Editorial: Spatial contrast sensitivity

Many sensitive and reliable tests of visual function are available for the investigation of visual acuity, visual field, colour vision, and dark adaptation. The tests may be carried out in many different ways. Other tests may be done, such as that for flicker fusion frequency, but the numerous similar investigations possible are more applicable to the psychophysical laboratory than routine clinical practice. Despite the variety of investigations that may be undertaken, any fresh approach to the early diagnosis of visual disease or the differential diagnosis of a visual symptom would be welcome.

In the current issue of this journal G. B. Arden has provided a timely review of spatial contrast sensitivity (p. 198). This method has been used in psychophysical and clinical research for many years. The ease and potentialities of the test are evident from the review, and it may be wondered why it is not already in routine clinical use. Few of the papers describing its use have been in clinical journals. The terminology is unfamiliar to the clinician—cycles per degree, spatial contrast, modulation transfer function, and the like—but these are here clearly explained. The technique of the test also poses problems. On p. 213 K. Arundale describes his method with results in normal subjects and a few patients. His grating stimulus is generated on the screen of a television monitor and he notes that a naive though co-operative observer takes 20 minutes to complete the test. Neither factor is likely to appeal to the busy clinician.

Arden has attempted to overcome these problems by having selected gratings printed. He shows that these are simple and rapid to use, and he describes his method of recording the results. It is evident

that the speed and reliability of the test depend to some extent on the examiner, but that is equally true of other established tests such as visual field examination. On present evidence it appears that spatial contrast sensitivity tests will be useful as a visual screening test, in the investigation of visual disturbance when other subjective tests are normal, and in the differential diagnosis in cases of visual loss.

Arden points out that such gratings do not occur naturally yet they seem to depend on a basic visual function in that there are probably several visual channels handling separate spatial frequencies. This allows subjective and objective visual investigations to be compared. The visual evoked potential has been used for several years in both research and clinical investigations, but it was initially of limited value as the nature of the stimulus was crude, stimulating several visual functions. Various types of suitable pattern stimuli are now available, and spatial contrast gratings are very suitable for this investigation. Recent studies on this topic and the relation of subjective and objective findings will be found in a review by Desmedt (1977).

It will be evident that we now have a simple and potentially valuable investigative tool with wide application. Indeed it has been proposed, not entirely in jest, that the vision of everyone in the country could be screened by transmitting the gratings through the television system.

Reference

Desmedt, J. E. (1977). *The Evoked Potentials in Man*. Oxford University Press: Oxford.