THE ORGANIZATION OF SCHOOL OPHTHALMIC WORK.

BY

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ALL the mental and physical powers of a child are brought into play in school life. Defect in one of these powers will act as a handicap. The child with a defect will not be able to do so well in work or in play as the better equipped child. Some defects are more than handicaps; they may become irritants and react on the general welfare of the child. A child with some degree of deafness will fail to hear low tones; the failure is a loss. The sensitive child may be aware of the loss and worried by it, but the effort to hear will involve no ill effect. A child with defective sight will fail to see clearly; the loss may cause worry, but more serious is the likelihood that the effort to see will cause a strain that may further damage the eyes and even disturb the balance of the nervous system. The ill effects of defective sight are progressive and cumulative. If we leave out of account the dominant part played by sight in the development of human mental and physical powers, still the significance of defective sight is such that no effort is lost which seeks to diminish or ameliorate the defect.

The Discovery of the Defect.

Parents are so accustomed to their children and their ways that they can rarely be relied upon to notice any but the most obvious defects. The school becomes the testing ground of the physical qualities of the child even as it is of its mental capacity. Mentality and physique are so closely involved that teachers need as much training in the observance of physical characters as they receive in scholastic and mental culture. It is desirable that teachers should receive in a course of school hygiene instruction in the recognition of simple eye defects, such as the recognition and dangers of sore eyes, the seriousness of squint and the urgency of its early and continuous treatment, and in the methods of measuring and recording visual acuity. An educated and observant teacher is the first line of defence in protecting the child from the strain arising out of its inherent disabilities. Every teacher ought to know the meaning of a vision test-type, and be able to discover the value of a child's sight by the use of that test and to record it. Many teachers have learnt this during school medical inspection; not a few instances have come under notice of the value of this knowledge; one may be cited:

During the visit to a school for a purpose unconnected with inspection a school doctor was asked to look at a boy, for his teacher had noticed that he could not see properly; the previous term's vision had been 6/6; when he was tested by his teacher that week his vision was only 6/60; examination of the boy showed that he was suffering from acute optic neuritis.

The test-types should be a familiar object in the school, and it should be of such a kind that it cannot be memorized however frequently seen. For this reason experience shows the advantage for the school use of the E-sign card, in which there is only one sign for each grade mounted on a turntable that may be moved at will. The test cannot be learned; it requires no knowledge of letters; the response is simply the movement of the hand to correspond with the position of the pointers of the sign.

There appears to be no reason why an initial test of vision should not be done by the teachers; it would give them a knowledge of their charges that they would not otherwise obtain, and it would accentuate their interest in the conservation of child sight. These preliminary findings would be at the service of the school medical inspector at his visitation. Observant teachers are most of all necessary in infant departments. At present infants under the age of 7 years attending school do not have their eyes examined; yet I have shown by a routine examination by objective methods of the eyes of all the infants attending a large good class elementary school to the number of 368 that 36.9 per cent. had defects of the eyes and no less than 16 per cent. considerable defect (*Trans. Ophthal. Soc. U.K.*, 1919, p. 89). These infants, fit and unfit, do the same work; and it must be remembered that what we adults think easy infantile tasks are in reality very laborious and fatiguing to infants. It is not practical to attempt to distinguish these defects by a vision test with test-types. The test could only be made satisfactorily by the routine objective examination of the

eyes of each entrant by the medical officers, just as though the child had been referred to the clinic for defective vision. If such a course could be adopted it would be possible to indicate the normal eyed (or rather average eyed) children, those with slight defect of vision, and those with more serious defects, and to suggest arrangements for the work of these grades of children according to their fitness. It is likely that an educational arrangement based on a real knowledge of the condition of the children's eyes and the correction of the gross defects at an early age would tend to check the onset of much of the myopia we find developing in later years. Such a proposition may be deemed impracticable in the present state of public finance. The burden of detecting the serious defects of infants' eyes, therefore, rests with the teachers. Infants who squint, even if only temporarily, whose eyes get tired, red, or irritable after work, or who fail to see marks on the blackboard or the details of wall pictures, should be noted and referred to the school medical officer. Similarly children who appear dull or stupid in general class lessons should be referred for examination, for it has been shown that many "stupid" children are stupid from inability to see. These signs of eye-strain should equally be noted by the teachers in other departments and reported.

The Measure of the Work to be Done.

The data given above, obtained by the objective examination of the eyes of infants at a good class school, show that 16 per cent. had serious defects that needed medical attention. Certain of the children with less serious defects will also need attention, let us say these will bring the total to 20 per cent. In London, with an average roll of 725,000 children, the average number of entrants in any year is 63,000, so that the minimum number of children requiring attention each year would be 12,600. To this must be added the number likely to require re-examination, who are about one-fourth of that number for any one child-year, or, let us say, for the several years of school life, a number equal to the entrants examined, making a total of 25,000 examinations each year. London school population numbers about one-seventh of that for England and Wales, so that the grand total on a low estimate will be about 176,400 for each year. The actual numbers of children attending London school clinics as fresh cases during the years 1912 to 1920 inclusive were: 16,670, 21,464, 25,952, 25,286, 26,905, 27,062, 26,200, 28,011, 29,837, making an average for the nine years of 25,400.

Treatment of Defects.

It should be premised that any arrangement made for the treatment of eye defects in children should be in close relation with the schools, so that the results of the treatment may be available for the guidance of the school authorities. Many of the defects found are not completely susceptible to full correction, and the remaining defect may be one that requires special arrangements for the satisfactory education of the child. If the arrangements for treatment are not made with this close relation to the work of the school, a large part of the benefit of the treatment may be lost. When school clinics are provided by the education authorities there is no difficulty in making the desirable connexion; and it does not appear impossible to secure a like conveyance of the necessary information when the child is treated independently of these arrangements by the private practitioner of the parents' choice.

Arrangements for School Clinics.

These will differ in town and country. In towns where there are large aggregations of children it is easiest and best to plan definite clinics in suitable places which may serve a number of schools. In small towns satisfactory schemes are now in working whereby the local practitioner competent in ophthalmic work receives the children who are to be examined in his own house; the arrangement is economical, since it avoids the expense of setting up an independent clinic for a relatively small number of children. In the country these plans will be unsuitable, as schools may be far apart and the numbers in each may be small, so that a clinic could not be economically arranged to serve a given area. In the country, therefore, treatment is best carried out in the school premises by doctors who attend the schools in rotation on a plan prepared by the chief school medical officer. The apparatus needed by the doctor can be readily transported from place to place. The provision of a room suitable for ophthalmoscopic examination is not a matter of difficulty; any room that can be darkened and in which a suitable lamp can be provided will meet the need. Where electric light is in use a focus lamp appropriate for the particular current of the district,

with a length of flexible wire, is all that is needed; where gas is used the incandescent mantle provides a most satisfactory source of light, provided the bracket to which it is attached is placed low enough. Where there is no fixed source of light supply illumination can be best provided by a portable acetylene lamp, of which there are many good patterns on the market. In towns, clinics will be arranged either on hospital premises, if these are conveniently situated, or at independent centres where these facilities are absent.

About 2 per cent. of children in the schools suffer from blepharitis and conjunctivitis. In many of these the need is for regular and efficient cleansing. In town areas this is best met by the establishment of "minor ailment centres," where, under the control of a medical officer, there is a staff of nurses who give daily attention to the cases. It is desirable that where these centres are established they should be definitely linked up with the centres where the more detailed investigation of defects is carried out. Some of these cases of sore eyes are aggravated or caused by defects of refraction, and unless these are recognized and corrected there is no real likelihood of the surface irritation being checked. In country districts the care of such cases can be best met, in the absence of any provision of school nurses, by arrangement with local nursing associations, so that nurses could be detailed off to schools at definite hours each day to undertake the cleansing of children with affected eyes, and the application of the treatment ordered by the visiting doctor.

Following-up.

Examination of school clinic papers shows that even where there are satisfactory arrangements for the following-up of children under medical treatment, the treatment or a continuity of treatment is often neglected. If this be so where there are efficient arrangements, how much more must be the loss where these arrangements do not exist or are elementary! It is desirable that some arrangement should be instituted whereby cases that need regular observation at stated intervals may be marked and reported to the school medical officer, so that the continuity of treatment and observation can be secured even when the child is removed from one area to another.

Provision and Repair of Spectacles.

In towns where clinics are established arrangements should be made whereby an optician attends at the clinic to fit spectacle frames to the children. This plan has many advantages over the plan of sending the children to the optician. When the former plan is adopted there is personal communication between doctor and optician, corrections and adjustment of frames are expedited, and, further, the time of the parents is saved materially. In country districts where the numbers are few the selection of frames should be done by the medical officer himself. He should be supplied with a set of half a dozen standard frames with which he can ascertain the proper fitting for each child, and to the form of prescription he should add the number or description of the chosen frame.

Some difficulty arises in the provision and repair of glasses owing to inability of parents to pay at the time of ordering the glasses. It does not seem desirable that these should be provided free of cost to the parents. When this is done there is a tendency to lack of care in their use, but when they are paid for by the parents much more care is noticed. If the parents of children who are found to have eyes that will need the regular use of glasses during school life could be invited to join a provident scheme into which they could pay regularly small sums to meet the cost of glasses and their repair, the difficulty would be met. Great saving of time would be effected through such a scheme, and particularly if local opticians came into it. At present children who need glasses badly are often without them for long intervals while funds are being raised and repairs made in distant workshops. In country districts a postal service for the supply and repair of glasses will be needed.

The care of spectacles may be materially advanced by a routine parade of all children wearing them, at stated intervals. It should be a duty of the head teacher to supervise the parade, and it would be advantageous if one of the teachers who had some mechanical aptitude were to undertake those small adjustments of bent, tight, or loose frames which add so much to the comfort of the wearers. This plan has been adopted in some large schools with excellent results.

Staff.

There will need to be variations in arrangement according to the type of district in which the work has to be done.

Identical arrangements will not fit town and country. In general it may be said that there are advantages in separating the work of school medical inspection from the treatment of children found to be defective.

(1) The assurance provided by the independence of the two officers provides against objections by parents who resent the allegation that there is a defect in their child; it gives a certainty to the finding that is conformable to that which we demand for our own children and indeed for our own persons. (2) Medical inspection involves a sound all-round knowledge of children's physique, and it is not to be expected that a medical inspector with this full general knowledge will be also equally competent to deal with a number of specialities involved in the treatment of defects. (3) In the case of eye defects there are additional advantages to the community as a whole in arranging that the treatment of the defect should be spread over as wide a personnel as possible. At the present time there are not a sufficient number of practitioners with an expert knowledge of eye work to meet the growing demand. The equipment of an education medical staff to do the work for children is a practical proposition, but if this work be done by practitioners whose sole duty is educational, the services of these practitioners will not be available for the service of the community at large. It would appear, therefore, desirable that the treatment of eye defects should be carried out by private practitioners who give evidence of a competent knowledge of the work and will devote a definite part of their time to it. Such an arrangement would foster the supply of a rapidly increasing number of capable practitioners who would have a knowledge of the particular difficulties and dangers of eye defects in industry by their daily contact with the adult population, and therefore be the better able to advise on the education of the children and indicate that line of training which would best fit them for a lifework in view of the defects which may be present.

Since the work of a school eye clinic is so largely refraction work the one test of competency for the practitioner in these departments is the mastery of the retinoscope and ophthalmoscope. The practitioner must have such a mastery of retinoscopy as will enable him both to work out every detail of the refraction with the mirror and to judge from his results what are the most appropriate glasses to order in any given case. He must be able to make his observations with reasonable speed, for the examination is tiring to children. Subjective tests are of little or no value for children and should serve only as a record of visual acuity under certain conditions.

The appointing authority cannot itself test the competency of candidates for the work, but it can and should require evidence of recent and sufficient work in the ophthalmic department of a teaching hospital or of private work over a sufficient period.

It is desirable that country school circuits and independent town clinics should be linked up with some central clinic under the charge of an experienced ophthalmic surgeon for the purpose of consultation or reference for special examination of difficult cases. Where a school clinic is established on the premises of an existing hospital special arrangements for these purposes are unnecessary, as they are made by the hospital staff. In other clinics there may be no such arrangement for consultation, so that the practitioner in charge of the clinic loses necessary assistance, and the best line of treatment for the children cannot always be secured. The establishment of such central clinics at existing hospitals would have an advantage in facilitating in-patient treatment and operation where such were needed. The officer of the local clinics should be at liberty to refer any case of difficulty for consultation, and should be specially invited to refer those cases where visual defect cannot be satisfactorily corrected and where no certain cause explains the failure, serious defects likely to handicap the child's education, cases where special educational methods appear necessary, and cases requiring extended treatment and operation.

Arrangements for Special Treatment.

A small percentage of the children suffer from disease of the eyes which are of a chronic order and connected with some general disability or defect in hygiene, such as chronic conjunctivitis, blepharitis, relapsing ulcer of the cornea, and syphilitic and tuberculous inflammations of the eyes. The danger to the eyes which these diseases present is such that treatment to be adequate must be so organized as to be immediate and continuous and therefore institutional. Treatment in clinics and out-patient departments of hospitals does not meet the need. The hygienic conditions of the child cannot be touched by such

measures. Further, unless the child is under complete control during the treatment, intermissions are likely to occur, and in just those cases where the danger is greatest. Arrangements should be made for the immediate report of such cases to the consultative clinic, the officer of which should be able to recommend the admission of the child to a suitable institution where the treatment may be carried out.

One of the difficulties in carrying through continuous treatment of this sort for a necessary period lies in the intervention of capricious parents, who cannot be brought to understand the seriousness of the conditions. It is worth considering whether this difficulty might not be met by the routine reporting of these cases as they arise to the local magistrates to whom fall the decision in school cases, so that their assent to treatment for a specific period might be obtained in advance. If the parent does not enter into some engagement, or the retention of the child be not obtained by other means, the success of the treatment may be prevented by the untimely withdrawal of the child, so that the heavy expenditure is wasted, the damaging effects of the disease are not prevented, and a permanent disability may follow.

Children with Serious Defect of Vision.

There are a number of children, averaging about 2 per 1,000 of the school population, whose vision is too bad for them to take advantage of the ordinary curriculum. Special arrangements are made for their education under the provisions of the Education Act of 1893. Difficulties arise in these cases on three counts: (1) The insufficiency of the provision for their education, (2) the occasional objection of parents, (3) the lack of general knowledge on the part of medical practitioners of the nature and reason for special provision for these children.

(1) The number of schools for the blind in the country appears sufficient. But despite the sufficiency there are found even today cases of young people who are blind within the meaning of the Act, and have been so for many years, and yet whose education has been "attempted" in ordinary schools. Cases such as these indicate a defect in the arrangements for reporting the findings of medical examinations and treatment, and point to the necessity for effective consultation arrangements as indicated above. It is imperative that these children should be provided with satisfactory educational treatment at the earliest possible age. Delay means a serious and irrecoverable loss to the child, and a far more expensive and prolonged training after school years to put them in the way of a satisfactory occupation. The provision for children with less serious defects of vision is less ample. It is being met in the towns where the numbers make it possible to provide special accommodation. This is best provided by the formation of small classes—"myope classes"—in the ordinary elementary schools, so that the children may remain associated with the normal children for part of their curriculum. There is a distinct disadvantage in providing for them in blind schools or in other independent centres, for segregation is likely to cause them to be thought more nearly akin to blind children than to the sighted, and therefore to handicap their start in life. In villages the needs of these short-sighted children may best be met by allowing them to remain in the ordinary schools, provided the teachers are informed of the nature of the defect, and of the prohibition of reading and writing except by methods in use in the myope classes.

(2) Parents who cannot be persuaded of the seriousness of the defects of their children's eyes sometimes evade the acceptance of proper provision by transferring them to private schools, where the nature of the defect may be unknown and unprovided for. Later, when the seriousness of the defect is realized, the children are once more referred to the education authority, and often at a date too late effectively to meet the needs of the children.

(3) Occasionally difficulties arise from a lack of knowledge of the meaning of educational blindness on the part of medical practitioners, so that a conflict of opinion as to the proper training of a defective child arises between the school doctor and the private practitioner. The more widespread the association of those engaged in these two branches of medical work the less will be difficulties of this sort; hence the advantage of associating as many private practitioners as possible with school medical treatment.

The Influence of School Medical Work on the General Community.

School work should not be considered in relation only to education as carried on in the schools. It is true that the primary object of the work is to prevent eye-strain, the aggravation of eye defects, and to remove a handicap that would diminish the value of education to the child. But there are other values. The lessons that are learned in school life are a preparation for the wider life of the community. And in some degree the inculcation of a sound system of treatment of eye defects of the school children will react upon the whole community. There is much

industrial inefficiency caused by ignorance and negligence of eye defects; when the knowledge of the necessity and possibility of the correction of these defects is widespread the gain will be great. Parents are learning this lesson through the work done by the school medical service, and a new generation of parents will have learned the lesson by practical experience.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

THE annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 18th at the offices of the Society, 11, Chandos Street, Cavendish Square, with Sir ALFRED PEARCE GOULD, President, in the chair.

The following report for 1920 was adopted:

Report for 1920.

Since the last report 11 new members have been elected and 6 have been lost owing to death and resignation. The Society consists at the present time of one honorary, 163 life and 137 ordinary members, making a total of 301. The annual subscription for a member who at the time of his election is under 40 years of age, is two guineas, if over 40 but under 50 three guineas, and if over 50 four guineas. There are special terms for life subscription.

The invested capital now stands at £144,250. By the By-laws only the income may be used for the payments granted for the relief of the widows and orphans eligible to receive grants. All life subscriptions and legacies are funded. The income from investments amounted to £4,682 5s. 2d., £373 2s. 1d. was received from subscriptions and donations, making a total income of £5,055 7s. 3d.; the working expenses were £299 7s. 6d. During the year two widows came upon the funds and three died. The sum of £4,584 was distributed among the annuitants of the charity. On December 31st there were fifty-two widows and six orphans in receipt of grants.

The Society, which is one of the richest of its kind in the United Kingdom, was founded in 1788, and incorporated by Royal Charter in 1864. Membership is open to any registered medical practitioner who at the time of his election is resident within a twenty-mile radius of Charing Cross. Should a member remove anywhere outside the radius, even beyond the British Isles, he nevertheless remains a member of the Society, provided he has conformed to the By-laws. Relief is granted to the necessitous widows and orphans of deceased members of three years' standing and of life members.

At the present time the widow of such member who has an income of not more than a hundred pounds a year receives a grant, voted each half-year by the Court of Directors, at an average rate of £50 per annum, paid half-yearly in advance, and each orphan, up to the age of 16, receives a grant of £43 per annum. An orphan, on attaining the age of 16, by the By-laws of the Society ceases to be eligible to receive grants from the ordinary funds of the Society. There are, however, two special funds from which the Court of Directors can make grants to orphans after the age of 16, and special grants from £25 to £10 are made to widows.

The acting Treasurer drew attention to the fact that the working expenses of the charity were about 5 per cent. of the total income, which he considered most satisfactory.

A cordial vote of thanks was passed to the editors of the various medical journals for their courtesy in publishing notices of the Society from time to time.

Further particulars may be obtained on application to the Secretary. The next election of members will be on July 6th, 1921.

THE last quarterly return of the Registrar-General shows that 129,263 deaths were registered in England and Wales during the three months ended March 31st, 1921. This corresponds to an annual rate of 13.9 per 1,000 total population in 1920; it is the lowest rate recorded in any first quarter since the establishment of civil registration. Influenza was stated to be either a primary or a contributory cause of death in 3,235, or 2.5 per cent. of the total deaths registered last quarter. Of the 209,667 births, 9,505 were illegitimate. Infant mortality, measured by the proportion of deaths under one year of age to registered births, was equal to 101 per 1,000, being 17 per 1,000 below the average in the ten preceding first quarters.

FROM August, 1919, to March, 1921, 66 persons received prophylactic treatment for rabies at the Utrecht serological institute, 19 were treated in 1919, 39 in 1920, and 8 in 1921; the disease did not develop in any case. During the same period the animals in Holland attacked by rabies consisted of 1 horse, 4 cows, 41 dogs, and 1 cat. The cases all occurred exclusively in the four provinces of Groningen, Drenthe, Overijssel, and Gelderland.