Drawing on the left side of the page

ELIZABETH A BRAIN

It's as simple as ABC; or is it?

Regular readers of the *BMJ* must be familiar with the articles that have been appearing under the general title of "ABC of . . ." We have been enjoying them regularly for the past few years. Those of us who have been shuffling through our torn out reference pages, or dog eared copies of the journal will be delighted to know that these articles have now been collected together and published as books. Each series of articles has been brought out in separate books, with paperback covers of vibrant colours and intriguing design, incorporating some reproductions of fascinating old prints. They will be simple to use and are most attractive.

The *BMJ* took an imaginative step in medical journalism when it introduced this series. The innovative format uses many illustrations combined with a simple, straightforward text. Most of the articles present concepts in small steps; a concise written description being presented on the right side of the page accompanied by a complementary illustration on the left side, making it simple to read, understand, and assimilate the subject matter.

The use of illustrations in teaching and learning has developed considerably over the past decade. Research into the functions of the right and left sides of the brain, starting with the work of Sperry in 1968, indicates that there are two distinct cerebral functions.¹⁻² The left side of the brain in right handed individuals is said to process mainly verbal, logical information, while the right cerebral cortex is chiefly responsible for the holistic, spatial, and creative types of perception. The right and left sided functions are usually reversed in left handed people. It seems that these are learned cerebral activities, since the functions are not lateralised in infancy, and, indeed, the opposite side of the brain can develop the functions normally ascribed to the other side in babies who suffer early lateralised brain damage. Left sided dominance in verbal function seems, however, to be established at a fairly young age and is enhanced by traditional education, which strongly emphasises the use of the written and spoken word, and the training of logical thinking processes.³⁻⁵

Although verbal and written skills of communication and logical thinking processes must be developed, it now seems highly desirable to train and exercise our right cerebral functions as well. Training in subjects such as music and the visual arts is not to be thought of merely as a way of developing those particular skills or talents necessary for performing but also as a means of expanding our spatial and holistic modes of thinking. It is apparent that both verbal and non-verbal reasoning are required for intellectual ability; the one type of thinking reinforces the other. Many scientific advances seem to have been made by intuitive leaps. Even Einstein is said to have first conceived the theory of relativity "in his mind's eye," before applying the mathematical reasoning and logic necessary to give it valid expression.

Right sided cerebral activity is intriguingly described by Betty Edwards in her book *Drawing on the Right Side of the Brain*.⁶ She shows how the activity of the left side of the brain can interfere with our ability to draw. If in copying a picture we turn it upside down, thereby diminishing our logical, analytical perception of it, we are able to concentrate on the form and spatial configuration and thus achieve a much better likeness.

These ideas support the power of visual images in learning. The many forms of media now used as adjuncts to educational activities have a major visual component and this enhances the impact. Most of us are aware of how our teaching may be

improved by the use of visual materials—slides, overhead transparencies, films, videotapes, or doodles on the blackboard. We may even use our hands and bodies to convey an impression of size, shape, appearance, and demeanour. And how much easier is it to follow a talk if the speaker has pleasing, simple, well organised slides: "A picture is worth a thousand words."

In understanding medical concepts many of us find it helpful if we can form a visual impression or model to reinforce our verbally centred education. Once we have a conceptual framework or have envisioned the subject it seems easier to assimilate many of the detailed facts that are required to assemble a logical explanation. Visualisation of a total concept, therefore, seems to be an efficient mechanism whereby our cerebral cortex processes and stores information. The use of illustration, and particularly in scholarly journals, has, however, been limited. Printed illustrations may not have the same effect as those of a film or videotape, and do not usually equal the colour quality of a photograph or slide. Coloured, printed illustrations are expensive to reproduce. But where motion and colour are not important, black and white illustrations may be used to advantage as they are relatively inexpensive and may be closely juxtaposed to descriptive text. If the illustrations are plentiful and relevant to the text and if the accompanying text is simple, clear and succinct we have a powerful combination. Since printed materials do not need complex equipment for their display and may be carried around we have an excellent educational medium. It's simple, but not necessarily simplistic.

What is it about the illustrations, the text, and their arrangement that contribute to the successful use of this format? First, as with any article, the structural organisation should be clearly evident. Good organisation may be achieved by the appropriate use of subtitles, by, for instance, ordering and labelling the illustrations, and by interpolation of frames emphasising key words or showing flow diagrams. The visuals should be able to stand on their own. This means that each picture or diagram should make a statement and be independent of the accompanying text, except for elaboration. The diagrams must be clearly labelled. There should then be a logical flow from subtitle to subtitle through each illustration.

Secondly, both illustrations and text should be simple and not cluttered. For most readers the illustrations make the initial impact. It is therefore appropriate that in a society that reads from the left to right of a page the visuals should be placed on the left. It is also tempting to speculate that by predominantly stimulating the right side of the brain visual stimuli originating on the left side of a page are directly perceived by the part of the cerebrum most able to handle holistic, visual information. In any case, by following the visual flow you should be able to obtain a quick introduction to, or review of, the topic. The text also should be simple, direct, and informative. Each portion should be relevant to the accompanying illustration and should ideally not occupy more space than its visual partner.

The *BMJ*'s series of articles were designed to provide straightforward practical guidance on various topics, procedures, or methods commonly encountered in daily clinical practice. The following titles have so far been published, and there is a promise of more to come:

ABC of Ophthalmology by P A Gardiner

The First Year of Life by H B Valman

ABC of Ear, Nose and Throat by H Ludman

Procedures in Practice—multiauthor

ABC of Hypertension—multiauthor

Alcohol Problems, including "ABC of Alcohol"—multiauthor and "Alcohol and Alcoholism" by Richard Smith

ABC of 1 to 7 by H B Valman

ABC of Diabetes by Peter J Watkins

Statistics in Practice, including "Statistics and Ethics in Medical Research" by Douglas G Altman and "Statistics in Question" by Sheila M Gore

ABC of Brain Stem Death by Christopher Pallis

ABC of Healthy Travel by Eric Walker and Glyn Williams

ABC of Computing by A J Asbury.

In general, each of these books demonstrates an excellent use of the format. The visual material is well prepared and motivating and the subject matter succinctly and clearly stated in both the written and visual portions. The use of subheadings makes the organisation very clear. In some instances the visuals lacked a key word or an explanatory note which would have made the visual summary clearer, but mostly the presentations amply fulfil the journal's objectives.

Some of the topics lend themselves to treatment in this format particularly well. *ABC of Ear, Nose and Throat*, *ABC of Ophthalmology*, and *Procedures in Practice*, for example, outline common and practical topics and procedures. They clearly show relevant anatomy, and other important background information, in addition to showing techniques and instruments used in the procedures. The *ABC of Diabetes* illustrates many aspects of the disease, its clinical presentation, and management in a lucid and concise way. The concepts required to understand hypertension are well displayed in the *ABC of Hypertension*. All are well illustrated with many half tone pictures as well as drawings. The illustrations are mainly of good quality, although the half tone photographs have not all been reproduced as well as the excellent line drawings and diagrams.

The format of the two paediatric books *The First Year of Life* and *ABC of 1 to 7* has been slightly disrupted by the insertion of "boxes" of information, which do not relate well to the chapter headings, and which I found slightly confusing. This presumably was a compromise owing to the premium placed on space in a weekly publication. Although a practical approach is useful for a busy practitioner, more emphasis on the rational and conceptual basis for management would make the books more valuable when the practice is not universally accepted, or if the practice changes.

While *Statistics in Practice*, *Alcohol Problems* and *ABC of Brain Stem Death* do not use the visual technique uniformly throughout, they are nevertheless excellent summaries of these topics. *ABC of Brain Stem Death* is an original, timely, and comprehensive discussion of a controversial subject. These articles were originally written as lectures, and some of the pictures in this book do not clarify the text, which is a little

more discursive. The subject was thus rather more difficult to assimilate quickly. *ABC of Healthy Travel* displays a good use of visuals and text, and a happy marriage of the two. Apart from these few qualifications it is hard to find fault with these publications, which cannot have been simple to prepare.

In most of the books the editor's preface indicates that they were intended to be of practical guidance to general practitioners,

particularly those in the early years of practice, to medical students, and to clinical medical officers. The choice of common topics of practical importance, their straightforward treatment, and the clear simple visual presentations are admirably suited to these readers. The books should be in every general practitioner's surgery as a reference. They provide guidance in distinguishing urgent and non-urgent conditions, and when it is advisable to refer a patient to a specialist. But the use of these books, I suspect, will not be limited simply to the doctors. They would also be valuable for nurses, other health professionals,

and even patients. The clear, simple diagrams could be used to assist in explaining to patients the nature of their disease, or the procedures that they are likely to encounter. Nor do I believe that the use of these books will be limited to British doctors. Although they reflect health care practice in Britain, much of the information is likely to be of value to physicians and students throughout the English speaking world.

A great deal of work has gone into the preparation of the articles and books by several people working as a team. The authors (in some cases many authors) and illustrators must have been closely in tune with each other, and the clarity of thought and consistency in editing is remarkable. The authors and illustrators are to be congratulated on their clear and pleasing presentations, and the excellent coordination by the editor and his staff cannot be too highly praised.

For sailors

DOUGLAS GAIRDNER

I approached this book, with its slightly curious title, with certain misgivings. Was it to be just another amateurish effort by a keen sailor with a modicum of science at his disposal, providing no more than platitudinous advice to the yachtsman? Any such fears were quickly allayed when I embarked on chapter 1, which the author, with his priorities obviously correct, devotes to seasickness, a major preoccupation with most skippers thinking about themselves and their crew, and also the cause, directly or indirectly, of many a disaster at sea. As something of a connoisseur in the matter, having all too often had to observe the course of seasickness in others, I concur with Cohen's statement that *pallor* is the earliest sign (an unwonted and ominous taciturnity is another). Thereafter, the course varies but frequently proceeds to a demoralisation and despair, which can rapidly reduce a strong and staunch companion to a hopeless patient, hardly rousable even when the need is dire. It is only when it is realised that these mental symptoms are truly those of an *encephalopathy* that those left to work the ship can readily accord the patient the acceptance and the sympathy due to any sufferer from a severe illness.

Seasickness has, of course, nothing to do with the stomach, any more than have other "non-gastric" causes of vomiting, such as migraine, morning sickness in pregnancy, or cerebral tumour. In none of these, I suspect, is the mechanism of the vomiting clearly understood. Cohen favours the theory that there is a centre in the brain stem which coordinates all afferent stimuli concerned with the body's position and motion: the vestibular system (semicircular canals, saccule, utricle), the visual system and the position sensors in the joints and muscles of the head and

These books may be highly recommended. They are not quite as simple as ABC.

References

- ¹ Sperry RW. Mental unity following surgical disconnection of the cerebral hemispheres. In: *Harvey lectures*, series 62. New York: Academic Press, 1968.
- ² Sperry RW. Hemisphere deconnection and unity in conscious awareness. *Am Psychol* 1968;**23**:723-33.
- ³ Blakeslee TR. *The right brain*. London: Macmillan, 1980.
- ⁴ Gilder RS. Left brain-right brain theory and the design of medical teaching materials. *J Audiov Media Med* 1982;**5**:45-50.
- ⁵ Anonymous. Visual communication. (Special issue.) *J Biocommun* 1982;**9**: 4-33.
- ⁶ Edwards B. *Drawing on the right side of the brain*. Los Angeles: J P Tarcher, 1979.

neck. In most kinds of motion that our bodies experience the messages from these different sources are compatible and complementary. But suppose you are down below, facing forwards towards the bows. When the boat rolls your vestibular sense duly informs the brain, but your visual system reports that nothing has changed. Receipt of such conflicting sets of information is

Stingray inflicting its sting. Reprinted by permission from B W Halstead. *Dangerous Marine Animals*. Centreville MD: Cornell Maritime, 1980.

Rolling motion to starboard with visual-vestibular conflict.

held to engender the vasoconstriction, sweating, salivation, nausea, vomiting, and the mental symptoms. In addition, head jerkings caused by the motion of a small boat are thought to be important.

This theory of motion sickness is no doubt now being properly investigated since the problem has become of importance to astronauts, so perhaps in due course we shall know what happens to the blood chemistry, electroencephalographic tracings, and so on in a motion sick person. Meanwhile, the theory is compatible