REHABILITATION AFTER CATARACT EXTRACTION*

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THE process of adaptation to aphakic vision is one which presents difficulties of greatly varying magnitude in different patients. To a large extent it provides a separate problem in each individual and every surgeon develops his own methods of dealing with it. Minor variations in visual acuity have little influence upon it, since its cause is primarily the altered perspective produced by the magnified post-operative image. This is, of course, much less if a contact lens is worn or an intra-ocular implant employed instead of a spectacle lens. Nevertheless, the spectacle lens is likely to remain the usual optical correction and when, to its disadvantage in this respect, is added loss of binocularity the resulting disability is, in some cases, a serious one for a varying length of time after cataract extraction. Adaptation to aphakia is influenced by a number of factors, among which the age and visual needs of the patient should perhaps be mentioned first. In younger patients the ability to compensate impaired distance judgement by parallax and to reintegrate it with touch is greater than in the aged and, unless visually intricate tasks are called for, the problem seldom persists for long. Static tasks are less difficult at any age than those which involve movement since, although they may call for more accurate distance judgement than, for example, walking, the hand can confirm or correct the judgement of the eye. Many of them, however—*e.g.* instrumental adjustments, machine operations, pouring tea, and threading needles—must be re-learned with patience.

The degree of mobility which a cataract patient possesses forms a large factor in determining his visual needs for, if he must negotiate steps and stairs, his lack of distance judgement is a greater embarrassment than if he is immobilized by some other disability. He may then be adequately served by unocular aphakic vision, whereas the demands of a physically active life are often better met when both cataracts can be removed and binocularity be thus restored. The physically handicapped patient often has in this respect, therefore, an advantage over his more mobile fellows; but lack of physical activity can no longer be taken as synonymous with age. Indeed, the independent life which many choose or are compelled to live, in the eighth and even ninth decade, not infrequently accentuates these problems of aphakic vision at a time when self-re-education is a more difficult process. The extent to which impaired vision contributes to falls in the aged and to other more minor accidents is at present unrealized and in the aphakic it may, at least during the early post-operative months, be increased. Since the great majority of cataract operations are undertaken in the later decades of life, it may, therefore, be an advantage to offer these patients some simple form of visual rehabilitation.

Adaptation to the new perspective of aphakic vision necessarily begins as soon as the patient receives his post-operative correction. If he can be given this before he leaves hospital it is possible to introduce him there to some of the problems of aphakic vision and to enable him to avoid some of the common hazards of his

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state. To this end we have begun to make use of a series of simple re-educative exercises which may be performed under supervision in the physiotherapy department of the hospital as soon as the patient is sufficiently mobile to be taken there in a chair with his temporary aphakic correction. This is usually at the end of the first post-operative week and instruction seldom lasts longer than one week as an in-patient, additional guidance being given, where necessary and possible, as an out-patient.

The purpose of this brief communication is to outline the exercises which have been found most generally useful. Their use has usually been begun 5 or 6 days after operation; but the time of starting has been to some extent governed by the presence of other disabilities which may delay mobilization. Temporary spectacles have been provided based, where possible, on a pre-operative assessment of the probable aphakic correction. To discourage ocular movement during this early stage of wound-healing these have been masked to permit vision only through a central vertical slit some 4 or 5 mm. broad (Fig. 1).

FIG. 1.—Temporary spectacles.

The first exercises (which may be begun before the patient is able to be moved) consist of the simple location of small objects placed within arm's reach. These are amplified by the threading of large beads upon a cord, placement of rings on a stick, clipping clothes pegs on a cardboard edge, using large jig-saw puzzles, and building a tower of bricks up to eye level. The use of needle-threaders (Fig. 2*a*, *b*) and

FIG. 2(*a*).—Self-threading needle.

FIG. 2(*b*).—Mechanical needle threader. The thread is laid in a groove, and a minute hook seizes the thread and pulls it through the eye of the needle which has been inserted into the machine.

of telephone dials of decreasing sizes can also be taught at this time as the visual acuity improves. As mobility increases clipping pegs on to a line is introduced and kitchen activities such as removing and replacing cups on hooks, pouring from a tea-pot, laying a tray, etc. Hammering nails and mending fuses are further useful exercises. Walking with the aphakic correction is, of course, attempted early and the problems of avoiding and stepping over obstacles (Fig. 3), passing through doors, and negotiating steps are subsequently dealt with, at first with the aid of a walking-stick and later, if possible, unaided. This simple re-training is varied, where necessary, according to the special occupational needs of the individual.

FIG. 3.—Practice in walking.

The degree of skill which it is possible to achieve in the short time before the patient leaves hospital naturally varies from case to case according to the presence of other disabilities, the individual adaptability, and the degree of visual acuity achieved with the temporary spectacle correction.

Even with the earliest exercises most patients take some little time to co-ordinate sight and touch; but once they have been gratified by a certain amount of success precision begins to improve. The degree of independence which aged patients with multiple disabilities manage to achieve is often surprising and when, from the limitations of arthritis, cardiac disease, etc., that of a severe visual handicap can be subtracted, the newly acquired difficulties of aphakic vision are frequently overcome with remarkable speed in a short period of instruction. The problems of locomotion are those which present the greatest difficulties and these are, naturally, most pronounced in patients with unocular vision. Since they are clearly the most important to the patient's safety and independence, they are sometimes continued during a short readmission to hospital after a period of convalescence at a suitable convalescent home.