SIGHT-SAVING CLASSES

BY

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In a leading article in the *Journal* of Oct. 21, 1944, entitled "Partially Sighted Children" there is an excellent account of Mrs. Winifred Hathaway's well-written book on the experiences of American educationists of sight-saving classes. Her figures show that there are 630 of these special classes in 31 States. This indicates how keen has been the development of this special provision for children with defective sight; but the fact that there are still some 50,000 children who are held to require it leads to a question addressed to me—namely, What are the technical requirements and potentialities of the school for the partially sighted?

All work of these sight-saving classes has been of interest to me, and I think I can do well for them by showing how they came into being. Early in this century there was no provision for the care of the eyesight of children in the increasing number of elementary schools established under the Act of Parliament of 1871. There were fine new school buildings in London; they were full of children. The teaching was good. But no one thought of the eyes of the children until Dr. James Kerr became medical officer of the Education Department of the L.C.C. When I heard it was proposed to appoint some of us young eye men to go to the schools and test the eyesight of the children I went to see him, and he allowed me to join in the work. I felt that this experience among the children of our great city would have an interesting reflection upon hospital work; I should then see the healthy as well as the sick. I was given a fine area of schools, of which Hackney was the centre. About half a dozen started this work all over London, and we spent three half-days a week at the schools. I found it of great interest in that it showed me the variations in eye health in different social conditions. I may say that at first the school teachers were hostile to this new form of school examination, but they soon learned the advantage of it.

Children's Eyesight Forty Years Ago

My Hackney district included good residential quarters in Clapton, artisan dwellings in Homerton, and crowded slum regions in Bethnal Green. In five months of one year I examined 21,893 children aged from 7 to 13. I classified my records as I judged the living conditions of the regions, and found these figures¹:

Cleanliness	Cases of Eye Disease	Percentage
Above average	19 in 2,174	0.873
Average	134 in 9,463	1.416
Below average	197 in 10,256	1.92
Totals	350 in 21,893	1.59

The first distinctive point I noted in examining my returns was the preponderance of poor sight among the girls. That was shown clearly in Dr. Kerr's L.C.C. report in 1903 of 20,000 children, of whom rather more than half were boys. Of this group 481 boys and 617 girls had only 6/12 vision, and 645 boys and 882 girls failed to reach that mark. More than 57% of the children with poor or bad vision were girls. I reported: "This excessive incidence among the girls was in part due to the fact that the boys played about in the clean wide street [there were no motors then!], sharpening their wits and their physical reactions, while the girls were kept at home to help in domestic duties." And again: "The other part is the nature of the work done in the schools. Girls do finer work, boys do no needlework. So that in vision testing boys had an advantage, for their accommodation muscles were in a better state of tone on account of their outdoor life, and at the same time they are less fatigued by their school work."²

Soon I was directed by Dr. Kerr to examine all the children in the blind schools; there were 400 of them. I was shocked to find among the really blind children some who were not blind. These were the highly short-sighted or myopic children.

Most of them were not blind at all. At their own distance they could see minute objects, and mentally they were as keen as any school-children. These high myopes were taught to write and read Braille, the blind print of minute humps made in paper. As I watched them (from a place where they did not see me) I saw that they read this Braille with their eyes and not with their fingers. To a person with sight Braille is harder to read than black print of fair size.

I submitted my records of all these children to Dr. Kerr, and suggested that there was good reason to set up special classes for the partly sighted children, for they had no place in the blind school. This was bad for them, and their presence upset the really blind. He agreed with my suggestion. I put the proposition before the International Congress on School Hygiene in 1907, and, happily, Miss Nettie Adler, a member of the Education Committee of the L.C.C., was in the chair at this meeting.³ She was convinced of the rightness of the suggestion, and in a few months I was given a place where I might start the first of these classes. In a fine school in Camberwell with a wide playground there was a separate small building with two classrooms. This was the first place for these classes. Again, there was at first an unpleasant reaction by the teachers to these "new classes" in their ground, especially as the programme of work I endeavoured to obtain included them. But soon they became as keen on the service as our two special teachers.

The First "Special" Classes

The scheme of work laid down for these classes was as follows⁴: (1) Oral teaching with the normal children for such subjects as could be taught orally. (2) Literary work, such as is necessary for the knowledge of the ordinary means of communication, to be learned without books, pens, or paper, but by the use of blackboards and chalk, the writing to be done free-arm fashion. (3) A full use of every sort of handicraft that would develop attention, method, and skill, with the minimum use of the eyes.

The classrooms must have brilliant daylight; when artificial light was needed all work, other than physical exercises, oral lessons, or games, was suspended. The rooms were fitted all round with blackboards in such a position that they could be used by both teacher and children. Each child had a special desk, the top of which was flat for use in hand work, but could be lifted, giving a blackboard for the child at arm's length on which class-work could be done with chalk. For children in the higher standards some permanent record of work was needed. Exercise books were of a novel pattern, being made up of large sheets of black paper, and the writing was done with white crayon, which gave a record of fair durability but could be washed off if desired. Physical exercises entered largely into the time-table, and attempts were made to associate games with instructional work. For example, large sheets of scenic canvas were supplied to schools that had sufficient floor space, and on these the teachers painted outline maps of different countries, marking out the position of cities, rivers, etc.; the children walked about on these floor maps learning their geography by travelling in imagination. With a teacher of resource there was much interest in this.

The most difficult section of the work was manual training. Whatever work was chosen it did not have to demand fixed attention of the eyes. All sewing was prohibited, but knitting was good. For smaller children paper-folding, stick-laying, felt-weaving in colours, and some knitting were useful. Seniors were taught to do basket work. Boys did bent iron work, and girls were taught cookery and laundry. The teaching of these handiworks was in something like the position of Latin in our own public schools. Latin was later little or no use to us; so with some of these handicrafts. But with each type of child the teaching had the direction of training in care, precision, and control. Later, a long list of suitable occupations (twenty-six forms) was drawn up. The best work was that which allowed the child to be out and about, standing and moving, with a minimum of close-eye attention. Hand work was found to be of great value, for it removed them from living in a world of reading and "book-thinking."

Soon there were many of these classes both in London and in the Provinces. They became very popular in the United

States, and it was from there they got their name of sight-saving classes. Our law recognized only schools for the blind and partially blind; to have called them "partially-blind schools" would have been disastrous. Parents would have been shocked and hostile. So we called them "myope classes." Most of the children were true myopes, but there was a percentage with scarred eyes from natal defects, from disease after birth, and from injuries. The name served well until we heard "sight-saving classes," and that became an attraction to the parents. In a paper read before the Section of Ophthalmology of the Royal Society of Medicine in 1913¹ I gave a full account of the work of these classes, and it included six pictures of the school work and equipment. As the number of children found to have defective sight—so defective that they were unfit for the normal school and too good for a blind school—increased with years it became difficult to link these classes with the normal school. So that this distinct benefit had to be given up. Schools for myopic children were established in appropriate regions.

Potentialities of Schools for Myopes

Now comes my attempt to answer the main part of the question in the leading article in the *Journal* already referred to. What are the "potentialities of the school for the partially blind"? To my mind the answer to that question is to be found in the records of the variation in the sight of boys and girls in the normal schools. I have given figures showing that the eyesight of girls was at least 10% worse than that of boys. This cannot be explained except by the differences in the lives and work of boys and girls in school years. If this difference be true for "normal" children, it must also be true for children of poor sight, especially for high myopes, whose eyes have an unnaturally soft sclerotic coat and a torn choroid about the optic disk. They have a short point of clear vision; this makes convergence excessive and so squeezes the eyeballs and increases the tendency to an elongation of the eyeball, and brings an increase of the myopia.

There is an ancient proverb: "Train up a child in the way he should go, and when he is old he will not depart from it." There can be no doubt that if we teach these partially sighted children how to use their eyes with intelligence they will carry on with the training that we give them after school years. It is difficult to obtain evidence of the effect of this training in school cases or even in hospital cases, for the years through which we see these persons are so few, but I have had ample evidence of the good reaction to training in private patients who have been seen over many years. At one time I was able to collect evidence from the histories of 480 myopes of more than 3D. Of these 183 were engaged in various occupations involving habitual close eye work—e.g., clerks, seamstresses, compositors, etc.—and 297 not so engaged. The comparison was summarized in a table I gave to the Government Committee²:

Type of Patient	Number	Breakdowns	Damage to Eyes	Total of Failures
Habitual close eye workers	183 (100%)	70 (38.2%)	27 (15%)	97 (53%)
Others	297 (100%)	7 (2.4%)	21 (7.06%)	28 (9.4%)
Total percentage in 480	100	16	10	26

The higher total of the second section is accounted for by the number of married women among them, and it includes most of the very high myopes who were unable to do close work. Of the 53% of the close workers whose sight failed at some time of their career no less than 15% sustained permanent damage through loss of an eye. Two persons lost both eyes.

I have had three opportunities of ascertaining the reaction to these sight-saving classes in other and wide areas of the world. In 1930 I crossed Canada to the far west, and in 1935 crossed the United States of America to the Pacific, and in these journeys I saw many eye doctors; all were keen on this part of their work. Again, in 1932 there was a meeting of the Association Internationale de Prophylaxie de la Cécité in Paris. There I read a paper on "Sight-saving Classes," and the discussion with the ophthalmologists from all countries was most interesting. Those of certain countries on the continent of Europe regretted that the arrangements in the

normal schools were not elastic enough to allow a full development of these classes, but they said they were striving to get more of them established.

I therefore hope the sight-saving classes will continue to do their good work for the partially sighted children, for I feel sure that they will save many of our fellow citizens from the loss of their precious sight and from the misery of blindness.

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- ³ *Second International Congress on School Hygiene*, London, 1907, p. 794.
- ⁴ "The Education of High Myopes." *Proc. roy. Soc. Med. (Section of Ophthalmology)*, 1913, 6, 146.
- ⁵ Ministry of Health Departmental Committee on the Causes and Prevention of Blindness, 1922, London, p. 53.
- ⁶ *British Medical Journal*, 1933, 1, 129.

NEW BRIDGE-HEADS FOR ATTACK ON CANCER EMPIRE CANCER CAMPAIGN REPORT

The twenty-first annual report of the British Empire Cancer Campaign, under the able editorship of Mr. J. P. Lockhart-Mummery, again embodies brief accounts of research work or clinical investigation from about forty hospitals, laboratories, research departments, branch councils, affiliated organizations over-seas, and individual workers. Thanks to the continuing support of the public, notwithstanding so many other claims, the Campaign has been able to allocate nearly £40,000 for research in 1945.

Carcinogenic Agents

Much work proceeded during the last year on the elucidation of the way in which carcinogenic agents act and on the discovery of fresh agents. Thus in the department of pathology, University of Sheffield, progress has been made in explaining the remarkable tumour-producing properties of the compound 2-acetyl aminofluorene. It is now thought probable that the tumours are due to interference with liver function. It has also been possible to localize the carcinogenic action of acetyl aminofluorene to sites not usually affected. Thus both benign and malignant tumours of the thyroid gland have been obtained by the combined action of acetyl aminofluorene and allyl-thiourea.

Several departments have been working on the special properties of benzpyrene. In the cancer research laboratory of the Royal Victoria Infirmary, Newcastle-upon-Tyne, epidermal tumours have been produced in mice by a single application of this substance if the skin has been treated afterwards with some agent, itself non-carcinogenic, which causes epithelial proliferation. The existence of a sensitizing factor in the genesis of tumours is suggested, and it is pointed out that if the same holds good for human pathology, hyperplasia may prove to be a factor of high importance in determining the occurrence of tumours in man.

Work carried out at the Sir William Dunn School of Pathology at Oxford makes it possible to define more closely the relationship between chronic irritation and the onset of cancer. There appears to be little danger of a simple irritant producing a tumour or even a pre-neoplastic lesion by itself, but if a pre-neoplastic lesion has developed, then the subsequent development of a tumour at that site may be facilitated by the action of a non-specific irritant.

An interesting experiment under the auspices of the Marie Curie Hospital indicates that a subline of a high-cancer-incidence strain of mice which had itself lost the power of developing mammary tumours spontaneously may nevertheless transmit this power through the milk factor to a low-cancer strain, showing that the loss of power in the substrain to develop mammary tumours is due not to the milk factor but to a mutation.

Advances in Chemotherapy

At the annual meeting of the Campaign a year ago Prof. E. C. Dodds mentioned Huggins's claim that carcinoma of the prostate gland can in many instances be checked by administration of the synthetic oestrogen known as diethylstilboestrol. It has now been confirmed that such cases can be rendered symptom-free and so maintained for long periods. A report from Middlesex Hospital states that a large series