without any method at all? The explanation may be that at least until puberty the word blind child is slightly hypothyroid so that although he sees a word its image does not, so to speak, eat into his senses and leave a lasting impression which association on a subsequent encounter can recall. Be that as it may the important point is that word blindness can almost certainly be overcome in almost every case merely by systematically developing synthetic vision by means of analytic vision.

THE ONE-EYED WORKER*

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THE eye injuries of this war and the ever recurring eye injuries in industry are adding thousands to the present mass of one-eyed people. What is the position of the one-eyed men and women in the labour market? What jobs should they take up? In this paper I shall attempt to answer these questions.

In the course of my investigations in 1938 on the employment of the one-eyed worker in industry I asked the Industrial Welfare Society to send out a questionnaire to its 750 member firms. This questionnaire asked for information about the employment of one-eyed men and women, their efficiency at work and their accident record. Replies were received from 398 firms which employed about 1,000,000 workers. The greater number of small firms stated that they did not require employees to pass eyesight tests and that they employed one-eyed workers. Other firms representing the same branches of industry as the above insisted on eyesight tests; some among these refused to employ one-eyed people; others selected them for special jobs only. From these replies I learned that one-eyed men and women are employed in mines, iron and steel works, in the manufacture of chemical and electrical goods, and also in the fine close work necessary in the manufacture of artificial silk yarn, woollen goods, etc. All firms which employed one-eyed workers were satisfied as to their efficiency at work and their accident record.

One-eyed people can be divided into two groups: (1) those who have lost an eye since childhood and (2) those who have lost the vision of an eye in adult life as a result of disease or injury. The first group are in no way handicapped and have full confidence in the carrying out of their work. One finds the men of this group

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employed in the building trades—working on ladders, on scaffolding, roofs, etc.; in the engineering trades working on every type of machine; in the tool making industry where great precision is required; and doing clerical work in offices. They are just as quick and efficient as their fellow men who work with both eyes. In the labour market these men and women have suffered until now few disadvantages. If their external appearance is normal no comment is made unless a visual examination is carried out. In recent years many large industrial establishments have instituted pre-employment visual examinations. The Factories Act of 1937 provides that juveniles (14-16) should be examined by the examining surgeon and that an eyesight test be carried out. It is obvious therefore that this group of one-eyed people will in future find greater difficulty in the selection of trades and professions.

The second group of one-eyed workers comprises those who have lost an eye during adult life. For the purpose of this investigation in 1938 I examined 100 men and women who had lost an eye within the previous eight years. They were patients at the Royal Eye Hospital, London, where the investigation was carried out. An enquiry was then made into the following points: (I) Trade and occupation when the accident to the eye occurred. (II) The time taken for readjustment to monocular vision. (III) Period of enforced absence from work. (IV) The subsequent employment of the injured worker. The results of the enquiry were as follows: (I) The greatest number of eye injuries occurs in the mining industries and the metal and engineering industries. Most of the men examined had lost their eyes while engaged in such processes as hammering, chipping, boring or milling. (II) After the excision of an eye the patient takes a little time to adjust himself to the new visual conditions. The usual errors in the estimation of distances are made by all during the first few weeks following the loss of an eye. Thus patients will notice that when pouring out tea from the pot they spill it; objects appear nearer to them than they are; they miss the handle of the door when trying to open or close it; ashes from a cigarette are often tipped outside the ashtray, and so on. All these mistakes become obvious to the patient and he gradually notices them becoming fewer and his judgment of distances becoming more accurate. The period of the new visual adjustment takes from a few weeks to some months. Several of the men who were examined had regained confidence in the judgment of distances 14 days after the excision. The ability to estimate depth is also gradually regained. The degree of depth perception acquired depends upon several factors: (1) intelligence and previous experience. Thus drivers, engineers and fitters who have had to judge distances and to carry out fine precision work before their accident quickly acquire the ability of

depth perception and depth estimation; (2) age—young workmen adjust themselves to the new visual conditions much more quickly than older people who take longer to regain their confidence and remain nervous and anxious especially when negotiating traffic in busy roads; (3) sex—women are very slow in getting accustomed to the new visual conditions and their depth perception remains inaccurate for some time after the accident; (4) the loss of the dominant or master eye. The loss of the master (dominant) eye produces greater disability and delays adjustment to monocular vision. I examined a number of men and women, who, after the loss of the master eye experienced difficulties at home, in the street and at work. The following history of two patients will be of interest. Both were engineers before their accidents. One man lost his right eye which was the master eye. He was unable to return to fine precision work. The other man lost his left eye which was not the master eye. He returned to his work of drilling metal doors with a drilling gun where the holes are often as small as one-sixth of an inch. He did this work very efficiently.

In assessing the loss of working capacity in a person who has lost the vision of an eye it is important to ascertain whether the injured eye was the master. Investigations have shown that in 72 per cent. of people the right eye is the master eye. Several tests can be used to ascertain if the one-eyed person is left with the master eye. For example there is the pointing test which involves asking the patient to point quickly to a small near object. Accurate pointing proves the presence of the master eye.

P. C. Livingston has devised an instrument which, working on similar lines, enables one to find out if the one-eyed person is left with the master eye. The patient looks at a short white rod which is fixed at the end of a long bar. A movable black rod is situated midway between the patient and the white rod. The patient is asked to move the black rod laterally until it hides the white rod. The degree of movement is measured on a scale. The amount of movement from the median plane is small when the patient uses his master eye and large in the opposite case.

(III) *The period of enforced absence from work.*—Convalescence after the removal of an eye together with the time necessary for the patient to regain confidence to return to work should rarely exceed two to three months and yet I found during the course of my investigation that the greater number of men after the loss of an eye stay away from work for periods varying from six to nine or even ten months. A number of factors are responsible for this delay in the return to work. (1) Fear and lack of confidence to work under the new visual conditions. This may be a very important factor and cause the workman to stay away from work for several months. The examining ophthalmic surgeon has often diagnosed this condition as malingering. Such a

diagnosis is the result of lack of knowledge of the psychological condition of a patient after the loss of an eye. Patients suffer from a genuine fear of injury to the other eye if and when they return to work. Their limitations in the field of vision and the mistakes they make in the judging of distances, heights and speed of vehicles, etc., causes them to be conscious of the dangers which will confront them when they resume work. These men require careful rehabilitation. On many occasions I have advised such men to carry out simple tasks at home; such as knocking nails into a board, using a screwdriver, etc. These simple exercises combined with the playing of a ball have greatly accelerated the process of visual readaptation, thus enabling the injured men to return to work sooner. It would indeed be helpful if rehabilitation centres were established at eye hospitals and training centres. There the one-eyed men and women could receive training for specified work and psychological treatment could be given where necessary. (2) Compensation and litigation difficulties represent the next factor delaying the patient's return to work. I hope that the new bill on Workmens' Compensation will safeguard the interests of the injured worker and enable him to return to work as soon as he is fit. If necessary the settlement of the claim should be left to a later date, after the resumption of work. This procedure would save the one-eyed worker many months of unnecessary hardship resulting from the loss of wages. (3) The last and very important factor causing delay in the return to work is the unwillingness of firms to employ one-eyed workers. It should be made well known that the experience of many welfare and safety departments attached to several large factories in this country has shown that one-eyed workers after the initial period of accustoming themselves to monocular vision are for practical purposes as fully efficient as two-eyed people. Detailed accident statistics kept by the safety departments indicate that there is no evidence to show that one-eyed persons are more prone to accidents than the normal-sighted.

(IV) *The subsequent employment of the one-eyed worker.*—The greatest number of eye injuries occurs in the engineering and metal industries and an enquiry has been made into the employment of the one-eyed workers of these trades. Many firms refuse to put the men back on to their former jobs indicating that it is dangerous for them to be in the engine or tool room. Such firms usually put the one-eyed workers on to jobs in the store room or yard. On the other hand a large number of engineering firms reinstate the one-eyed worker in his former work of grinding, turning or drilling. Some workers may find difficulty in the first few months. They may make mistakes in their work and often complain of headaches and of pain in the eye. In the course of

time their work becomes satisfactory. The difficulties of the one-eyed worker begin when he loses his original employment. Other employers refuse to employ him in the machine rooms. The inevitable result is that many of them drift into other occupations.

I am often asked by parents of one-eyed children and by labour managers of large industrial establishments what occupations I consider suitable for one-eyed people. Of course this depends on the vision of the one good eye. If the vision of this eye is 6/6 or 6/9 the one-eyed person can follow comfortably all occupations involving close work such as the professions of medicine and dentistry, draughtsmen in surveyor's or architects' offices, clerical work, watch making, jewel work and even the fine close work required in the manufacture of artificial silk yarn or hose, and the inspection and manufacture of electric light bulbs and radio valves. In the metal and engineering trades the one-eyed men with 6/6 or 6/9 vision are fit for most jobs, but of course I would advise against employment in operations which present a greater danger of injury to the good eye. If the vision of the good eye is 6/12 I would advise against constant close work and would suggest employment in the food and distributive trades, building trades or many others. In this country one-eyed people with 6/12 vision can pass the driving test for motor vehicles. There are no official statistics as to car accident records of one-eyed people. In my experience there are no reasons against the employment of one-eyed drivers. If the vision of the one eye is less than 6/12 I would suggest that gardening, farming or domestic service are the most suitable occupations.

The eye injuries of this war will add a large number of men to the mass of one-eyed workers. Many of these men will be anxious to return to their pre-war employment. Will it be safe for them to do so in all cases? I would certainly say no. The danger of injury to the remaining eye should always be considered when men wish to return to work in the engineering and metal trades. The men should be advised against returning to work which involves chipping, hammering or the drilling of metal. They should not be employed in underground work in the mining industry. Rehabilitation centres should bear this in mind when preparing the one-eyed worker for future work. The examining factory surgeons and industrial medical officers should always remember that although one-eyed men and women are fit for most jobs the safety of the good eye should be the first consideration.

REFERENCE

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