Everyday Aids and Appliances

Aids for visual impairment

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Introduction

The World Health Organisation has proposed that a visual acuity of less than 6/18 on a Snellen chart is a suitable definition of visual impairment. Anyone with such a degree of impairment should be seen by an ophthalmologist to exclude treatable eye disease. People with severe visual impairment may then be registered as blind or partially sighted.

Registration as blind is defined by the National Assistance Act of 1948 as "so blind as to be unable to perform any work for which sight is essential": a visual acuity either below 3/60 or one of 3/60 but less than 6/60 if the field of vision is considerably contracted or 6/60 or above if the field of vision is very contracted. There is no statutory definition for partial sight but guidelines imply that the person registered is "substantially and permanently handicapped." For registration purposes this means a visual acuity of either 3/60 to 6/60 with a full field, or up to 6/24 with a moderate field constriction, or 6/18 or even better if there is a gross field defect or definite constriction of the field.

The latest available figures show that in 1988 just over a quarter of a million people in England, Scotland, and Wales were registered as blind or partially sighted (table I). This represents 0.43% of the population and is likely to be an underestimate of those eligible for registration. The Royal National Institute for the Blind (RNIB) estimated from the findings of a recent government sponsored survey¹ that no fewer than 960 000 people have a sight defect so severe that they should be registered as blind or partially sighted.² Severe visual impairment affects mostly elderly people: in England nearly four fifths of people registered as blind and over three quarters of people registered as partially sighted are over 65 (table II). The commonest conditions causing visual impairment are cataract, macular degeneration, glaucoma, and diabetic retinopathy.

Social services

Registration as blind or partially sighted is important as it brings the patient to the attention of the local authority social services, who can arrange a visit by a social worker, preferably one trained in dealing with the problems of the visually disabled, to assess the needs of each newly registered client. The social services has a legal obligation to look after the welfare of blind and partially sighted people and should be able to provide rehabilitation courses in the activities of daily living, teach new communication skills such as braille, and provide mobility training. Unfortunately, these services are not taken up by most elderly

registered people. Aids can be offered by the social services, finances permitting; those commonly offered are writing aids, talking books, liquid level indicators, big button phones and phone dial adaptations, talking clocks, and symbol canes. Only those people registered as blind are entitled to a free radio or cassette player.

TABLE II—Registered blind or partially sighted population in England in 1988. Percentages supplied by Department of Health

Age (years)	Registered blind (% of total registered blind)	Registered partially sighted (% of total registered partially sighted)
0-4	0.4	0.3
5-15	1.3	2.1
16-49	10.2	13.0
50-64	9.9	8.5
65-74	15.4	14.9
≥75	63.0	61.1

Reading and writing aids

There are many people who are neither blind nor partially sighted but have such a degree of visual impairment that their near visual acuity is not good enough to read normal size print in newspapers, magazines, or books. Increasing the size of the print allows some people to read without the need for any special aids and nowadays most public libraries have a selection of books in large print. Newspapers and magazines do not usually have large print editions and the visually impaired reader therefore has to use a low vision aid (fig 1) to read them. Low vision aids can be obtained on free loan from hospital eye clinics.³

For those who are unable to read books the RNIB provides a valuable service. The Talking Book Service has some 70 000 members and about 8000 titles to choose from. Membership is open to anyone who has a near visual acuity with their normal reading glasses of N12 or less (fig 2). The talking book cassettes can be

FIG 1—Simple magnifiers: torch magnifier (back), hand magnifier (front left), desk magnifier (front right)

TABLE I—Number of people registered as blind or partially sighted in 1988

	Registered blind	Registered partially sighted	Population
England	126 828	79 048	47 536 300
Scotland	13 760	4 651	5 094 000
Wales	8 564	5 764	2 857 031
Total	149 152	89 463	55 487 331

Figures from Department of Health, Scottish Office, Welsh Office, and Office of Population Censuses and Surveys.

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You can join the Talking Book Library if your vision is certified as N12 or less. If you cannot read this paragraph wearing your normal reading glasses, you probably qualify for membership.

FIG 2—Eligibility for membership of RNIB's Talking Book Service. (Reproduced courtesy of RNIB)

FIG 3—Signature guide

FIG 4—Envelope address guide

played only on a talking book machine, which is supplied on free loan by the RNIB. There is a fee for membership of this service. The RNIB also has an extensive cassette library containing some 10 000 non-fiction titles, mainly academic books, recorded on C90 cassettes. Conditions for membership of the cassette library are the same as for the talking book library.

There are two systems of embossed script for reading and writing: braille and moon. Louis Braille invented the first system in 1824; its symbols are made up of variations of up to six raised dots arranged in a domino six pattern. The symbols in Dr William Moon's system are based on the roman alphabet. Few blind people are able to read either system. Details of books and magazines published by the RNIB in both systems can be obtained from the RNIB Customer Services at Peterborough.

There are now reading machines that can convert print into synthetic speech, braille, or a tactile form. The main disadvantages of these machines are that they are very expensive and not widely available.

A variety of writing aids is obtainable from the RNIB to help with signatures, writing cheques, addressing envelopes, and letter writing. The first three aids are pieces of either plastic or cardboard with windows for writing on the underlying paper (figs 3 and 4). For letter writing there is a choice of six writing frames to help the user write in straight, parallel lines (fig 5). Alternatives are paper embossed with horizontal lines, available from the RNIB, or writing paper with heavy lines, available from the Partially Sighted Society.

Kitchen aids

In the London showroom of the Disabled Living Foundation there is a permanent display kitchen featuring over 200 aids for the visually impaired cook. Most have not been designed specifically for people with impaired vision and can be bought from high street shops. A catalogue of items on display can be obtained from the Disabled Living Foundation.

It is often the simple aids that are the most useful, such as the liquid level indicator, a cylindrical device from which two pairs of plastic covered prongs protrude: one short, the other long (fig 6). The device is hooked over the edge of a cup by one of the pairs of prongs and when the liquid makes contact it makes an audible signal. It has been modified for deaf-blind people so that it vibrates on contact with liquid. Another aid with many uses is Hi-marks, a bright orange paste that is squeezed out of a tube through a fine nozzle. When it sets it forms a highly visible and tactile marking. It adheres to metal, plastic, paper, and fabrics and can be used, for example, to mark the controls of cookers, microwaves, irons, etc, and to label containers or clothing. Other useful kitchen aids are the Dux slicing knife, which has an adjustable guard to vary the slice width, and the Flasher electronic gas lighter, which is safer and easier to use than matches.

FIG 5—Millard metal writing frame

FIG 6—Liquid level indicator

FIG 7—Enlarged numeral dial fitted to standard dial phone

FIG 8—Dialatron Big Button phone (right) compared with standard push button phone (left)

FIG 9—Pyramid talking clock

Telephone aids

Telephones present a problem for the visually impaired person as the numbers on the old style phones and the numbers and buttons on the new pushbutton phones are too small to be clearly seen. British Telecom can supply free of charge an enlarged numeral dial ring, which has large black numbers on a white background, to stick on the phone (fig 7). The second problem is overcome by pushbutton phones with big buttons. Two suitable models are the Audioline 310, available from British Telecom shops, and the Dialatron Big Button phone (fig 8) and can be purchased from the Partially Sighted Society in a modified form with 2.5 cm black numbers on a white background and operating instructions in large print. Further information on equipment and services for the visually impaired can be found in British Telecom's *Guide to Equipment and Services for Disabled Customers*.

FIG 10—Mobility aids (left to right) red and white banded stick, white stick, symbol cane, guide cane, long cane

Watches and clocks

The RNIB stocks three types of watch and a range of clocks. There is an "easy to see watch," designed for people with some useful residual vision, which has large black numerals with black hands on a white background and comes in 2.5 cm and 3 cm diameters. A talking watch is available, as are tactile watches, which have hinged glass fronts, raised dots to mark the hours, and strengthened hands. Kitchen clocks with large numerals can be bought from high street shops to be used by those with residual vision. Smaller tactile clocks and a talking clock (fig 9) can be purchased from the RNIB.

Mobility aids

The most commonly used mobility aids are canes, sticks, and guide dogs. Canes come in three varieties: symbol canes, guide canes, and long canes (fig 10). Strictly speaking, a symbol cane is not a mobility aid (it

is used to indicate that the person holding the cane has a visual disability), but it is useful as a probe or buffer. Guide canes and long canes are true mobility aids and require instruction in their use by a mobility instructor, especially for the long cane, which was developed in the 1940s to aid the rehabilitation of second world war veterans. The cane is swung in an arc in front of the body and allows changes in ground level and obstructions below waist height to be detected. With these aids fairly rapid and safe mobility can be achieved.

Canes are not designed to provide support for the user. If this is needed then a white stick made of wood or aluminium should be used. Canes and sticks banded with red tape indicate that the user has a hearing impairment as well. All sticks and canes are available from the RNIB.

Guide dogs are provided by the Guide Dogs for the Blind Association, which welcomes applications for a guide dog from any registered blind person aged over 16 living in the United Kingdom who is fit enough to be able to use and care for a dog. An application may be made by the blind person or by someone acting on their behalf to any of the training centres or the main headquarters in Windsor. There are currently 11 training centres around the country. The association is trying to increase the amount of domiciliary training because a long period away from home on a residential training course may be unacceptable to potential trainees. There are about 4000 working guide dogs, and 597 new guide dogs were supplied in 1988, almost a sixth of them to people over the age of 65. Although guide dogs are excellent aids to mobility they are in relatively short supply and are available to less than 3% of registered blind people.

Summary

This article provides only a flavour of the type and range of aids available to the visually impaired person. Many other aids for leisure, learning, and daily living are illustrated in the RNIB equipment and games catalogue.

Appendix

FURTHER READING

- British Broadcasting Corporation. *The in touch handbook*. Available from Broadcasting Support Services, PO Box 7, London W3 6XJ (Price £8.50).
- Ford M. *In touch at home*. Available from ISIS, 55 St Thomas's Street, Oxford OX1 1JG (Price £5.95).
- Royal National Institute for the Blind. *Equipment and games catalogue*. Available from RNIB, Customer Services (address below).
- British Telecom. *Guide to equipment and services for disabled customers*. Available free from British Telecom shops.

USEFUL ADDRESSES

- Royal National Institute for the Blind, 224 Great Portland Street, London W1N 6AA (tel 071 388 1266).
- RNIB Customer Services, Production and Distribution Centre, Bakewell Road, Orton, Southgate, Peterborough PE2 0XU (tel 0733 370777).
- RNIB Talking Book Service, Mount Pleasant, Alperston, Wembley, Middlesex HA0 1RR.
- The Guide Dogs for the Blind Association, Head Office, Alexandra House, Park Street, Windsor, Berkshire SL4 1JR (tel 0753 855711).
- Partially Sighted Society, Queens Road, Doncaster DN1 2NX (tel 0302 323132).
- Disabled Living Foundation, 380/384 Harrow Road, London W9 2HU (tel 071 289 6111).

- 1 Office of Population Censuses and Surveys. *Survey of disability in Great Britain. Report 1. The prevalence of disability among adults*. London: HMSO, 1988.
- 2 Royal National Institute for the Blind. *Report for the year ended 31st March 1989*. London: RNIB, 1989.
- 3 Hillman JS. Aids for low vision in the elderly. *BMJ* 1988;296:102-3.