty to forty of them, and put them in more or less close touch with many thousand other teachers at a great convention like this one, is helpful and broadening to them, and has sufficient reason for being.

Against this second position it is sometimes urged that teachers of special classes cannot be expected to attend every year these conventions in the various sections of this great country. That is very true. But to my mind the very fact that the meetings are held so often and in such different parts of the land makes our departmental meetings all the more useful; for they thus reach different teachers each year, and so have a wider influence than if they reached the same ones over and over again.

The objects of this department are identical with those of any other department of the National Educational Association; viz., to afford an adequate opportunity for the discussion of topics relating to one special field of work, but interesting and instructive to all teachers; and to provide a means of affiliating this special work with general education.

As we are gathered here, we represent the education of children deficient in three distinct ways. The teachers of each one of these three kinds of children have different ways of gaining their ends, and have their meetings where these may be discussed with profit.

At these meetings of the National Educational Association there should be no intolerance, no exploiting of specialties, but the discussion of general subjects in the spirit of absolute good fellowship. The charitable side of our work is so patent to the outside public that the educational side is largely lost sight of. Here is a chance to emphasize this more important side of our work. If this department is to be a success, it seems to me that it must be conducted on the broadest possible lines.

INFLUENCE OF THE STUDY OF THE UNUSUAL CHILD UPON THE TEACHING OF THE USUAL

I

FRANK H. HALL, EX-SUPERINTENDENT OF THE INSTITUTION FOR THE
TEACHING OF THE BLIND, AURORA, ILL.

The "unusual child" can be found in any community or in any group of half a dozen children. It may be true, as some have claimed, that there is no "usual child," no "average child." Each is in some important respect unlike every other. The study of any one of these is, of course, helpful in the teaching of any other. But there are classes of unusual children, made so by a common deprivation, whose study may

become a source of unmeasured helpfulness in the teaching of normal children. I refer to the blind, the deaf, and the deaf-blind.

The influence of the study of such children upon the teaching of the usual child has thus far been quite unimportant, for the reason that little attention has been given to this phase of educational research. We have relegated the teaching of these classes to specialists of supposed unusual skill and exceptional insight. Their work has been regarded as quite unlike that of the teacher of normal pupils and fraught with untold difficulties. These specialists have sometimes received undue praise for what they have accomplished. This is especially true of teachers of the blind. That which has happened as a result of enforced narrowness and consequent concentration has too often been attributed to the marvelous skill of the expert teacher. A sympathetic and admiring public has wasted much breath in such expressions as "wonderful," "marvelous," "astonishing beyond measure," without in the least degree realizing that that for which these people are praised, is the natural result of a narrowness on the part of their pupils which is not apparent to the casual observer.

It is certainly time for the student of educational psychology to begin a systematic study of the blind, the deaf, and the deaf-blind, with the hope of finding what may prove helpful to the teachers of normal pupils. Permit me to suggest a line of research that seems to give promise of valuable results; and pardon me if I yield to the temptation to predict the outcome of such investigation, coming to me, as it does, after many years of association with large numbers of blind people, some opportunity to observe the deaf, and the privilege of making a most careful study of two deaf-blind children.

The necessity of a sense-basis in the educational process is conceded by all. It is also well understood that thought does not deal mainly with things of sense, but first with the images of these and then with imaginative creations. Hence "emancipation from bondage to the things of sense" is a necessary concomitant of sense-training. It is the "emancipation" that is the difficult step in the educative process. Hence in the training of the usual child there may be greater danger of devoting too much time to sense-perception than too little.

With the normal child the securing of a sense-basis involves the action and interaction mainly of three senses—feeling, hearing, seeing. Just how much each of these contributes to the necessary working sense-basis constitutes thus far an undetermined and perhaps indeterminate problem. But here, as elsewhere in human indeterminates, approximation is doubtless possible.

A great side light upon this problem may come thru the study of the unusual child. If one desires to know what seeing contributes to a desirable working sense-basis, in no other way can one hope to accomplish so much as by a comparison of children educated in darkness with the usual

child. If one would know what hearing contributes, in no other way can one hope to accomplish so much as by comparing children educated in silence with the normal child. The comparison of the deaf with the blind furnishes another invaluable side light, while what has been accomplished with the deaf-blind invites the most careful and thoro research.

Let the following questions be answered by those who have had opportunity for knowledge upon this subject :

1. Are the congenitally blind more imaginative than the congenitally deaf ?
2. Are the congenitally blind more imaginative than normal people ?
3. Are the congenitally deaf less imaginative than normal people ?
4. Are the congenitally blind more imaginative than those who have lost their sight after six years of age ?
5. Are the congenitally deaf less imaginative than those whose hearing became impaired after they were six years of age ?
6. Do the congenitally blind spend less time in sense-perception than normal people ?
7. Do the congenitally deaf spend more time in "reveling in the endless panorama of sense-perception" than normal people ?
8. Do the congenitally blind image and think — see the relation of images in any field with which they are familiar — more quickly and easily than normal people ?
9. Do the congenitally deaf image and think — see the relation of images in any field with which they are familiar — less quickly and easily than normal people ?
10. Is the sense-perception basis for the mental operations of the congenitally blind narrower than the sense-perception basis of normal people ?
11. Is the sense-perception basis for the mental operations of the congenitally deaf as broad and filled with a greater number of details than the sense-perception basis of normal people ?
12. Are the deaf handicapped mainly in their thinking power — their power to image and see relation ?
13. Are the blind handicapped mainly in their earning power — their power to use the results of their thinking in a way that will be helpful to other people ?
14. Can the blind, if provided with the necessary book equipment, do the greater part of high-school work and of college work more easily by far than the deaf and almost as easily as normal people ?
15. Can the deaf, if properly trained, contribute to the general good in much larger measure and in a greater variety of ways than the blind and almost as easily as normal people ?

If, after due investigation, the foregoing questions are all answered in the affirmative, as I believe they must be, it will be apparent —

1. That while sense-perception gives a necessary thought-basis, within certain limits thought-power seems to be in inverse ratio to the amount of sense-perception.
2. That, while a large amount of sense-perception tends to dull the edge of the thought-power, it is not incompatible with good earning power; often, indeed, contributes to it.
3. That in the education of the blind a main effort should be to provide a broader sense-perception basis.
4. That in the education of the deaf a main effort should be to train in imaging and seeing relations.
5. That in the education of the usual child it is of the utmost importance that a proper balance be maintained between these two kinds of mental exercise.

Educated blind people have in a large measure what the world calls *culture*. They can think and enjoy many of the products of art and of civilization. Some of them have "poise, serenity, and contemplative delight." They are quite at home in literature, history, and music. If the main business of life were enjoyment of the intellectual and spiritual type, they would be well equipped. But, with the exception of the few, the very few, who are especially gifted, they find almost insurmountable obstacles in their efforts to take care of themselves; to provide for themselves food, clothing, shelter, books, musical instruments, and the thousand and one material things that are necessary to the enjoyments of the common life and of the higher life. The very fact that they have spent less time with the things of sense gives more time for the things of the intellect, the heart, and the spirit. If the education of blind people is mainly a matter of mental acquisition and personal enjoyment, as it sometimes is, their earning power is thereby diminished, and they go out into the world to be provided for, not by people who are grateful for valuable services performed, but by a more or less disguised charity at the hands of a spasmodically sympathetic public. The blind are handicapped by their defect in their power to do for others, and, sometimes by their education, in their disposition to do.

Educated deaf people are usually self-supporting. In many occupations their defect is not a serious handicap. In scholarship they are, as a class, far below the blind. In power and disposition to earn, they are the superiors of the blind. A colony of deaf people would succeed in caring for each other and for themselves much better than a colony of blind people. The deaf would have less poetry, but more bread and butter; fewer artists, but a greater number of useful artisans. The two classes might get along very well together, if the deaf would consent to do the physical labor for the community, and the blind attend to the intellectual and spiritual needs. "The ear," it is said, "is the avenue to the heart;" but eye and hand are necessary in making provision for the stomach.

The foregoing thoughts seem to point to conclusions which ought to influence and modify the work of the teacher of the "usual child." Too much time devoted to sense-perception, and too little time devoted to imaging and seeing the relations of mental images, will make the usual child too much like the deaf child—quick to see with the natural eye, and perhaps well able to take care of himself and to provide for his own physical necessities, but not profoundly thoughtful, not able to see quickly with the mind's eye, to image and see the relations of things not present to the senses, hence incapable of the higher appreciations and enjoyments.

Too little time devoted to sense-perception in the teaching of the usual child may result in making him like the blind, narrow—he may think himself very broad because of his familiarity with literature and history and bookish science, yet narrow and profound—but incapable of using his

knowledge for the good of other people, hence incapable of earning enough to provide for his own physical wants and for such material necessities as make the higher intellectual life desirable and possible.

The deaf, the blind, and the deaf-blind are unsymmetrical in their development. It should be the care of the teacher of the usual child to avoid the anomalous results that necessarily come from growth in darkness or in silence. To this end a proper balance must be maintained, particularly in the first years of school, between eye-training and ear-training.

In the early life of the normal child the eye and the hand give the chief part of the sense-basis necessary for thought. At this time of life the ear is the principal instrument for training the imaginative faculty. If these two kinds of training are mutually well balanced, the result will be a symmetry that can be expressed in terms of efficiency (and this is the only desirable symmetry). Increase the eye-training beyond the normal amount, and the result may be a moderate degree of efficiency on the material side of life, with serious and irreparable loss on the spiritual and intellectual side. Increase the ear-training, the training in responding to ear-symbols (and later to eye-symbols), beyond the normal amount, and the result may be inefficient intellectuality — particularly inefficient so far as performance that will be useful to other people is concerned.

I have suggested what seems to me to be a most important lesson for the teacher of the usual child that comes to me from a study of the unusual child. It is quite possible that I am in error; that I have generalized on insufficient or imaginative data. Be this as it may, I cannot be wrong in the assumption that the unusual child furnishes an unusual opportunity for most valuable psychological and pedagogical research.

In no other way can we be made to realize so fully the educative importance of sight as by a careful study of the blind. In no other way can we be made to realize so fully the educative importance of hearing as by a careful study of the deaf. It is believed that light will yet come out of the darkness and voices out of the silence that will help to illuminate and make clearer and plainer the path of the teacher of the usual child.

There is great work for Department XVI on the lines herein indicated. Neither can this be done by any one class of specialists, nor by combination of all classes that have specialized in the education of abnormal or subnormal children. But there should be associated with those who deal chiefly with subnormal mentality, others who are mainly interested in the broader and more important problem of determining educative values in the work of training normal pupils.

Let the evidence be brought forward and sifted, and the data collected for such generalization as may be helpful to all who are engaged in the great work of teaching, whether their pupils are normal, abnormal, or subnormal; whether they deal with the usual child or with the unusual child. The help of all is necessary, and the results will be helpful to all.

II

GEORGE E. JOHNSON, DEAN OF THE LOWER SCHOOL, UNIVERSITY SCHOOL,
CLEVELAND, O.

When Dr. Hughlings Jackson formulated his "three-level" theory of the nervous system, and applied it successfully in the diagnosis of epilepsy and mental diseases, he made a valuable contribution to surgery and the knowledge of the physical causes of mental disorders, and also to psychology and education. The fact that the control of certain bodily movements and the seat of certain mental operations lie in definite regions of the brain, and that different areas of the brain come into complete functioning at different ages, is as applicable in education as in surgery.

What pathology has done for psychology, the study of unusual children can do for the understanding of the normal child. In the study of defectives we examine a section of the mind. Here mental defects are written in the large. Since knowledge of the external world comes mainly thru the three avenues of sight, hearing, and touch, by a process of subtraction we see what it is that the mind receives thru these avenues, and we understand more clearly the relations of sight, hearing, and touch in instruction and the acquisition of knowledge, and are enabled better to select and apply methods in school work.

Again, "evolution" and "physiological psychology" are the key-words to method in the new education. To the teachers of defectives we are most indebted for the theory and practice of physiological education, dictated first by Rousseau, Pestalozzi, and Froebel, and first successfully practiced by *Perière*, *De l'Épée*, *Itard*, and *Seguin*. To *Perière* we are indebted for the first formulation of the physiological method. He not only conceived the idea of substituting one sense for another, but also saw the physiological significance of sense-training. This is the first great contribution of the student of the unusual child to the teacher of the usual.

And I shall be pardoned for saying here that the world hardly yet knows its indebtedness to that man, by birth a Frenchman, by adoption an American, who has inspired hundreds of teachers of defectives by his zeal, devotion, and genius in teaching the idiotic eye to see and an idiotic hand to do—that man who more clearly than any other has set forth the need and the value of physiological education, *Dr. Edward Seguin*.

Because most so-called defectives are to a large extent normal, and most normal children approach in some degree or particular some type of the unusual child, we find great value in the study of defectives. But we are to keep in mind today particularly the three great classes of unusual children—the deaf, the blind, and the feeble-minded.

We have dropped the old idea of a child-mind as a weaker mind than

that of the adult, but altogether like it. We have learned that it is an organism passing rapidly thru stages of evolution — stages not as marked as those of the race in its progress by evolution, but distinct enough to serve as practical guides in many questions in education. For this reason, the causes which interfere with or modify the natural development of this organism are of great interest to us as showing more clearly the nature and mode of development of the perfectly healthy organism.

Now, what do we find peculiar in the manifestations and development of character and mind in an organism which has no contact with the external world thru sound? Many writers on the deaf claim that they are more apt than hearing children to be selfish, suspicious, clannish, untruthful, less emotional, less sympathetic; in short, less susceptible to social and altruistic ideals. They live by themselves and for themselves. Early writers, like De l'Épée and Sicard, placed the uneducated deaf intellectually in the class of idiots. Today many teachers of the deaf claim that the deaf are not a distinct class, asserting that they present the same individual variations as the normal.

I fear it would be presumptuous in me to attempt to decide between these conflicting statements. Yet I can but believe that the deaf do, as a class, present some differences from the normal, or at least tendencies to class peculiarities. To be sure, just to the extent that the education of the deaf is perfected and they are enabled to mingle in the world with other people, just to that extent the deaf will approach the normal. Granted that the soul-germ of the deaf child comes as fresh and pure from the hand of God as that of the hearing child, yet it is a very different world he lives in. Character and mind are the resultant of two forces — heredity and environment. Heredity may be the same, but the environment is very different, and the resultants cannot be the same. I believe that the thunderings and whisperings of nature, that voice and speech, that the music of nature and the symphonies of the masters, have exerted great influence in the development of the human race and of the individual. There is no other means of expression of the emotions of love and sympathy to compare with the human voice. It is not strange that the man who never heard the song of a bird, who never fell asleep at the lullaby of a mother, who never heard the story of another's love, or listened to a sob of a bleeding heart, should lack fullness of sympathy and devotion. I shall claim, then, that the great fundamental emotions of the soul — love and sympathy — which lead to our modern ideals of altruism and the brotherhood of man, are less easily developed in the deaf than in the hearing. This is a second important influence lesson which the study of the unusual child has for the teacher of the usual. The ear is of mighty importance in the development of the sensibilities. And the development and training of the sensibilities in its bearing upon character is one of the most important, but neglected, offices

of our public schools. The teacher of normal children too often neglects the opportunities of the voice and the ear.

Lack of contact with the external world thru the ear seems also to have a characteristic intellectual effect. But the records of biography seem to show a decided intellectual superiority of the blind over the deaf. Since the eye is the most important sense-organ, being the medium of the great majority of all our sense-impressions, and the organ most relied upon in the education of normal children, this fact seems rather startling. Doubtless whatever intellectual inferiority the deaf may have is due largely to deficiency in language power. Observe that language is the "vehicle of thought" and is essential to the development of a high degree of intelligence. Language is at once the means and the stimulus to accurate thinking. The deaf receive more sense-impressions than the blind, but make less of them. They have not, particularly during the early years, a convenient medium for thought and reflection. The blind have fewer sense-impressions, but make more of them. They are thrown back upon reflection.

These facts emphasize, in the teaching of normal children, the value of language in school work—not formal language study, but language as the means for thought and its expression. And the vast superiority of the young blind but hearing child over the deaf child in language power—having, it is even asserted, at the age of eight a greater command of language than the congenitally deaf child ever can have—proves that the ear is the natural organ for the acquisition of language. In our public schools language study has very generally miscarried. In the case of young children, it has had too much to do with formal language study, instead of the development of power and delight in thought and expression of thought. There should be more oral language work and less written language work with little children.

This importance of the ear in acquiring language is evidence enough that normal children should begin foreign languages thru the ear rather than thru the eye. On the other hand, it is a pointed question whether the study of the dead languages—which in most cases is not the acquisition of language, in the real sense, at all, but the study of the grammar of language—should not come later rather than earlier in the school course, and during the reflective period rather than the sensory.

Mr. William B. Wait has made a most interesting and suggestive study in "comparative education" at the New York Institution for the Blind. For a period of nine years the results of the Regents' examinations, according to a wholly impartial rating, have shown a superiority in general scholarship of the blind pupils over the normal pupils of other schools. How shall we account for this? Certainly we do not think it is an intellectual advantage to lose one's sight, as did the ancient philosopher Democritus, who inflicted blindness upon himself that he might the

more perfectly give himself up to reflection. No doubt it is partly due to superior teaching. The teachers of defectives are our best teachers, unquestionably. But there is more yet to be explained. Mr. Hall has just told us that the blind child digests his mental pabulum more perfectly than the seeing child. No doubt we have often, in our public schools, sacrificed depth to breadth. But I believe there is one element more to be taken into account in this matter, and Mr. Wait points it out. In our teaching of the young normal child we are relying too much upon the eye. And we are doing this at the very age when the ear should be predominant in instruction. In primary school work, the office of the eye, as compared to the ear, is accessory; of the ear, fundamental.

The foregoing facts seem to point clearly to the value of the ear in the training of the sensibilities, to the fact that the ear is the natural organ for the acquisition of language, and to the need of a convenient medium of expression and reflection in the development of a high degree of intelligence. A grave doubt arises as to whether there is not an excessive use of the eye in the training of normal children; whether we have not swung too far away from the use of the ear for the good of the child's intellect and the child's soul. And the question also arises as to whether the young deaf child should not be given every encouragement and aid in acquiring ability to express thought in whatsoever way. Since language is so important in the development of the intellect, it seems a great mistake to shut the flood gates of expression of the little deaf child in whatsoever direction nature may dictate them to open.

In the preparation of this paper I sent out *questionnaires* to teachers of the deaf and the blind. The returns were insufficient to warrant generalization, but they seemed to be mostly corroborative of what I have claimed here. A few other points brought out may be of interest and worth inserting without discussion. The claim of evolutionists that certain definite periods are most favorable for the development of certain powers seemed in general corroborated. The difficulties of education not only steadily increased with advancing age, but the difficulties in certain directions seemed to be conspicuous after certain ages. The molding of bodily habits and the correction of mannerisms are very difficult after the age of eight or nine. Dullness of touch is confirmed after fifteen or sixteen. The vocal organs of the deaf become stiffened before the end of the early teens. Imitation and perception in the deaf are less active after the age of eight. Interest in elementary work, so easy to arouse in the young deaf child, cannot be awakened after the age of ten or eleven, and apathy of mind sets in by the age of fifteen or sixteen. The general testimony was that the deaf learn to read with much more difficulty than the normal, but the blind learn as rapidly; that the deaf are better spellers than the blind or the normal; that the blind are more accurate in arithmetic, the deaf less so; that the blind remember better than the normal,

the deaf not so well; that the blind reason as well as, if not better than, the normal, the deaf do not; that the blind are more emotional, and the deaf less emotional, than the normal.

The study of feeble-minded children presents entirely new conditions. The difficulty here is one of centralization rather than one of avenues of approach. The whole organism of the feeble-minded is involved in the difficulty; not any particular part, as in the case of the deaf or the blind. Hence the teaching of the feeble-minded has necessarily been reduced to lowest terms. The teacher of the feeble-minded has to do with the very beginnings of mind. All of the avenues of approach are more or less closed. All must be opened. The very senses have to be taught before the child can be taught. The physiological method becomes, not merely an essential, but a necessity. All that is done must be done *in accord with established facts of evolution and in harmony with the laws of physiology*. Herein is the great influence that the study of the feeble-minded is exerting upon the teaching of the usual child.

One could not begin to give here even an outline of the lessons a teacher of normal children might gather from the physiological method—the object-lessons, use of play, training of the senses, attention to hygiene, and the study of the individual, displayed in the education of the feeble-minded. These things have been carried to a greater degree of perfection in schools for unusual children than elsewhere. It would be impossible to state how much the schools for defectives have advanced the cause of the kindergarten in this country. In these schools we find a higher and truer development, I believe, of kindergarten principles than elsewhere. Light is coming to the teachers of all children from the schools of these unfortunate, yet fortunate, children.

The study of the unusual child, then, has put the individual child in our midst; has made for sympathy; has disclosed the seat of the difficulty, showing that supposed stupidity was often the result of defect of eye or ear; has emphasized the value of play and spontaneity in education; has helped to fix the relative importance of the several senses in education; has emphasized the importance of sense-training; has practically created the physiological method; has made clearer the application of evolution to education; has kept in the foreground the social object of education, rendering the helpless helpful members of society. The schools for unusual children present the best object-lessons available to the teacher of normal children.

DISCUSSION

DR. FRANCIS BURKE BRANDT, professor of pedagogy, Central High School, Philadelphia, Pa.—Speaking from the point of view of the training of the normal child, I believe that the study of the unusual child has already produced an influence upon the teaching of the usual child that is illuminating, instructive, and inspiring.

- In the first place, such study has demonstrated the almost infinite possibilities of education. Sometimes in our public schools we are in danger of turning away from children because they are dull or stupid or incapable of being taught. But one Laura Bridgman and one Helen Keller have taught us, more than all our child-study investigations put together, that there is an avenue to every soul. Such cases have taught, too, the larger lessons that the twentieth century must regret the nineteenth-century dictum of the survival of the fit, to put in its place the higher principles of fitting to survive.

In the second place, such study has demonstrated the superior effectiveness of special methods and special teachers to accomplish ends which meet the individual needs of the child. In connection with this subject such studies as Superintendent Hall's point out the relative value of these senses, as well as the importance of ultimate emancipation from the senses, together with the necessity of training for some form of social service, that all this can be of incalculable worth in revising our methods in handling the normal child.

Again, such study has been highly illuminating as to the importance of right conditions in training a child. The favorable conditions which prevail in many institutions for the special training of special children, in the form of the fewness of pupils assigned to teachers, the assignment of special subjects to teachers, the adequacy and adaptability of equipment, and the respect, sympathy, and resources of trustees, have important lessons for those in authority who administer the training of the normal child.

Summed up, the study and training of the usual child have rendered the greatest service to the elevation of the individual and the progress of humanity, to the extent that it shows that there is no depth scarcely of physical, intellectual, and moral defect on the part of the individual which the impulse of Christian motive, the intelligence of modern science, and the energy of civilized society combined cannot reach.

CHARLES F. F. CAMPBELL, former inspector of the Royal Normal College and Academy of Music for the Blind, London, England.—The unusual child in this discussion is the blind child. With the blind it is necessary to begin at once to prepare for remunerative occupation. The normal child needs a similar system and has greater opportunity, having a larger field open to him. That he needs immediate training for all possible ends, not for higher education only, as at present given, is shown by the figures in the state school reports. Only an extreme minority continue higher education after the high school; indeed, a large percentage of grammar-school pupils do not enter the high school.

Example of a pupil at the Royal Normal College and Academy of Music for the Blind, London, England: With a blind child there, it is recognized at once that there is to be a struggle for a livelihood. The child starts his training with the assumption that he may ultimately go to Oxford or Cambridge, to be possibly a lawyer or a minister. Before ten years of age, however, he is started in music, for that profession offers the greatest opportunities for the blind. Thus the possibility of failure in one direction is provided for in another. Before the child is fourteen years of age it is generally clear whether a legal, ministerial, or musical profession is advisable; but all this time he has had the best of manual training, so that, if these more advanced mental professions do not promise, his attention is concentrated upon a calling requiring manual dexterity. Thus every contingency has been provided for and in ample season.

Application of this to the seeing child: The large majority, owing to family circumstances, must go to work in some factory or store by fourteen years of age. Since many must work thus early, the public schools should provide preparation for this, as well as for higher education. Clear thinking is needed in the best work, even of manual labor; for it is not human machines that are required, but artisans. If public schools offered such commercial and technical training, parents would strive to maintain their children longer in school, to avail themselves of an education having so practical a value.

The ideal should be held out to the pupils that because they cannot go to college a

great and useful career is not closed to them, but rather, by careful application to some congenial art or craft, they may become designers and creators. The supreme end of education will thus be to make them better citizens and, as President Eliot has said, more able to enjoy life.

*SHOULD THE SCOPE OF THE PUBLIC-SCHOOL SYSTEM
BE BROADENED SO AS TO TAKE IN ALL CHILDREN
CAPABLE OF EDUCATION? IF SO, HOW SHOULD THIS
BE DONE?*

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I will answer the question in the topic of this paper by saying: Yes with qualifications which may or may not be applicable under existing conditions.

I assume that the public-school system implies residence at home, or under home conditions, with day attendance at a school. It does now provide for all children excepting cripples, epileptics, the mentally deficient, deaf-mutes, and the blind. Can all these unfortunate classes, or can any among them, obtain suitable education and training under the public-school system? Is it to the advantage (a) of the normal children, (b) of the defectives, that this should be undertaken? The number of defective children whose parents can provide satisfactory training in their own homes is so small that these need not come into the discussion—altho, with every advantage that money can secure, something is probably lost under wholly private instruction.

No argument is required to show that the children embraced in these five groups cannot be required to attend the ordinary schools, in continuous association with normal children, except to the disadvantage of all concerned. The cripple would suffer in body; the epileptic and the weak-minded would be unable to keep pace with their school-fellows, or would be a drag upon their progress; the deaf would profit hardly at all; the blind only by the spoken word. Since, then, they cannot be taught as units of the ordinary school, the customary, almost universal, practice is to provide for them in large boarding homes, equipped with everything needed for general care, and also for such elementary, higher, and technical training as may be adapted to the special needs of the several groups under consideration. The defective child is placed in such a boarding home for a term of years, usually including the entire period of childhood and youth, and extending into early manhood and womanhood, at the end of which period he is returned to his home and friends. In the best examples of such institutions, health, manners, morals, training of hand and brain, are all wisely and carefully looked after; and, in contrast with the life of a defective child in many families, the sympathetic visitor,

noting the well-clothed, well-cared-for little ones, can but regard institution life as the ideal for all such unfortunates.

Such conclusions may, however, be qualified by two considerations, deduced from long experience. First, the practical training of home life, which defective children in common with normal children need, is missed in an institution. It is true that valuable lessons in order and regularity are learned, and the motto "together," so well worth impressing, is deeply impressed upon them. Some such experience is useful to all. But these children are taken from home at a very early age. From that moment every need is supplied. Food and clothing, schooling, and care come to them as freely, as naturally, as the air they breathe. There is no question of cost—of sparing or saving. No committee of ways and means deliberates in their presence, as members of a family talk together of what can, or cannot, be afforded. At home there may be anxiety, struggle, hard work, privation. Of all this the little exile knows nothing. So pass the years till the youth leaves school. The institution, the artificial home, is left behind, and the youth comes forth to make use, or no use, of what he has learned in school and shop, with such help as friends or strangers can give. He must face life—and of life in the world he is profoundly ignorant. Already handicapped by his infirmity, the lack of all practical experience puts him still further at disadvantage, and it is hard, if not impossible, for him to get his bearings and adjust himself to his surroundings. Without knowing it, he may be selfish and exacting. This is my first qualifying consideration.

The second tendency to be deprecated is the inevitable result of exclusively institutional training in weakening home ties thru too protracted separation in early life. In the course of years, childish interests have been exchanged for those of maturer life, and the home-coming youth finds himself much of a stranger, having little in common with others of his family. The earlier habits of consideration, of tender pity, have lapsed thru disuse. Moreover, the limitations of his infirmity keep him more or less to one side, and he may be overlooked or forgotten, when he would gladly share the common interests and the common pleasures. If intelligent and sensitive, he may grow morbid in the feeling that he has come to be only a care and a burden.

Now, is it practicable so to enlarge the scope of the public-school system as to include any portion of the whole number grouped as defectives, and thus to secure a more practical training, while keeping them in closer touch with friends on whom they may, to a degree, be dependent in future years?

Without discriminating between that form of institution where all inmates are gathered into one great family and the institution organized on the cottage system, I concede its necessity in some form, except in large centers of population. In great cities the public-school system *can* be utilized to the advantage of many defective children.

Instead of leaving this statement as an unsupported assertion, it will be more definite to indicate what is actually done for defectives in one metropolitan area—that of London—in connection with its work of popular education.

From the problem are eliminated nearly all epileptics, and the lower grades of the mentally deficient, who, for such training as their condition allows, are better under the constant watchfulness of a permanent boarding home.

The census of the school population of London—that is, of all children between the ages of five and fourteen—is annually taken in house-to-house visitation by the school board visitors, each in his own area. When the excuse for non-attendance places the child in any one of the defective groups, it is so recorded, with age, address, and character of disability; and the respective lists, when complete, are sent to the three superintendents in charge of defectives, cripples and epileptics being assigned to the superintendent of the mentally deficient as a matter of convenience.

Not only at the annual scheduling, but thruout the year, it is the duty of the visitor to report at once to the superintendent each new case that comes to his notice. The age of compulsion for deaf-mutes is from seven to sixteen; for the blind, from five to sixteen. The superintendent, having received the data from the visitor, proceeds to amplify; and this can be done in no way so well as by friendly personal calls, wherein details of the cause and degree of disability, and the condition and history of the family so far as it has affected the child, are obtained. These are useful in establishing cordial relations as well as for information.

Three of the groups—viz., the blind, the deaf, and the mentally deficient—are gathered in centers under teachers specially trained to the work for each. Cripples, not requiring specially trained teachers, make a fourth group.

I wish to say just here that, next to thoro training in the special work which is undertaken, there must be, even more than in ordinary teaching, a real love for, and interest in, that special disability, and a rooted conviction that to a large degree it may be surmounted.

Not more than twenty feeble-minded, eight deaf, or sixteen blind are allotted to one teacher, tho, if numbers warrant, there may be two or more classes at one center. This permits satisfactory grading.

If possible, each center occupies a building of two or more rooms, detached from the main building if on the school premises, and having independent entrance from street and playground. When desirable to establish centers for two or more groups in the same or adjoining premises, it is important to provide for entire separation, both in and out of school hours. If cripples are of the number, their center is on the ground floor.

In considering how the children shall reach the center, one rule does not apply to the several disabilities. Usually speaking, no deaf or feeble-minded child is required to travel more than a mile to the center. For greater distance, or for weakly children, arrangements are made with public conveyances. The feeble-minded and the deaf are so nearly on the level of ordinary children in respect to attendance that the matter of their coming is commonly left to the parents. For cripples, a vehicle adapted to their needs collects and returns to their homes those who otherwise could not attend school with safety. In the case of the blind the problem is simplified if another child in the family capable of acting as guide can attend the school with which the center is associated. If there be none such, a trustworthy child is selected in the school, who for a small weekly payment will accompany the blind one.

The limit of distance mentioned in connection with the deaf and the feeble-minded may be considerably extended for both the cripples and the blind. For cripples, the time of man and horse is the only consideration, and, in practice, a blind child with guide, when once in a public conveyance, can travel three miles as easily as one.

When difficulties arising out of distance are too great, or where home conditions are morally or physically bad, the boarding-out system is adopted. Satisfactory families are sought near the center where the father and mother are willing to act the part of foster-parents to one or two of these little ones. It is preferred that these families be in somewhat similar position in life to the real parents; it is imperative that they be clean and honest, and able to supply proper food and lodging to their little boarders. To insure the faithful observance of all regulations, there is frequent careful inspection. If the parents of a boarding-out child fail, thru poverty or neglect, to provide needful and tidy clothing, an outfit is procured, and, in case of neglect, the cost is charged to the father.

In the bringing up of each group of defective children the necessity of rendering them, as far as possible, self-supporting is kept steadily in view. From kindergarten to manual training no effort is spared. From the several centers of each group the children, on appointed half-days, go for practical lessons to the cooking, laundry, or manual-training class most accessible. The selection of the children for the coveted privilege is made on the same lines adopted for normal children. It is needful for the deaf to be accompanied to such classes by one of their own teachers, to interpret in case of necessity. Manual training for the blind, including the use of tools in single cabinet-work and carpentry, is limited less by want of sight than would be supposed. They can, and do, learn to use readily all ordinary tools with benefit. Whatever is done for cripples in respect to manual training, is done at their own centers.

To the statement previously made, that defectives cannot be closely associated in the schoolroom with ordinary children, the blind are a partial

exception. After acquiring at the center facility in the use of their special apparatus for writing and arithmetic, it is found possible for them to do the work and profit by the instruction of the ordinary school for some part of each day, devoting the remainder of the day, under the guidance of their special teachers, to subjects and methods in which they, because of their lack of sight, require individual attention. A second divergence in the case of the blind from other defectives in their relations to the public-school system is this: Individuals of other groups may continue in the public school till they have exhausted its advantages; it is not so with the blind, except in a few cases where expense of later professional training is no consideration. They are restricted in the choice of callings for a livelihood, and must pass earlier from the public school to an institution adapted to prepare them for their life-work, as musicians, teachers, or workers at a handicraft. If the pupil has musical ability, that can be developed only by some years of residence in an institution provided with all that is necessary to thoro professional training. So, too, if talents and character point to success in any other profession, including that of teaching, the preparation for the normal school, or for the university, must be made under the conditions prevailing in an institution. The Royal Normal College for the Blind, near London, besides its elementary, higher, and technical departments, is accredited by the government as one of the authorized training colleges for teachers. Similarly with handicrafts available for the blind, including the art of tuning, in which they can compete on equal terms with the sighted, special teachers, longer time, and the aid of many devices, unknown in ordinary workshops, are required, and are only obtainable in a residential institution.

It is thus evident that the connection of the blind with the public school differs from that of the other groups of defectives. There is no vital relation between the ordinary school and the centers for cripples, for the deaf, or the feeble-minded; tho among the feeble-minded there are always individuals so classed who from adverse circumstances are simply backward, and who after a time of quiet progress can be transferred to the ordinary school. The centers for these three groups are selected without reference to the proximity of a public school; but because of the division of their time between the special class and the ordinary school, it is desirable that the centers for the blind should be in close connection with the public school and occupy room within its grounds.

I have now covered what appears to be the chief points of my subject, and will summarize as follows: (*a*) In large cities, cripples, deaf-mutes, and the mentally deficient, excluding the lower grades, may receive their whole education under the public-school system, each group by itself, in centers which may be quite apart from the ordinary public school, and, in the case of the deaf and the mentally deficient, under specially trained teachers. (*b*) The blind may be taught by a specially trained teacher, at a

center closely connected with a public school, in the instruction of which they can participate for a part of each day; but they must be transferred from the public school to an institution for the blind, at the age of twelve or thirteen years, to complete their training.

DISCUSSION

THOMAS D. WOOD, M.D., professor of physical education, Columbia University, New York city.—The idea of education has been enlarged until today we consider it rightly as the process by which the individual is prepared for life, for human society, for citizenship. It is the duty of the state as the agent of society to make sure that the individual is qualified as perfectly as may be for complete citizenship. In our country, this means that the state shall demand a certain minimum of intelligence and training of all, and beyond this provide generous opportunities for the young to improve themselves, in order to add to power and capacity in every possible way, without pauperizing anyone or decreasing individual responsibility and self-reliance. In our democracy, with the present standard of education among intelligent people, the well-to-do classes may be trusted to give their children, whether normal or defective, at least an equivalent of the benefits of free public schooling. Leaving out of account, then, those who prefer to educate their children at private expense, the public-school system is, or should be, better qualified than any other agency to set the standards of education for all children capable of education. This will be done most naturally and economically, where it is practicable at all, by the attendance of the deficient child, while living at home, upon the public school adapted to the needs of exceptional children.

The home is still the most fundamental and vital of human institutions. It is of great importance that the home do all that it can and will for the child, whether normal or deficient; important, again, that education stimulate the home in every way to a higher development and a more effective service in the care of the children. In many cases, of course, the state can provide better care and training for the child than he can get at home, and often the education of deficient children can be accomplished only in special institutions. But it is really important that, where feasible at all, the young child should remain at home, and that provision for instruction should exist within convenient distance for attendance upon school. This is not feasible, of course, for most defectives except in large communities.

The scope of public education, then, should be enlarged to include all children capable of education, capable of becoming self-supporting members of society; and facilities for the training of deficient children should be developed as rapidly as possible, and in close relation to the home.

The training of dull, backward, and moderately deficient children may best be accomplished by the ungraded room of the ordinary school under specially qualified teachers.

Those more deficient mentally, and often morally, who are yet capable of education, and many of whom may become independent members of society, even if of a low grade, should be kept away from the normal children in special schools, like the *Hilfsschulen* in some European cities. Here they may have the best available opportunities, and a further differentiation may be made between those educable and capable of life at home and in society, and those who should go permanently to institutions for defectives.

The deformed and crippled children should have their own more favorable conditions, with the instruction and training best adapted to their limitations and needs. The schools for crippled children in New York—some supported by philanthropy,

some by public funds—show strikingly how much can be done for these handicapped children.

The deaf and the blind should be trained in special schools or under special teachers. They should live at home when possible, at least up to the age of adolescence. The more advanced training of the blind and deaf may very reasonably be completed away from home in special institutions maintained by the state as part of the public-school system.

The instruction of all unfortunate and deficient children, whether carried on at public or private expense, should be under public supervision, or at least subject to inspection of officers of public institutions.

ELLEN LE GARDE, director of physical training, including that of backward children, public schools, Providence, R. I. — Feeble-mindedness—a state of arrested psychical development—will always be an interesting study to the physical director, who realizes that a mentally weak child is almost always defective physically, and that its physical education should precede its mental, and always progress with it. Feeble-minded children may be found in every school building, and should be trained by themselves.

In the proper education of this class of children, Germany, in 1863, was the pioneer. There such children have been gathered either in special ungraded schools or separate classes, which arrangement enables the classes of the normally endowed to progress at a more rapid rate in their studies. The German plan, making these schools a part of the school system, is that followed in Providence. Providence, in 1894, was the first city in the United States to support public day schools for mentally backward boys and girls. In 1899, similar schools were opened in Boston, Chicago, and Philadelphia.

The methods of developing the arrested or weak mental and muscular powers are most interesting. Seldom do these children walk correctly; they have little sense of rhythm; hands and feet cannot move in unison. Exercises requiring at first little or no effort, but always training in time, in co-ordination, in balance, in grasp, in powers of concentration, in strength and memory, are all used, and gradually increased in power and velocity.

Lacking, as many of this class are, in powers of articulation, the ward, or marked system of reading, is used in the morning, and unmarked reading in the afternoon. Seat work for reading is taught by letter builders, one and a half inches long. Number is taught at first by large primary colored blocks eight inches long; later by various objects; all, however, larger than those in use in the ordinary primary school. The color sense in these children is often so deficient that this instruction is a part of every day's lesson. Geography and language are taught in games and talks, and the children are encouraged to express themselves freely and correctly. Singing it is possible to gain by number first, as in the regular grades, and by songs. Drawing is done upon the blackboard to illustrate all the reading lessons. Sewing, weaving, and basketry are employed for hand- and eye-training. I place great faith in the Swedish exercises in gymnastics for co-ordination, and in musical drills with wands and dumb-bells for rhythm and for gaining interest and attention. Many of these children tire of games, and lose patience and get excited, but are always devoted and constant to piano and dumb-bells. The drum and triangle are great aids. Lately we have tried dancing steps. The teachers consider the physical training the greatest aid to the greatest need of the children.

In what would appear apparently as a hopeless task, the teachers in these three schools for atypical children are devoted itself. All have been graduates from our city schools and from our excellent city training schools. Each understands kindergarten methods and has served an apprenticeship as assistant in a disciplinary school.

Encouragement and praise are freely given; happiness of a right sort is ever present; and the animal affection, often a part of the character, is trained in habits of helpfulness for the teacher, for the schoolroom pet, in cat or dog, or for a weaker child needing constant aid.

It is safe to say that 80 per cent. of the children are cured. By "cured" one does not mean made into Edisons, Marconis, or Roosevelts, but lifted up to better things. Many are holding good positions. The future holds many plans for the betterment of these schools. They are under the care of a special supervisor, who visits them once in two weeks. It is hoped to concentrate them in one building in the center of the city, to pay transportation, and to provide lunch; for these children lack in nutrition, and any public-school system starting such schools should provide at once, with books and slates, either a lunch or mid-day meal. The superintendent desires medical inspection for them, in order to allay any objection on the part of the parent, when told his child should be placed in a school for pupils of arrested development. More attention can be given to physical exercises and manual training when we have a central school with proper work-rooms, gymnasium, etc. Philadelphia is in advance of Providence in its medical inspection of defectives and in their manual training; but Providence points with pride to the fact that the school funds pay for the cost, and that seven years of growth is one of progress and actual accomplishment in making a class of children of value to the community and to themselves, who might have been a drawback and a disgrace.

JOHN. T. PRINCE, agent of the Massachusetts Board of Education, Boston, Mass.—Public-school education is constructive in helping to create high ideals and intelligence, and preventive in helping to hinder pauperism and crime. It is a wise provision of statute law for the upbuilding of society, and for the happiness and usefulness of individuals, that every normal child shall be assured of a common-school education. It is no less the state's duty for its own protection to make obligatory the training of educable defectives and the care of those who are not capable of improvement. This training and care should be carried on either in institutions under the direction of the state, or directly in connection with the local public schools.

Those children only who do not need institutional treatment should be trained at home in separate groups. For the cities and large towns this will not be a difficult matter, as has been shown by experience. For country districts, provision may be made for carrying children to a central school, or for establishing small home schools in convenient localities. These schools should be under the charge and superintendence of the local public school authorities. In states like Massachusetts, where district supervision prevails, the schools may be under the direction of the superintendent and district committee, the expense of the schools being borne by the towns from which the pupils come. In country districts whose unit of government is the county, the schools may be organized and controlled by the county board and county superintendent, and the expense of carrying them on will be borne by the county.

It is therefore right and feasible for *all* educable children to be included in the scope of the public-school system, and to share in its benefits and obligations. It is also right and feasible for the state to place all educable children of a certain age under the statutory requirement of compulsory school attendance, to the end of giving all its citizens the benefits of intelligence and self-support, and of guarding itself and society against the dangers of ignorance and crime.

WALTER E. FERNALD, M.D., superintendent of Massachusetts School for Feeble-Minded, Waverly, Mass.—Until within a comparatively few years it was believed that feeble-minded children could be successfully educated only in special boarding schools or institutions. All such schools were recognized as strictly educational institutions. Dr. Howe said of his school: "It is a link in the chain of common schools, the last indeed, but still a necessary link in order to embrace all the children in the state."

The methods of training found necessary with the feeble-minded were radically different from those then used with normal children. Object-teaching, nature study, gymnastics, special sense-training, manual and industrial training, music, directed games, training in habits and morals, etc., were the sheet anchors of this work, years

before the era of the kindergarten and the dawn of the new education. Outside of these special schools suitably equipped teachers were not to be found.

Special public school day classes for the feeble-minded have been in operation in various continental countries for more than twenty years. There are many reasons why such classes should be established as a part of the public-school system in large centers of population in this country.

Every American child has the right to be educated according to his need and capacity. It is a great hardship for the parents to send a child of tender years away from home to be educated. Parents with a comfortable home would naturally prefer a public-school class to an institute. Many defective children who now receive no training would be placed in these special classes. The special training would be begun much earlier than is now possible.

These special classes can be quickly and easily organized and increased in number, making a very flexible system of providing and extending facilities for training defectives. They do not involve the expenditure of large sums of money for construction of large institution plants. The actual expense of such training is largely assessed upon the local community receiving the benefit. The admirable special classes in London may well serve as models for classes in this country.

In organizing these special classes, the pupils should be selected under expert medical advice, and should be the merely "backward" or slightly feeble-minded, and not imbecile or idiotic, for the merely backward should not be classed with the actually feeble-minded.

The training and instruction of these children may begin on a much lower plane than with the lowest grades in the public school. It must begin with what the child already knows, and the successive steps should be made very gradual and progressive. The physiological education of the special senses and the training of the muscles to accurate response to directions must precede and prepare the way for so-called intellectual training.

Hand-work and manual training in great variety is of great importance. Object-lessons and familiar nature study should be emphasized. The beginnings of ordinary primary work should be based upon the best modern methods. The progress will be slower, and the pupil cannot be carried so far.

The study of the life-history of these persons has evolved some generalizations which must not be ignored in considering this subject. All degrees of congenital mental defect, from the merely feeble-minded child to the profound idiot, are the result of certain definite structural defects or inferiority of the brain, or the result of brain disease or injury. These brain abnormalities are permanent conditions. No really feeble-minded person ever was, or can be, entirely "cured." It is a question of how much improvement is possible in each individual case.

The hope of the pioneer teachers in this work that many of the slightly feeble-minded could be educated and developed to the point of supporting themselves, and of becoming desirable members of the community, has not been realized. A certain very small proportion do actually leave the schools and lead useful, harmless lives, supporting themselves in a precarious way by their own efforts. Of the great majority of these trained pupils it has been well said that they may become "self-supporting, but not self-controlling." By far the greater number need oversight and supervision as long as they live.

A very large proportion of the feeble minded persons, even the well-trained higher-grade cases, eventually become public charges in one way or another. No one familiar with the mental and physical limitations of this class believes that any plan of education can ever materially modify this fact. The brighter class of the feeble-minded, with their weak will-power and defective judgment, are easily influenced for evil, and are very likely to become prostitutes, vagrants, or petty criminals. They are powerless to resist the physical temptations of adult life, and should be protected from their own weakness and

the cupidity of others. Especially should they be prevented from marriage and the reproduction of their kind.

Feeble-minded children may be tolerated in the community, but it is a great responsibility to inaugurate any plan on a large scale which does not provide for withdrawing defective adults from the community.

HOW CAN THE TERM "CHARITABLE" BE JUSTLY APPLIED TO THE EDUCATION OF ANY CHILDREN?

EDWARD ALLEN FAY, VICE-PRESIDENT OF GALLAUDET COLLEGE, WASHINGTON, D. C.; EDITOR OF "AMERICAN ANNALS OF THE DEAF"

At the time, now nearly a hundred years ago, when the first schools for the education of special classes were established in America, such schools already existed in Great Britain. The British schools were generally called "institutions;" the largest and most important of them was styled an "asylum"—a title which it still retains; another bore and bears the name of "hospital."

These British schools were founded and maintained entirely by private charity, and were therefore classed as charitable institutions, tho their educational purpose was recognized. The same is true not only of special schools, but of all the English free schools of that time; they were known as "charity schools." In America, on the contrary, our free schools have always been supported by public taxation, and education in them has never been regarded as charitable, but as the birthright of every child.

The early founders of American schools for special classes in their preliminary steps followed English precedent. They contributed money, interested their friends, sought subscriptions, secured acts of incorporation from the state legislatures, and (most unfortunately) called their schools "asylums" or "institutions."

Long before that time, however, the duty of the state to provide for the education of all its children had been recognized in this country, and as soon as the special schools were established they applied to the legislatures for support on the ground that their pupils had the same right as other children to education at the public expense. The justice of this claim was generally recognized, and appropriations were made by the legislatures for that purpose. In a few of the older states this arrangement continues; the schools are under corporate management and have endowment funds resulting from former gifts and bequests, which the state supplements by paying a *per capita* rate for the pupils in attendance.

So far as the education of these pupils is paid for by the state, it cannot be called charitable, for the state cannot dispense charity. The state educates these children, as it does all its children, in its own interest; for educated they become self-supporting citizens, while left uneducated

they are liable to become criminals and paupers. The schools are sometimes spoken of as "institutions aided by the state;" it would be more correct to say that the state is aided by the institutions, for with the help of their endowment funds it is enabled to educate its children at less than cost.

If, however, we consider these early schools from the point of view of their origin, their corporate character, and their endowment, they may be classed, legally at least, as charitable institutions. The same is true of our incorporated colleges and universities; in the eye of the law they are charitable institutions. In the famous Dartmouth College case Chief Justice Marshall held that a college was an eleemosynary corporation; and the same opinion has been reaffirmed in a score of judicial decisions. The principle is well established that "a charity, in a legal sense, includes not only gifts for the benefit of the poor, but endowments for the advancement of learning, or institutions for the encouragement of science and art, without any particular reference to the poor;" and that "schools established by private donations and carried on for the benefit of the public, not with a view to profit, are institutions of charity."

In a legal sense, then, our endowed special schools must submit to be classed with all endowed schools, colleges, and universities as charitable institutions. But the legal sense is not the common sense; in the popular conception the idea of charity is not associated with ordinary schools, colleges, and universities; they are considered, not from the legal point of view of their endowment, but from the common-sense point of view of their purpose. Their purpose is educational; they are therefore universally regarded as educational institutions. The purpose of schools for special classes is also educational; should they not be regarded as educational institutions? There is not a student in Harvard or Yale the expenses of whose education are not paid in large part from endowment funds, irrespective of tuition fees; but no one ever thinks of applying the term "charitable" to the education of students at Harvard or Yale; why should it be applied to the education of pupils in the Perkins Institution or the Clarke School? This question was put to the Massachusetts legislature in 1875, and the result was that these schools were removed from the supervision of the state board of charities and placed, where they properly belong, under the supervision of the state board of education. But not all states are as enlightened as Massachusetts.

What has been said of the charitable character, from a legal point of view, of certain endowed and incorporated special schools applies only to a few schools in a few of our oldest states (Connecticut, District of Columbia, Maryland, Massachusetts, New York, and Pennsylvania). The great majority of our American schools for special classes are public schools; they have been established by the state legislatures, in some cases they have been provided for in the state constitutions; they are maintained

wholly by public taxation. There is no reason whatever for regarding them as charitable.

In some of the states the purely educational character of these schools, their entire dissociation from the idea of charity, is recognized; in others it is not. In ten states (Alabama, California, District of Columbia, Florida, Massachusetts, Minnesota, Montana, New Jersey, North Dakota, and Virginia) it has been clearly defined by legislative or constitutional action.¹ In two (Florida and New Jersey) the schools are under the direct control of the state board of education. In nine (Illinois, Kentucky, Maryland, Massachusetts, Mississippi, Montana, New York, Ohio, and Tennessee) they make reports to the state board of education or the state superintendent of public instruction. In seven (Alabama, Florida, Minnesota, New Mexico, Oregon, South Carolina, and Virginia) the superintendent of public instruction is *ex officio* a member of the board of trustees. In two (Michigan and New York) the schools are subject to the supervision or visitation of the superintendent of public instruction. In five (California, Illinois, Michigan, Ohio, and Wisconsin) provision is made for day schools for the deaf in various localities in addition to the large state school; there are also day schools in three cities (Boston, Chicago, and St. Louis) in other states. These day schools are all classed as part of the common-school system.

On the other hand, the special schools in two states (Kansas and South Dakota) are under the direct control of the state board of charities. In nine (Illinois, Indiana, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, and Tennessee) the board of charities has the right of inspection, recommendation, and suggestion. In one state (Kentucky) the committee of the legislature that has charge of the affairs of these schools is entitled "committee on charitable institutions;" in another (Mississippi) "committee on benevolent institutions;" and in a third (South Carolina), "committee on penal and charitable institutions." Probably a similar erroneous nomenclature is used by the legislatures of several other states.

On the whole, taking all the circumstances into consideration, the special schools in nineteen states (Alabama, California, Colorado, District of Columbia, Florida, Iowa, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New Mexico, North Dakota, Rhode Island, Utah, Virginia, and West Virginia) seem to be classed by the state authorities as purely educational, and in twenty-two states (Arkansas, Connecticut, Georgia, Illinois, Indiana, Kansas, Kentucky, Michigan, Mississippi, Missouri, Nebraska, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas,

¹ Perhaps the most explicit legislative action is that of the Congress of the United States relating to the Columbia Institution for the Deaf and Dumb in the District of Columbia. After providing that the admission of pupils from the district shall be subject to the approval of the superintendent of public schools, the law adds: "And said institution shall not be regarded nor classified as an institution of charity."

Washington, and Wisconsin) as charitable, or partly charitable and partly educational.

When we consider that within our own memory these schools were universally classed as charitable institutions, it is certainly a gratifying sign of progress that in nineteen states their true character is now officially recognized. Probably the popular conception, however, even in those states lags somewhat behind the official recognition. While a little reflection will convince any reasonable man that the term "charitable" cannot justly be applied to the education of any children, the unthinking public everywhere are slow to realize it.

One reason why people are slow to comprehend the true character of our special schools is doubtless the unfortunate names of "asylum" and "institution"—especially "asylum"—which were given these schools in former years and which still cling to some of them. Another reason why some people regard our special schools as charitable is that food and shelter as well as instruction during the school term are provided by the state. They are willing to admit that free tuition and opportunity for self-development should not be called charitable, but they insist that free board should. The state, however, does not provide board for her children as an act of charity; she provides it as a necessary incident of their education. For ordinary children schooling is brought to their doors; in some cases, where they live at an inconvenient distance, the pupils are transported daily to school at public expense, because it costs less to bring the children to school than to bring the school to the children. On the same principle, it is found to be more economical, as well as productive of better results, to instruct the deaf and the blind in central schools, paying for their food and shelter during the term, than it would be to bring the school to their doors or bring them daily to the school.

The heads of schools generally insist that their work should be classed as educational and not charitable, but perhaps they themselves are sometimes responsible to some extent for the erroneous classification. It may happen that they have at their service a state board of charities composed of intelligent, sympathetic men who take an active interest in the welfare of the school, make valuable suggestions, support them in their endeavors to obtain needed appropriations, and defend their good name against unwarranted attacks and unjust criticism. On the other hand, the state superintendent of public instruction may be a man who cares nothing for the interests of the special classes, performs his duties in connection with their education in a perfunctory manner, or neglects them altogether. There is a state in which that officer is required by law to visit the state school for the deaf once a year, but, as a matter of fact, he has visited it only twice in ten years. It is not strange under such circumstances that the

authorities of the school should prefer the friendly visits, timely suggestions, and cordial support of the board of charities to the indifference of the department of education. As one head of a school writes: "In theory our connection with the Board of Charities is all wrong; in practice it could not be improved upon."

Again, the school authorities may lend countenance to the objectionable classification by resting their claims for the support of the school upon motives of charity rather than of justice. There is a strong temptation to do this, for an appeal to the feelings sometimes meets with a readier response than an appeal to the reason. The simple claim that the right of special classes to an education rests upon the same basis as that of ordinary children in public schools makes but a slight impression upon some legislators; while a stirring appeal to their humanity and compassion, presenting the education of the deaf or the blind as a work of benevolence and mercy, is likely to result in a "generous" appropriation.

It may sometimes be desirable to have the co-operation and support of the state board of charities as well as the department of education in the work of our special schools. There may be occasions when the simple declaration of the right of the children and the duty of the state does not suffice, and it seems as if the very existence of a school would be endangered unless the chord of sympathy in the heart of the legislator is touched; but we should never lose sight of the injurious effect produced upon the general public, upon the parents and friends of the children to be taught, and upon the children themselves, whenever their education is allowed to be classed as charitable. What is the effect upon the public? An erroneous impression of the character of the work and the nature of the schools is created and diffused. What is the effect upon the parents? It arouses a prejudice against the school, and sometimes deters them from sending their children. What is the effect upon the pupils—the "beneficiaries of the state," as they are sometimes called? If they realize the injustice and cruelty of the stigma thus placed upon them, it tends to humiliate and embitter them; if they do not realize it, or realizing, complaisantly accept it, it harms them still more by tending to degrade and demoralize them, discouraging self-activity, and leading to dependence and pauperism.

The latest state to place its schools for the deaf and the blind in the purely educational class is Virginia. This was done by the constitutional convention of 1902, after a full discussion of the merits of the case. The superintendent, Mr. William A. Bowles, reports that the effect of the change has been to increase the attendance, arouse the ambition of the pupils, elevate the tone of the school, and produce better work both in the schoolroom and in the workshop.

DISCUSSION

WILLIAM B. WAIT, principal of The New York Institution for the Blind, New York city.—“How can the term ‘charitable’ be properly applied to the education of any children?” This question presents three of the most important words in the English language: *children*, “for of such is the kingdom of heaven;” *education*, the salvation of children and the hope of mankind; *charity*, greater than hope and better than faith.

The basic idea presented is that of classification. Right classification is a condition necessary to good results. Wrong classification gives imperfect results. Right classification is necessarily scientific and helpful. Wrong classification is necessarily unscientific and harmful. Concretely, classification may be represented by the base of a right-angled triangle; method, by the altitude; and results by the hypotenuse. If classification be correctly extended and methods be poor, the side showing results will be disproportionate and inadequate; likewise, if we have wrong classification and our methods be absolutely correct, still the side showing results will also be disproportionate and inadequate. Furthermore, error in classification will inevitably produce error in method.

It should be observed that the proposition before us refers to no special class of children, but to all children: to those of the rich and of the poor; to the normal, abnormal, and subnormal; to the vagrant child and the idiotic child. Can the term “charitable” be properly applied to the education of any of these children?

If a certain stone be improperly classified as good building material, and be used in the construction of a house, it will make no difference to the stone, but may be of vital importance to the occupants of the house. If a farmer classifies his cow as a butter-maker, when its milk should go to the cheese factory, it is of no importance to the cow, but is of importance to the farmer, and to the butter or cheese factory. When, however, children of any class or condition are improperly classified, the inevitable resulting loss must first fall upon them; and, as both by nature and by law they are incapable of self-defense, it becomes the duty of parents, of teachers, and of the administrative agencies of the state, not merely to shield them from physical harm, but to protect them from self-negation, social disparagement, and degradation. It is unfortunate that any educational institution should ever have deemed it necessary to accept classification as charitable for the sake of money considerations. Educational institutions, if classed as charitable, may get more legacies than they otherwise would; but the cause of education cannot fail to be hindered and its standards lowered when money is received as charity. The education of all children is absolutely necessary to the well-being of the state, and they should be granted and should receive all things, whether directly essential or merely incidental to their education, as a matter of right and of sound public policy, and not as charity.

If a maximum of good results is dependent upon right classification and correct methods, what must be the effect on a child if he be classed as a recipient of charity, when he should be encouraged to put forth every effort to be self-respecting and self-reliant? If the word “charitable” were to be placed over every kindergarten, public school, and college in our land, the educational results would immediately be reduced to a minimum, and no claim or pretense of charity could prevent it.

Why, then, should children bereft of one sense be classed in this way? A gentleman once said to me: “Our charitable society is aiming to create the impression that we are using the term in the higher sense of ‘good-will to men.’” The affections of love and good will, however, are exercised between persons whether of the same or of widely different situations in life, independent of those conditions of poverty and pecuniary need which are the sole basis for acts of charity. Moreover, a policy or system which incapacitates individuals for growth into true manhood is neither an expression of good-will nor of charity, and should have no recognition either in our statute or our common law.

In 1875 Dr. Samuel G. Howe, while principal of the Perkins Institution for the Blind and a member of the Massachusetts state board of charities, with great foresight secured the enactment by the Massachusetts Legislature of a statute recognizing the Perkins Institution for the Blind as a distinctly educational institution, and placing it entirely under the jurisdiction of the educational authorities of the state. Surely no one will question the wisdom or the authority of Dr. Howe in a matter of this kind.

It can safely be said that the only assurance of the largest success of the work of special schools, and the only hope for children who have been deprived of some of their faculties, rest upon the avoidance of this needless and false classification.

As has been so clearly pointed out in the admirable paper of Professor Fay, there can be but one right answer, which is: the term "charitable" cannot justly be applied to the education of children.

WHAT TEACHERS NEED TO KNOW ABOUT SENSE DEFECTS AND IMPEDIMENTS

I

THE IMPORTANCE OF HEARING TESTS IN PUBLIC SCHOOLS

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At the Medical Congress held in Philadelphia in 1876 there was made what was, so far as I am aware, the first public proposition in this country for the organized medical inspection of public schools; this proposition having in view, not merely protection from the contagious diseases incident to childhood, but also the determination of sense defects with reference to their amelioration or to the provision of compensatory education.

This form of supervision, since generally adopted, has opened up a much larger sociological service than was at first expected of it, for, where medical inspection has been fairly established, the examiners find themselves confronted with questions of the proper seating of school children, of the provision of school lunches, of proper lighting, ventilation, and sanitary accommodations, and of the detection and setting aside for compensatory educational advantages of children whose defective sight or hearing puts them below the average of their fellows: and I am glad to have the opportunity of urging before your representative body a still more extended availment of the special knowledge of members of a profession of which it may be safely said that it stands eagerly ready for public service.

The distinction between lack of perceptive capacity and lack of sense-transmission is frequently represented only by a thin and shadowy line, and the partition classification of dependent and imperfect children is often one of the most exacting of the moral responsibilities of the doctor. Children who are regarded as backward, or even idiotic, are sometimes found, on careful examination, to be merely creatures shut within themselves by the closure of normal channels of communication,

and the bringing of such children into touch with the human companionship which makes life worth living is worth far more than all it costs in time or effort.

As an example of the value of co-operative work on the part of the medical and the teaching professions may be cited the conjoint action of the American Otological Society and the National Association of Teachers of Speech to the Deaf in undertaking a systematic examination of all pupils in schools for the deaf thruout the United States. The purpose of this investigation is to provide, not for what might be called a census-taking, but for the establishment of continuous special medical examination of the pupils, first for their immediate advantage, and, secondly, to make records upon a uniform basis suitable for comparison and tabulation.

The work, already begun as a preliminary investigation in the Horace Mann School, shows that out of one hundred and fifty children set apart by their infirmity and specially educated, fully 8 per cent. are capable of being restored to an amount of hearing which will enable them, in some instances with the help of artificial aids to hearing, to take their places in the society of people of normal average hearing; while still others, to the extent of an additional 5 per cent., can be so far improved as to be materially aided in their power to acquire well-modulated articulation. Between 10 and 15 per cent. of these cases, in addition to those already mentioned, are found to illustrate the truth of the saying that disuse is abuse, for in them it is possible, by means of speaking-tubes and other appliances for the direct communication of sound to the perceptive organs, to awaken what may be called, for want of a better term, the latent hearing, and make it, if not a means of communication or consecutive thought, at least useful for improvement of the articulation.

With the continued prosecution of this investigation there is opened a large field for the study of the causes of high grades of deafness in young children, and one leading to better knowledge of possibilities of prevention. A pronounced need is more sure of being helpfully met than one which requires investigation for its detection, and it is precisely in this respect that the subject of sense-perception should be more carefully studied in our public schools; the peripheral is far more common than the central defect, and is, moreover, amenable to remedial measures.

The sense of hearing, in the normal individual, is so much a part of the involuntary perception system of the animal economy, and so little the subject of voluntary effort, except in the upper limit of overtone accommodation and in the determination of the direction of a sound source, that a moderate degree of diminution is liable to pass unnoticed. The bounty of nature provides us always with more than our actual need, and it is possible to lose nearly one-half of the normal hearing power, especially if this loss is so gradual as to permit of the formation of com-

pensatory sense-habits, before the practical, basal, normal average is reached. This loss, however, implies something more than subtraction from the working power of a single sense. That impairment of the hearing power should be an inconvenience is readily understandable; that it can make so large a demand upon the nervous energy as to be a source of fatigue needs personal experience or observation for its full appreciation.

Before birth the cavity of the middle ear, containing the sound-transmitting mechanism, almost as fully developed as in adult life, is filled by a protective cushion of tissue, which usually disappears with the first cry; and the human infant is apparently sensitive to sonorous vibrations within a few hours after its birth. The education of the brain thru the organ of hearing, therefore, begins at a very early period, and the habitual classification of sounds in reference to their cause, their indicative importance to the individual, and the location of the sound source is easily assured.

The establishment of a perceptive habit implies provision for the expenditure of nervous energy along a given line, deviation from which necessitates a further expenditure of energy proportionate to the degree of deviation from what was formerly the line of least resistance. Changes in the tension of the sound-transmitting apparatus of the middle ear, and in its sound transmission incident to disease, may so alter or decrease the sounds perceived as to make them unfamiliar and needing explanation by a mental process; and the total, or even partial, abolition of the hearing power of one ear, the other remaining intact, may so far interfere with the ability to appreciate the direction of a sound source, which is one of the habits of normal binaural audition, as to be not only a cause of embarrassment but a serious demand upon the nervous energy as well. To the individual possessed of a reasonably perfect machine, the working limitations incident to possible imperfections in that machine are with difficulty appreciable by any merely mental process, and it is therefore only by the sufferers themselves, or by those whose business it is to study imperfections, effect repairs, and suggest compensations, that the full cost in expenditure of nervous energy required to overcome an obstacle, either to perception or to expression, can be adequately understood. With the abolition or limitation of one or another of the channels of communication thru the human machine, a portion of that nervous energy which is constantly seeking peripheral expression must be expended in the adjustment to the new conditions, and to the utilization, in a compensatory way, of other channels of communication. Give, therefore, a limitation of sight, of hearing, or of tactile sense, an expenditure of energy, in what way may be termed the conversion of force, is required, which evidences itself in the individual as that complex of symptoms to which we give the name of fatigue.

That this fact should be better illustrated in children than in adults is readily understandable, and special examination of large numbers of children within the school age shows a greater percentage of cases of impairment of hearing, accompanied by fatigue symptoms, than might be supposed upon the basis of ordinary observation.

Of a large number of cases of partial deafness, occurring in children under sixteen years of age, the causative diseases are amenable to treatment, with more or less improvement in hearing; while an examination into the etiology of partial deafness in children shows that the diseases of the middle ear are its most frequent cause, and, furthermore, that many cases of partial deafness are due either to sub-acute or chronic catarrhal inflammation of the middle ear, or to the purulent inflammation, accompanied by perforation of the drum head, which follows the simple acute inflammation, or occurs as one of the sequelæ of the exanthematous diseases of childhood.

* This general rule is subject to certain differences, in differing classes of society. Among the wealthier classes, for instance, which perhaps merit our attention less in this connection, because their children are educated more frequently in private than in public schools, the diseases of the ear accompanied by partial deafness and more or less amenable to treatment, in children under sixteen years of age, amount to but 7.8 per cent. of the whole number of cases of ear disease in children and adults taken together. Of this number, making the 7.8 per cent. of the whole, 76 per cent. are traceable to the exanthematous diseases of childhood, especially scarlet fever, and in 56 per cent. there is found an existing purulent inflammation of the middle ear, requiring treatment, and causing a sufficient degree of deafness to interfere with the patient's participation in the ordinary school exercises, on equal terms with other children.

Among the middle and poorer classes the proportion of diseases of the ear in children is largely increased, and it is these classes which we have particularly to consider, since they more generally avail themselves of the advantages offered by public instruction. Out of a thousand cases of disease of the ear, examined in patients of this category, 24.95 per cent. occurred in children under fourteen years of age. Of this number 49.8 per cent. were examples of purulent inflammation of the middle ear; 10.5 per cent., of the cases of purulent inflammation being due to scarlet fever. As many as 23.6 per cent. of the cases of disease of the ear in children were examples of either acute or chronic catarrhal inflammation of the middle ear.

This brief analysis is sufficient to show the much greater prevalence of such diseases of the ear as are liable to induce partial deafness in the children belonging to those classes in society which depend for their instruction on the advantages offered by our public schools.

A more minute analysis of the material offered affords interesting

information as to the general causes, and the average course and results, of diseases of the ear in children. It may be remarked, however, that in the analysis given only those cases are included in which the deafness was not so decided as to interfere with the acquirement of articulation, or even with the use of the ear as a medium for instruction. The number of cases of positive deaf-mutism, and of cases in which, while there was a certain degree of hearing, it was so slight as to render instruction in articulation necessary, was 4.9 per cent. of all the cases in children examined. The average age of all the children examined was about nine years.

In addressing any audience, it is always noticeable that some individuals give evidence of imperfect hearing, either by turning one ear toward the speaker, by supplementing the receptive capacity of the auricle by means of the hand, or by an effort at strained attention in watching the lips of the speaker. Such evidence in a roomful of children would permit the selection of these individuals for more careful tests as to their hearing power, and for their further examination by a medical expert selected for that purpose and regularly appointed to the discharge of that duty. It should be the further duty of this officer to keep a careful record, preferably an indexed card record, of his examinations, of the reference of cases to hospitals or infirmaries, and of the result of treatment; for, since the public school is a secondary home, and in large community centers with a foreign population especially so, there is afforded an opportunity, in addition to that of moral and intellectual training, for the betterment of the machine in which the child lives and learns, and in which, as a citizen, it must wage its battle of life.

With the considerable and increasing demands made upon the teaching staff of our public schools, it is very plain that the burden of special examination into physical defects—except selectively—should not be placed upon the teacher. For selection purposes the tests may be of the simplest, and applicable, with but little addition, to the routine of classroom work.

As an example may be taken the rules for hearing tests formulated for the department of physical training of the Summer School of Harvard University, and already published. These rules lay special stress upon the value of the voice as a hearing test, and, while not an instrument of precision, it is, in the case of a school-teacher, the sound to which the children are expected to listen and by which they are largely trained as well as taught.

Human speech is made up of a series of vocal sounds, all within a short compass, which are modified, obstructed, or terminated by changes of position in the articulating apparatus, to the effect of which we give the name of consonant checks. A superficial study of these checks shows that some of them are formed in the front, some of them in the middle, and some in the back of the mouth; that they are, with few and

slight exceptions, accompanied by a greater or less degree of resonance in the nasal and pharyngeal cavity, and that they vary considerably in the amount of muscular energy required for their production; and, furthermore, that the principal distinction to the ear between such consonant sounds as are similar in character is due to the greater or less preponderance of a small number of qualitative overtones. Further than this, we are aware that the consonant sounds which nearly resemble each other, in both force and musical value, are produced by the co-ordinating operation of very nearly the same sets of muscles, and therefore are accompanied by very nearly the same facial expressions.

Given, therefore, an average case of marked impairment of hearing, the result of a slowly progressive middle-ear disease, the patient will hear most readily the consonant sounds which require most force in their production; these include four explodents—*t*, *d*, *p*, and *b*—which very nearly resemble each other in force and tone value; they are, however, formed in the front of the mouth, *p* and *b* being distinctly labial, and *t* and *d* as distinctly formed by the contact of the tip of the tongue with the upper incisors. From the position and formation of these consonants, and the necessity for distinguishing between them, it usually ensues that their differentiation makes the first step in that instinctive study of lip-reading which to the appreciably deaf person becomes eventually more or less habitual, and which offers another channel for the expenditure of nervous energy in the effort to see, as well as to hear, the spoken word.

The other consonant sounds having the greatest logographic or force value, *k* and *g* for instance, are those formed in the back of the mouth, and are accompanied by a lesser degree of recognizable facial expression than the front consonants; while the consonants having the least force value—*f*, *l*, *n*, *m*, for instance—very nearly resemble in the mechanism of their construction the harder consonant sounds of nearly the same musical value.

It thus comes about that the deaf person will, when a soft consonant occurs in a sentence, substitute for it, mentally, the hard consonant sound most nearly resembling it, which would have been heard had it been used. In any given sentence, therefore, there are to the very deaf, tho seeing, person certain consonant sounds which are distinctly heard, others which are imperfectly heard, others which are detected by sight, and still others which are merely inferred.

Bearing in mind rather the force value than the tone value of the consonant sounds, it is easy to select a list of words, preferably monosyllables, which shall fairly cover the range of the consonant checks, and this list may be varied, both in selection of words and in their order, to avoid the possibility of memorizing on the part of the children.

For the purpose of teachers' tests the use of the voice may be supplemented by that of the watch and the tuning-fork, it being understood

that the duty of the teacher, in this respect, is limited to the selection of the cases to be subsequently submitted to expert examination. The test methods here suggested demand but little time and are by no means a burdensome addition to the ordinary class-room work.

1. Stand before the children in the schoolroom in the position which you usually take in addressing them, and, speaking in the tone of voice which you commonly use, asking them to make some unusual gesture—for instance, raising the left hand with the fingers extended, or with the thumb pressed into the palm of the hand; note the children who do not respond, or who respond so slowly as to suggest imitation merely and bring them forward, repeating the above test, with variations in the wording, until a certain number of children with evidently imperfect hearing have been selected for individual examination.

2. In the individual test for the voice, test first binaurally: stand at a definite distance, ten feet for instance, behind the child, and pronounce selected monosyllabic words in a moderate tone of voice, the words to be repeated by the child as heard, and the result noted not only in the consonant sounds lost, but also in those substituted. Monaurally the word test should be repeated with the ear opposite the one tested tightly stopped by finger pressure.

The watch, used in testing monaurally, should first be held with its face close to the ear, the other ear being stopped, and gradually withdrawn until no longer heard, then, gradually approximated to the ear until again heard, when the distance of the watch from the ear should be measured and noted.

The tuning-fork set in vibration by pressing the tines together at the tips, with the fingers, and then suddenly releasing them, or by striking the fork upon the palm of the hand, should be held opposite, and close to, each ear in succession, the ear in which the sound of the fork is heard less, as determined by duration of hearing, being noted. In making this test the tuning-fork should not be held continuously opposite the ear because of the liability to memorization of the tone.¹

A series of tests of this sort, adopted as a part of the ordinary school routine, would do much toward simplifying one of the problems with which the teacher has to deal in the determination of individual educational fitness; and I desire to bespeak your furtherance of the adoption of this, or of some similar method, as a part of your championship of the furtherance of that which has already proved itself useful—the participation of the medical profession in the advisory inspection of public schools.

¹A convenient tuning-fork for this purpose is the clinical test-fork (physical C 512 v. s.), with slender tines and weighted tips, made by Queen, in Philadelphia, and Meyrowitz, in New York, and procurable through surgical and philosophical instrument makers.

II

FACTS AND FALLACIES IN THE EXAMINATION OF SCHOOL CHILDREN'S EYES

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The importance of the care of the eyes of all school children has long been recognized, and attempts have been made to exercise a certain amount of supervision in many schools. Most of these attempts have been based on the examination of the children's vision by the use of test cards in the hands of the teachers themselves. The result has been that when a child's vision proved to be below the normal, he was referred to the physician, or his parents notified that he should have a proper examination. But when the child's vision proved to be normal, it has too often been assumed by the teacher that the eyes were "perfect," and that the teacher's duty with regard to the child's eyes ended there. To show that this is not the case is the object of this paper.

In order to make myself plain, it is necessary to occupy a few moments in a very simple description of the anatomy and physiology of refraction. The normal eye is so constructed that rays of light coming from the distance, entering the eye and passing thru the lens, are mechanically brought to a focus upon the retina; but when a near object is looked at from a distance of one, two, three feet, or more, the rays of light would necessarily be divergent and, passing thru the same lens, would necessarily come to a focus behind the retina. Therefore we have the mechanism of accommodation. This, reduced to its simplest terms, is the muscular arrangement within the eye whereby we are enabled, when looking at near objects, to increase the convexity of the lens to such an amount as is necessary to bring the rays of light to a focus upon the retina. This mechanism, you will note, is muscular and is governed in its action by nerves. Therefore, every act of accommodation implies an expenditure of nervous and muscular force. So much for the normal eye.

Many eyes are, however, abnormal. Either the distance from the anterior surface of the eye to the retina is longer than it should be, so that the rays of light come to a focus before they reach the retina, cross, and produce a blurred image; or it is too short, so that rays of light passing thru the lens reach the retina before they come to a focus, and thus also produce a blurred image. In the first instance, the so-called myopic or long eye, it is possible for the individual, when looking at near objects, to put the book at such a distance from the eye that the rays of light passing thru the lens will come to a focus mechanically upon the retina without the intervention of any muscular effort to render the lens more convex. It is evident that such a person reading without muscular action is able to continue without fatigue for a considerable length of time, and near-sighted people are wont to boast upon the "strength" of

their eyes on account of this fact. As our accommodative apparatus can make the lens more convex, but it is absolutely unable to make it less convex except by relaxation to its original convexity, it is evident that the near-sighted person cannot by any voluntary action see distant objects. By test-card examination, therefore, the near-sighted individual is always detected; but when the eye is hypermetropic, or too short, the child soon discovers that by making use of the accommodative apparatus he is able to make his lens more convex, and by this means bring the picture to a focus upon the retina, altho the length of the eye from the anterior surface to the retina is much too short.

In many people the shortness of the eye requires for its correction for distant vision as much expenditure of nervous and muscular force as the normal eye requires to be exerted for the act of reading. If anyone should place an open book fifteen inches from your eyes when you awoke in the morning, and keep it there the livelong day, requiring you to keep the letters sharply focused, and should repeat this experiment day after day and week after week, you can imagine what your mental and physical condition would be at the end of a comparatively short interval of time; yet the child with hypermetropic eyes who is doing this thing every day of its life, and is by this act enabled to read the highest line test type at a proper distance, is pronounced by the test-card examination normal. Of course, when such a child undertakes to read, he must not only exert the entire accommodative force required of him to see at a distance, but he must add thereto as much more nervous and muscular force as is exercised by the individual with normal eyes in order to read.

Every person has a certain amount of nervous reserve, much greater in some individuals than in others, but this expenditure of nervous force to control and make perfect vision during every working moment of a person's life soon exhausts the reservoir. The nervous mechanism loses its balance wheel, and various phenomena present themselves. In school children this nervous exhaustion generally expresses itself: (1) in headache coming on the latter part of the forenoon, or after any long-continued near work at any time of day; (2) in lack of muscular control, expressed in popular speech by the word "nervousness;" this lack of control may go to excess and produce muscular twitchings of the face, head, hands, arms, and legs; (3) in mental inability to grasp an idea which is presented thru the eyes; this in turn, from the mental fatigue, produces disinclination either to use the eyes or to give attention.

In the above statement I have avoided the use of the term "astigmatism," as all astigmatic conditions are either hypermetropic or myopic, and are included in the above general statements. But if a child has more error of refraction in one eye than in the other, or if the curvature of the eye or lens is such that either or both eyes have a higher refractive error in some meridians than in others, the burden of correction is greatly increased, even when the errors are small.

Again, we have two eyes, and for comfortable vision each eye must look at the same object at the same instant with mathematical accuracy, in order not to have double vision. This brings into action the external muscles of each eye, and these muscles may vary greatly in strength, so that single binocular vision is obtainable only by the use of constant semi-voluntary exertion, instead of being automatic, as is the case in normal eyes. This, again, is another source of nervous fatigue and, when combined with refractive errors, adds greatly to the burden. Such children in doing near work often bring to the aid of their ocular muscles the muscles of the lid and brow—in other words, they scowl, producing vertical furrows in the forehead above the nose.

The ultimate outcome of all this nervous strain is an apparent stupidity in undertaking the tasks imposed upon them, a disinclination to apply themselves, and, finally, a nervous breakdown which so impairs the general nutrition that the child has to be removed from school; when he promptly recovers—this recovery being variously attributed to relief from over-study or from the bad air of the schoolroom, or to the good offices of the physician, according to the mental predisposition of the parents.

All of this uncomfortable history can be avoided if due attention is paid to the headache, to the nervousness, to the twitching, to the mental irritability of the child; for from this picture a much more accurate estimate of the condition of the child's eyes can be formed than is in any way possible when examining the accuracy of his vision on the test card. All of this requires no special skill. It only requires that an intelligent interest in the welfare of the pupil shall be taken by the instructor.

But children with perfectly normal vision form vicious ocular habits. The young child is well aware that an object near by is more easily seen, and therefore more easily understood, than one that is a long distance away; hence when he first begins to use books and is puzzled as to the meaning of words or characters, he incorrectly applies the same reasoning, and instinctively feels that he can understand that which he is looking upon better if he approaches his eyes to the object. Young children have a great amount of accommodative power, much more than adults; therefore the burden is not so difficult to bear, and, if the faulty position is not corrected, may be maintained habitually. The ultimate result of this is disastrous. The plastic, developing eye is unable to stand the strain, and eventually the coats of the eye are stretched by this undue effort, and such an eye is converted from a normal eye rendered artificially myopic into an eye which is permanently myopic. From the point of view of an oculist, the teacher who permits children to place their eyes too near their work is guilty of a negligence which may cause permanent impairment of vision for distance thruout the rest of the pupil's life. Surely education should be a means of fitting pupils for their after-career, not a means of saddling them with a serious handicap.

Let us have the examinations by test cards continued. They are a useful survey of the ground, and the child who does not come up to the normal test in each eye should be referred to the medical inspector in charge of the school, or his parents promptly notified that his eyes are defective and should be examined. But I would most strenuously urge upon you that, having done this, your duties have but just begun. All dull and inattentive children should be carefully watched and questioned, and if a story can be elicited reciting headache, undue fatigue from the day's work, blurring of the letters when studying, and, especially, if the teacher has noticed muscular twitchings or scowling, or the child puts the head too near the book, the child should then be promptly referred to the medical inspector, or the parents notified as before. This can be done with as much safety with regard to an opinion of ocular defectiveness as if the child could read but half-way down the test card.

But teachers are not the only sinners against children's eyes. Architects and superintendents of public buildings are often much to blame. Every schoolroom should be so arranged that light shall fall on the pupil's desk from the left. The object of this is to throw the shadows away from the point of the pen, so that the child may clearly see that which he has written. And let it be incidentally remarked that light coming from the rear of the room does the children very little good and does the teacher's eyes much harm; and inasmuch as most of you have such windows in your rooms, accept herewith advice, and, if the room is otherwise well lighted, keep the shades of the windows in the back of the room always down. You will wrong no pupil, and you will benefit yourself. The walls of the room, if there is plenty of light, should be an exceedingly pale green or blue—never red, or brown, or chocolate color. If the building is in the city and the light is poor, buff or yellow is permissible. The desk should be so arranged that the book can be inclined at an angle which will enable the child to see without bending his head and cramping the vessels and muscles and the neck; it should also be so arranged that the child cannot lounge forward upon it and get his head too close to his work.

Attention to the few recommendations made above will not only lighten your tasks as teachers, but will save misery both in childhood and manhood to many of your pupils.

III

SOME EYE DEFECTS OF FEEBLE-MINDED AND BACKWARD CHILDREN

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The fact that congenitally feeble- and weak-minded children are prone to marked congenital malformations of the eyes is recognized by many observers. Marie and Bonnet, of Paris, together examined a large num-

ber of idiots and imbeciles, finding many with marked eye defects. The defects most frequently met were hypermetropia, astigmatism, and strabismus or squint. Many were found with amblyopia, which means partial blindness of one eye without apparent anatomical cause, with strabismus and nystagmus. Deficient power of accommodation was frequent. Anomalies of formation of the iris were found, including complete absence. The pupils were often oval, and they considered this and congenital cataract to be among the stigmata of degeneracy. The optic nerves were often found oval in shape, or showing atrophy with defects in the choroid.

Evidences of faulty development of the posterior occipital lobes of the brain, where the higher centers for sight-perception are located, were usually associated with an asymmetry of the skull, especially a flattening of the back. These posterior cerebral lobes are often much flattened, especially in the congenitally blind idiots, as shown by Monakow, Reinhard, and Benedikt. Kolliker has shown a correspondence between atrophy of the cerebral lobes and arrest of development of the optic vesicles. Measurements of the skulls of idiots with marked eye defects have shown the brachycephalic type to predominate. Sixty per cent. of the cases showing small or flattened skulls showed eye defects.

Marie and Bonnet found cases where there was defective color-perception. Red was shown to be the preferred color of idiots, and this is explained by Helmholtz by the fact that the red rays have the longest wave and the slowest vibration. The primitive eye has perception of color and light, but acquires vision from early perceptions. The education of the eye of the imbecile is compared to that of children. The acquisition of ideas of form and distance implies the use of the powers of accommodation and convergence, and mental operations.

Idiots and imbeciles who are content with what they see and with what the eye furnishes them do not realize relative size and distance. These are rather cerebral defects than ocular. Idiots form only incomplete and defective judgments of their visual perceptions. With them the image does not suggest an idea. They lack voluntary attention, and the more they can be brought to pay attention, the more will they improve. *Sight is by far the most important sense in its relation to the development of the intellect*, and of all idiots those with congenital blindness are the least susceptible to moral and intellectual improvement.

Many of these defects do not interest us at this time, because not remediable. The most frequent malformations, as shown above, are those of shape, which, causing more or less remediable errors of refraction, interest us particularly. Of these by far the most common are the short, or hypermetropic, eye, and the eye where one meridian of the corneal curvature has a much longer radius than the one at right angles to it, or the astigmatic eye.

The word "astigmatism" is one of mystery to most laymen, so I

will tell you how you can easily illustrate to anyone what the term means. If you take a hen's egg and hold it so as to show the large round end, you will find that lines drawn thru the center of this end will create curves having practically the same radius of curvature in all meridians. This would represent the normally curved cornea. If, now, the egg be placed upright, it is easy to demonstrate that a line drawn horizontally around the egg creates a curve with a radius much shorter than the radius of the curved line perpendicular to it. This would represent the astigmatic cornea much exaggerated. The long or myopic eye is usually an acquired defect, tho I have seen several Mongolian idiots with high-grade congenital myopia. Let us now see how these errors, when considerable in amount, affect the use of the eye.

The short or far-sighted eye is the most frequently observed in these cases. In this eye at rest an object at a distance has its image formed behind the retina, and for the eye to see clearly, it has to bring into action its power of accommodation often much in excess of the amount necessary for a normal eye to accommodate for an object at fifteen inches. Now, when such an eye tries to see clearly at the ordinary reading distance, there is the usual accommodative effort necessary, added to the excessive amount already in use for distance. This combined excessive effort is much too great, and the eye cannot keep it up; so the accommodation soon relaxes, the type becomes blurred, and the book or paper is dropped. A child with such eyes finds it increasingly difficult to keep book type clear, no matter how large, and will early cease making any prolonged effort. If such a child is naturally dull, the inability to study makes the dullness very much more marked. This error, besides being the most frequent, is the least easily detected, for the child, unless the hypermetropia is of an unusually high grade, can often read as small test letters at twenty feet as the child with normal eyes, and for a time can often read the finest type at ten inches.

In the astigmatic eye a partly blurred image is always formed; for if rays of light coming from an object, and after passing thru a certain meridian of the cornea, are focused on the retina, the rays passing thru the meridian at right angles to the first will be focused in front of the retina if this meridian have a longer radius of curvature, and behind the retina if it have a shorter. In either case a blurred image results, so that a clear distant vision, as well as near, is rendered difficult or impossible. The child with moderately astigmatic eyes may also, by an effort of accommo-

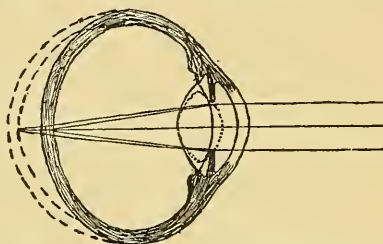


Diagram showing the hypermetropic eye. Broken line shows back of normal eye where parallel rays of light are focused with lens of eye at rest. Dotted line shows lens of eye increased in power by accommodative effort to focus the parallel rays on the retina of the short eye.

dation, by partly closing the eyelids, or by educating the brain to interpret partly blurred images, be able to pass the school test, as a child with normal distant and near vision; but the great effort to maintain this soon produces symptoms of strain and disinclination to study.

I am prompted by the fact that children with even considerable degrees of hypermetropia and astigmatism often pass for normal sighted, to suggest that *every apparently dull and backward child in our public schools should have a thoro examination of the eyes, even tho the ordinary school tests show nothing abnormal as to acuity of vision or appearance of the eyes.*

You notice that I use the word "apparently" in speaking of dull and backward children, and I do so advisedly, for I find that such children with defective eyes must be divided into two classes; namely: those who are really mentally deficient, and whose defective eyes simply make their condition more pronounced; and those whose minds are normal, but who appear dull because they cannot keep up with their schoolmates on account of their inability to overcome their eye defects without a great, or often impossible, expenditure of nerve force.

The unusually high grades of hypermetropia are more easily detected, as such eyes cannot accommodate enough even to get clear distant vision, and the schoolbook is held within a few inches of the eyes to get as large an image as possible, even tho it be blurred. These are the cases that are sent to the oculist as being very near-sighted—an excusable error. The very high grades of astigmatism would be classed with high grades of hypermetropia, with which they are often combined.

The backward children with moderate or high grades of myopia need the greatest care. They cannot see the blackboards clearly, even tho seated near them, and what they do see is only with a strain. They cannot see to play the games of their schoolmates; but they can usually see to read by holding the book close enough; and herein lies their danger. They spend their time looking at things or books close to their eyes, and without enough outdoor life become pale and sickly. The eyes at their best are more or less diseased, consequently become more and more near-sighted, until all vision is greatly reduced. In all these children, with eyes defective by reason of refractive anomalies, the nearer we can bring the refraction to the normal by the aid of glasses, the more we shall help their eyes and brains.

I have not tabulated enough cases myself to deduce statistics of value. It has been my privilege, however, thru the kindness of Dr. W. E. Fernald to examine the eyes of a considerable number of the children from the Massachusetts School for Feeble-Minded, and I have also seen many backward public-school children who have been sent to me by teachers, doctors, and parents, so that I have become convinced that marked errors of refraction are unusually frequent in children of feeble-minded schools, and extreme errors common; while I am equally sure

that the same holds true, but in a lesser degree, for the backward children of our public schools. The benefit that the children in institutions for the feeble-minded may derive from a correction, by glasses, of their refractive defects is not great, depending largely, as previously shown, on the degree of mental defect. The very low grades of idiots will not take care of glasses, or even wear them, or, if they did, their minds are too defective to appreciate any difference or really be benefited. In the higher grades of imbeciles, those with marked errors will be benefited by glasses, if they can be made to wear them; and they should always be tried. Such children will certainly be able to do the things they can be taught to do better and with less fatigue, and it is conceivable that in doing so their minds will improve more readily than before, particularly if they thus pay better attention. It is, however, in the backward children of our public schools, whether they are separated and under the care of special teachers or not, that the greatest benefit is to be derived from improved eye conditions; and to bring this to your attention is the principal object of my paper. I have personally seen many apparently dull and backward children transformed into bright, energetic pupils by the removal of the depressing burden of an uncorrected hypermetropia; and I have seen a number of mentally defective and feeble-minded children take unusual strides in their mental development, after a proper correction of their eye defects.

Here in Boston there are five special classes in the public schools for the instruction of backward children, and I hope such classes will ultimately be established in all large communities. These classes are not supposed to take the true imbeciles, who should be kept in institutions devoted to the instruction and care of such cases. Before placing a public-school child in one of the special classes, it should be the duty of the person who authorizes the change to ascertain if the case is one of pure mental deficiency, or whether the mental defect is caused or aggravated by remediable or partly remediable defects of the higher sense-organs, particularly the eyes. In all large cities where there is a regular medical inspection of the schools, one of the inspectors should be competent to detect any eye defects, and to him such cases can be referred, and the necessity of correcting any defects found can then be urged on the child's parents or guardians. Most parents are deeply interested in the welfare and progress of their children, and, with the many free eye clinics and charitable organizations, no child, even of the very poor, need be kept back on account of an easily corrected defect.

From my studies of this subject and my own personal experience, I feel that I am justified in the following conclusions:

1. That anomalies of the eyes, particularly refractive errors, are unusually frequent among feeble-minded and backward children.
2. That proper correction of all correctable errors will allow a greater and more rapid improvement of the mental powers in many cases.

3. That many normal children are kept back in their studies by some eye defects, the correction of which will allow the apparently backward children to keep up with their mates.

4. That all children with real or apparent mental deficiency, in our public schools, should have a thoro examination of their eyes, and this should be urged upon parents and guardians by physicians and teachers.

In closing, allow me to urge all teachers, special or otherwise, who have such children placed under their care, to make sure, if they can, that the possibility that eye defects are aggravating or causing the difficulty is eliminated.

IV

SOME DISEASES OF THE NOSE AND THROAT OF INTEREST TO TEACHERS

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In the consideration of this subject I shall pay very little attention to the diseases of nose and throat which interfere with the child's mental or physical development, but more particularly to two diseases which interfere so considerably with the formation of the throat as markedly to retard the development of the child's voice. These two diseases are cleft palate and adenoid vegetations in the nasal pharynx.

The first of these two is one of the oldest recognized diseases in medicine; yet I have been frequently surprised, both in private and hospital practice, to see the number of people who have been allowed to reach adult life without any attempt having been made properly to close the cleft in the roof of the mouth either by a plate or by operation. In those cases where a cleft of the palate is associated with a harelip, an early operation is much more likely to have been performed. Certainly the harelip will have been closed in infancy, because it interferes with the nursing of the infant, and because the deformity is more evident to the parent. A cleft of the palate is more easily closed by an operation in the young child than in the adult; the result of the operation is not very satisfactory in many cases, and is less so as the patient grows older.

A cleft of the palate can be readily recognized by inspection. There is a V-shaped opening in either the hard or the soft palate, or both; the point of the V in extreme cases being just back of the front incisor teeth. Small clefts may include the soft palate only, or we may have merely a bifurcated uvula. Naturally the larger the cleft, the more marked the defect in the development of the voice. Where the cleft includes any considerable portion of the soft palate, there is a marked interference of all the consonant sounds; only the vowels are rendered perfectly, and those with a peculiar intonation; so that where the patient is able to form the word, the peculiar pitch of the voice renders recogni-

tion of the sound difficult to the uninitiated ear. The peculiar nasal pitch of the voice is easily recognized by anyone used to the disease.

Of course, a cleft is not going to increase in size, as it is entirely a congenital lesion. In my opinion, there is very little use in paying attention to special instruction of the voice, until some method of closing the cleft has been tried. As I have said before, an operation is always the best method, when feasible, and should be tried in all young cases before trying any other method. In all cases where an operation is unsuccessful, and in all adult cases, a better result will be obtained by the use of a plate filling in the cleft. Such plates are rather difficult to make, but are apparently easily worn by the patient. The resulting effect upon the voice is not nearly as good as where the palate is closed from an operation; phonation is always more or less imperfect, particularly in the use of the palatal consonants. In all operative cases where the cleft is closed as the result of an operation, the effect upon the voice is phonetically very good; at times the child may need some special instruction in order to obtain a perfect palatal sound.

While a cleft of the palate is, as I have said, one of the oldest diseases known in medicine, and one of the earliest recognized, adenoid growth in the nasal pharynx, which is of much more frequent occurrence the world over, was not recognized until 1868. We know from old paintings and statues, as well as from old editions of medical text-books, that the disease must have existed since the civilized era, and as it is distinctly easy of recognition when one's attention is called to it, it is the more astonishing that its recognition was so long delayed. The growth is exceedingly common in children; it is hereditary in its nature, and probably in this latitude occurs in at least 5 or 6 per cent. of all school children. It is often associated with an enlargement of the lower or faucial tonsils, and to this enlargement was attributed, in former days, all the symptoms which we now know come from the post-nasal obstruction.

The facial expression of the child is almost diagnostic, and in large growths the speech is perfectly characteristic; the upper lip is short, and shows from two to four front teeth in the upper jaw; the upper jaw is narrow; the nose is narrow, and the face full under the eyes. On looking in the mouth, the hard palate is markedly arched, especially in older children where the growth has not been removed, and where the palate has been allowed to become deformed with the growth of the child; the line of the teeth is often irregular and there is occasionally a more or less perfect double row of teeth. The child is a persistent mouth-breather, and is apt to snore, or breathe hard, in sleeping.

Of course, enlargement of the lower tonsils is easily seen by anyone, on inspection; the child is apt to have repeated colds in the head; always has a thick nasal voice, and the consonants *n*, *m*, and *g* are particularly difficult to pronounce; in many cases there is either deafness or a history

of repeated attacks of earache. There is apt to be a marked retardation of the child's development, both mental and physical, so that the child is under size and at least two classes in school behind its associates of the same age. To a certain extent its deficiency in mental acuteness is attributable to the deafness, but in other cases it is certainly associated with the adenoid growth directly. In my opinion, enlargement of the tonsils, even to a very considerable size, has apparently little effect upon the development of the voice. It is not uncommon for any specialist to see well-trained singers with enlarged tonsils, who have no difficulty in acquiring and maintaining a perfectly clear and well-opened tone of the voice. Patients, however, with very large tonsils are apt to have fatigue of the voice upon unusual exertion, as, for instance, in speaking for a long time, or speaking to a large audience.

A peculiar thick, muffled tone of the voice, which adenoid patients nearly all have, is quite characteristic. The interference in most cases is principally with palatal sounds, particularly with *m*, *n*, *g*, and *p*. This difficulty in speech is partially from the interference with the vibration of the soft palate from the pressure of the adenoid growth, and partly from the obstructed nasal chamber, the narrowing of the nose, and the arching of the roof of the mouth. Such defect in the speech as results from the former of these causes, namely, from the interference with the vibration of the soft palate, will, of course, be removed by removal of the growth at any age, and removal of a growth of any size will also give an increased resonance of the voice at any age; but it should always be remembered that such obstruction of the speech, as comes from the narrowing of the nasal chambers will be remedied only by removal of the growth in early childhood, before the bony framework of the nose, nasal pharynx, and mouth has assumed its permanent shape; that is, before the child is ten or twelve years old. In fact, the ideal age to get the best results from adenoid operation is certainly between the ages of three and five or six, as the child's throat, nose, mouth, and teeth are then assured a perfect development. Certainly, in my own practice the results of operation in cases over eighteen or twenty years old have been quite unsatisfactory, as far as the effect upon the voice is concerned. This is not only from the interference with the nasal pharyngeal resonance, but also from the fact that the persistent mouth-breathing, particularly at night, keeps up the constant irritation of the pharynx and vocal cord, and destroys the fineness of the tone. In such patients, the production of a clear and distinct tone is almost impossible. We see, therefore, that both the affections which I have so briefly considered should be recognized at an early age in order to obtain a good result by treatment. In both, the treatment is surgical, and, unless the case has been allowed to go too long, it is productive of almost perfect result. Certainly in 99 per cent. of adenoid growths the result of the operation will convert the most skeptical parent.

Curiously enough, the parent is the one in the majority of instances who is less observant about her own child, and it is therefore to the teacher of the child that we must look for an early recognition of its deficiencies, and for advice as to their repair. The responsibility of the teacher in this direction is most clear and cannot be evaded, although it may be relegated to such schools as have an enlightened and thoro medical inspection.

V

WHAT TEACHERS NEED TO KNOW ABOUT SPEECH IMPEDIMENTS

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One great drawback in presenting this subject is the lack of any definite authority in regard to cause and mode of treatment. It is noticeable that, whether brain lesion, nervous affections, mental weakness, spasm of the glottis, diseased tonsils, or any other disease or weakness is the supposed cause, breathing exercises, articulative drill, shouting, separate or in combination, form the usual means for its correction. The logical conclusion is that, if a person cannot speak a word, he must learn to form the sounds composing it, and practice them until he can. If he expels the breath and exhausts the lungs, or inhales with a gasp, as many do in commencing to speak, it seems evident that he must learn how to breathe.

Upon this basis, with no knowledge of facts, my investigations commenced. Having taken lessons for years from the best teachers of the speaking and singing voice, I felt fully equipped for the work. My first case was drilled upon each consonant, and was made to speak the word with confidence. Words were woven into sentences, and soon the boy could speak and recite very well. Other cases were treated in the same way; but, while they could talk, read, and recite when with me, the power was gone as soon as they were exposed to outside influences. A case came who was made worse by the training. This was varied in every way, but it became apparent that if the work were continued the boy would become speechless. With this case the plain path disappeared. The question arose whether breathing exercises and articulative drill would correct or remove brain lesion, nervous affections, or any other assumed cause of this difficulty. It was noticed that the breathing of all these pupils when quiet, with mouth closed, was perfectly natural. Did, then, the breathing affect the speech, or the speech the breathing? It was a mystery why one could repeat consonants and words for hours, and, after a short interim, be wholly unable to speak them. It became evident that the repetitions gave rise, after the intervals of rest, to an increasing fear of those sounds. The theory had been that muscular weakness of lips,

tongue, and throat had much to do with the inability to speak, but, in truth, an increase of strength in those muscles increased the difficulty.

This questioning led to reading all the literature to be found upon the subject, and to visiting institutions in this and other countries. To my surprise, the method of training was practically the same everywhere, with similar results. In London and in Berlin such cases are trained with deaf-mutes.

The story of the influence that led to the truth has been repeated many times, but must not be omitted here. The Centennial Exposition took me to Philadelphia, and a call was made upon Madame Seiler. We discussed the subject freely. Her plan of work differed in no respect from that of others, in the training of persons having speech impediments, but the voice in singing and speaking was her specialty. She invited me to be present while she gave a lesson in vocal music. The point emphasized was: "Make a tunnel of your body. There must be no stop along the way." This was new to me. When Dr. Grant, a clergyman friend, lost his voice thru severe throat trouble, clearly resulting from a wrong use of the voice, he was induced to take treatment of Madame Seiler. "There's a divinity that shapes our ends." As he explained to me what he had learned, and showed by every word spoken the great gain that had been made, it occurred to me to compare his voice, as it had been, with those of some having speech impediment. A trial of her process was made with entire success. He had no impediment, and it took me some time to see that his case differed in having the contraction above the vocal cords; in theirs the glottis was closed and the passage of breath stopped. If the contraction centered at any place where the breath could be stopped, an impediment would result; if a little above or below that point, what is called clergyman's or teacher's sore throat would follow. Often the two were combined in one case.

Dr. Grant's case gave a deeper insight into the whole subject. What he learned was a free use of the vowel; that is, to drop the action from the throat to the breathing muscles, instead of lifting it to the throat and face. From that time work upon the vowel sounds grew in importance, and drill upon consonants was omitted, until they were never so much as mentioned.

The investigations outlined have led to the following conclusions. In the first cry of life there are three conditions: the inspiration which fills the lungs, the contraction of the breathing muscles which holds the breath under control, and the relaxation of that muscular grasp which sends the breath against the vocal cords, producing the cry called "the cry of life;" this varies from the full, strong, controlled tone to the merest aspirate, the tone indicating by the varying degrees of strength the amount of power used or unused by the breathing muscles. If all the force which nature provides for the production of tone is concentrated in

the breathing muscles, every repetition of the cry sends life and strength thruout the system. If the contraction in the breathing muscles is weak, the energy lacking there becomes focused in some other place, which will suffer from the misplaced contraction. The entire system will then be in a state of inco-ordination. When the misplaced contraction is focused in the muscles of the throat, lips, tongue, and jaw, the energy which is intended to produce speech becomes an impediment, and the greater the power in the wrong place, the greater the impediment.

The only primary cause of speech impediment is weakness in the breathing muscles, and a consequent misplaced strength in the muscles that can impede the breath in its outward passage. Therefore, the first thing to be done is to train strength into the breathing muscles, by correct drill. Often the muscles are so weak that at first a few minutes' work will make the pupil faint, and as the drill goes on the muscles will be sore and lame. Great care must be used not to overdo the exercise. The second point to be gained is entire relaxation of the muscles about the throat and face.

Some children are deficient in imitative power, and the misplaced contraction is complicated with undeveloped articulation. Often the *s* or *r* is omitted, and *th* or *w* substituted; and the omission and substitution may extend to so many sounds that they make for themselves a new language. These need to learn the formation of articulative sounds.

Secondary causes are many. Prominent among them are imitation, fright, shock of any kind, or a disease that affects the throat. Twin brothers, eight years old, were afraid of their teacher, who, tho meaning well, had a sharp, quick way of speaking to pupils. One day when she spoke to one of the boys, he could not answer. She thought him obstinate; his parents thought the same, because he could not speak when he reached home. When he tried to speak, the impediment was evident. The brother in a few days went thru the same experience, and neither of them ever recovered. Whooping cough, the cough resulting from an ordinary cold, or any influence causing an unusual action of the throat muscles may result in speech impediment, when the child is so pivoted that but a slight influence is required to focus the contraction. On the other hand, speech impediment is often complicated with bronchitis, swollen tonsils, and serious throat affections, as a result of throat contraction. The most prolific of all causes is imitation. We guard our children carefully against every other form of contagion, but to this the doors are open wide, notwithstanding the fact that a child by one exposure may be wrecked for life. In some children the desire to imitate is instinctive and involuntary; in others it is a deliberate desire to torture those suffering from any disability. As children will imitate, the barriers should be strong against this danger.

Cases range from mild to severe. Many outgrow an impediment,

because the breathing muscles need only a little more strength, which comes by speaking out with confidence, as most children do. Sometimes a little tact on the part of a teacher will carry the child thru. By saying the difficult word for him she may enable him to go on, and so gain confidence and strength. A change of subject will often give relief, always remembering that speaking the difficult word is of no consequence. Closely allied to such cases is another class who have been brought out of the difficulty by winking, snapping the fingers, tapping with the foot upon the floor, or any slight movement which distracts the attention from the speech and gives to it a rhythmic motion. Relief may sometimes follow lessons in singing.

The severity of the case depends upon the intensity and extent of the contraction. If it is mildly focused at one or two points, a great amount of repetition may give the appearance of great severity. These are the cases that cure themselves. On the other hand, the contraction may be so great at the articulative points that speech is stopped altogether. Such persons speak only when they know they can utter the word, and intimate friends may be unaware of their disability. Because so many outgrow and are able to gain control over the difficulty, the general sentiment is an entire lack of sympathy for all who fail to do this. The common advice to parents is: "Let him be; he will outgrow it." Ask someone to give financial aid to one suffering from this disease, and the ordinary reply will be: "I know several who cured themselves; he could if he possessed the same amount of character."

The fearful strain of going thru years, hearing others talk, and knowing all that is said, but void of the power of expression, can be understood only by experience. The time will come—we hope it is near—when to allow a child to grow up in that way will be considered nothing short of a crime; but without knowledge there can be no responsibility. What can we do to obliterate this fearful evil? First, the great law of prevention, which applies everywhere else, is equally applicable here. The fact that life begins with a cry should suggest to us the importance of a voice, and we should know at the beginning of a life what the character of the voice is. At first the cry is a reflex, and so continues until the desire comes to communicate or respond, when it is controlled by the will. The first sound made with a purpose, which is the beginning of speech, is short *u*, or *ugh*, and whoever has the care of a child should know how that sound is made. The difference between *ugh* made with the breathing muscles and *ugh* made with the throat muscles is the difference between right and wrong. Probably nine-tenths of the world are wrong to a variable extent, and many just escape. They may not, however, escape nervous prostration.

At the beginning of the imitative age the child should be made to follow the right, in learning every vowel sound, until a firm foundation is

laid. The vowel is practically the word, and if the speech is to be smooth and clear the vowels must follow each other continuously, which cannot be done if strength is put into the consonant articulations. At first the child makes the vowel sound, gesticulating with the hands. Soon he uses articulations, which are really gestures. If all the energy in the formation of the articulations is placed in the muscles that move the jaw and tongue, they will never interfere with the continuity of the breath, or vowel sound. If the vowel stops in the throat, it loses character and becomes an articulation.

Often a child who begins well loses balance and learns to talk in the throat by imitating the person who has the care of him. If the age for learning to talk is passed, the next opportunity is in the school; and here we must question: Are the voices of the teachers models for those of the children? In the teaching of reading, is strength trained into the breathing muscles, or into the throat, lips, and tongue? If the child is wrong, is the teacher able to correct him?

My experience leads me to believe that, if a voice properly placed were one of the requirements in our normal schools, if drill upon vowels made by the breathing muscles were substituted for that upon articulations, and if the voice of every teacher could be a model for the pupils, we should soon begin to see an improvement.

It is a common plan to make a list of refractory sounds and words, and to require the child to work diligently upon them. No better way than that can be found for extending the list, or even for producing a temporary paralysis. The words are easy in themselves; it is the struggle in speaking that must be overcome. The word is only the victim of circumstances. Overcome the struggle due to misplaced contraction, and the word is free.

This principle is of special importance with reference to the system of phonic drill so extensively practiced in our public schools. I have known children who had no trouble in speaking until they received phonic drill. Several teachers who tried the process in their classes upon pupils suffering from speech impediment were glad to stop when they saw the children apparently in convulsions as a result of the experiment. Such was my own experience in the beginning of my work, and it took me some time to perceive that the child did not need to learn the formation of the troublesome sound or to have any drill upon the sound, since, from the contraction acting at that point, he was receiving too much already.

In 1893 there were five hundred in the schools of Boston who spoke with difficulty, and the number was increasing. From Germany we have similar accounts. Dr. Lenox Brown, basing his estimate upon the reports of Robert M. Zug, who spent some years in this work, states that the number, in the United States alone, who suffer from speech difficulties

is nearly three times that of the deaf-mute, blind, and insane added together. To three of these classes every advantage is given that money and science can provide; to the fourth, having an equal claim, no relief is offered.

REPORT OF COMMITTEE ON STATISTICS OF DEFECTIVE SIGHT AND HEARING OF PUBLIC-SCHOOL CHILDREN

BOSTON, MASS., July 10, 1903.

To the President of the Department of Special Education of the National Educational Association.

DEAR SIR: Your committee has experienced considerable difficulty in collecting statistics concerning the number and percentage of pupils in public schools having defective sight and hearing, retarding their progress in school.

Thru the courtesy of Hon. William T. Harris, a special circular of inquiry was sent out thru the United States Bureau of Education to the superintendents of schools in cities having more than 25,000 inhabitants. The circular was sent to 160 city superintendents, seventy-eight answers were received, and only in nineteen cases were any statistics reported. In but few of these cases were the statistics so arranged as to be capable of combination together.

Ignoring minor defects of vision and hearing, and including only cases of marked defect, your committee has been able to compile the following statistics: Out of a total of 34,426 pupils whose sight had been examined, 4,603, or 13.4 per cent., were marked defective in vision. Out of 57,072 pupils whose hearing power had been tested, 2,067, or 3.6 per cent., were found to be extremely defective in hearing.

TABLE I

CITY	NO. OF PUPILS EXAMINED	PUPILS HAVING MARKED DEFECTIVE VISION	
		Number	Per Cent.
Bayonne, N. J.....	4,610	353	7.7
Jersey City, N. J.	1,100	197	17.9
Pawtucket, R. I.....	4,663	517	11.1
Utica, N. Y. (1897).....	6,113	667	10.9
Utica, N. Y. (1898).....	5,987	588	9.8
Worcester, Mass.....	11,953	2,281	19.1
	34,426	4,603	13.4

TABLE II

CITY	NO. OF PUPILS EXAMINED	PUPILS HAVING MARKED DEFECTIVE HEARING	
		Number	Per Cent.
Bayonne, N. J.....	4,610	115	2.5
Chicago, Ill.....	6,729	437	6.5
Cleveland, O.....	17,017	342	2.0
Pawtucket, R. I.....	4,663	200	4.3
Utica, N. Y. (1897).....	6,113	406	6.6
Utica, N. Y. (1898).....	5,987	254	4.2
Worcester, Mass.....	11,953	313	2.6
	57,072	2,067	3.6

These facts indicate that a considerable proportion of our school children are handicapped in their progress in school by defective vision or defective hearing, and suggest the importance of urging upon all superintendents of schools the advisability of testing the powers of sight and hearing possessed by their pupils, and publishing the results.

Your committee suggests that the Department of Special Education should appoint a committee to examine and report upon the various means employed to test sight and hearing in the public schools, and to collect statistics concerning the results.

Your committee desires to express its great indebtedness to the United States Bureau of Education for so readily co-operating with it in its labors, and would suggest the propriety of asking the Bureau of Education to continue the collection of statistics of this character.

Respectfully submitted,

F. W. BOOTH, *Committee.*



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