Stereopsis
Ophthalmologists and visual scientists are fully aware that the neurophysiological basis of stereopsis depends on the existence of binocular disparity receptors at a cortical level. However, no discrete “stereopsis centre” has been found similar to those for other visual functions such as color and motion detection. Instead, disparity receptors are found in several regions of the visual cortex such as V1, V2, V3, and in other areas such as MT (middle temporal area) (V5) and MST (medial superior temporal area). This raises the question as to the nature of the role of disparity receptors in each of these areas and also indicates that identification of disparity receptors does not automatically mean that they are involved in depth perception. They could have other functions related to their original location in the visual cortex. Now, a recent report in the journal Nature (1998;394:677–80) has shown that perception of stereoscopic vision and electrical activity in disparity selective neurons in area MT do in fact correlate—that is, that these particular disparity selective neurons carry information concerning depth perception. The studies were carried out in monkeys who were trained to perceive depth under specific conditions during which neuronal electrical activity was recorded from MT neurons stimulated by a moving random dot stimulus covering their receptive fields while fixation was maintained on a small spot. The authors are quick to point out that correlation between MT neurons and stereopsis does not exclude neurons in other centres from similar function.

Findings from the UKPDS confirm importance of good glucose control in prevention of diabetic retinopathy
The largest single prospective study of the management of maturity onset diabetes, the United Kingdom Prospective Diabetes Survey (UKPDS), has published its findings in a series of papers in the BMJ and the Lancet to coincide with the presentation of the data at the EASD conference in Barcelona (September 1998). The study, coordinated by Dr Robert Turner of the University of Oxford, comprised a range of macrovascular and microvascular outcome measures in patients who were treated with a tight glucose control regimen compared with a more conventional approach. Unlike with the previously reported Diabetes Control and Complications (DCCT) trial in type 1 diabetic patients, both groups of patients in the UKPDS showed a progressive rise in their HbA1c levels with a greater tendency for these levels to converge than in the DCCT. Despite this, there was a significant benefit for delay in development of severe eye complications, particularly retinopathy. This suggests that institution of good glucose control at an early stage in diabetes is important in minimising the effects of diabetes on the retinal vasculature despite the fact that control may be difficult to maintain in the long term.

During the period of this study, which currently is reporting on the 9 year data, additional arms to the study were added as information concerning other aspects of diabetes care became available. One of these, of particular importance—namely, a study of patients in whom hypertension was aggressively treated, has also produced some interesting data indicating the importance of hypertension control as well as blood sugar control in preventing retinopathy at least in this group of patients. These results were found whether the blood pressure was controlled using ACE inhibitors or β blockers.

BMA and GMC offer proposals for accreditation retest
In the wake of the Wisheart affair, promises made by the medical profession in the UK to put its house in order (see Newsdesk 1998;82:861) appear to be taking shape. The General Medical Council (GMC) president Sir Donald Irvine appears to endorse strongly the notion that regular reaccreditation of specialists would go some way towards repairing the profession’s public image. Although proposals for yearly reaccreditation of specialists has been proposed in the past by, for instance, some of the royal colleges, there has not been much enthusiasm for the idea. Now, however, the GMC appears to believe that this may be the least that the public will accept. What form reaccreditation would take is not clear and discussion on these issues are under way. At the present time, retaking formal examinations would not be regarded as the most appropriate option compared with some means of evaluating day to day performance, but precisely how this could be achieved is not clear.

In the meantime, the British Medical Association has released what it describes as its gold standard for peer review appraisal of specialists. The BMA Central Consultants and Specialists Committee has been developing this new system of peer review guidelines over the past 3 years (that is, pre-Wisheart) which assesses both clinical and non-clinical aspects of a specialist’s work within the context of the specialist’s own unit. Such topics include service development and management, continuing medical education and professional development research, teaching, and training. It does not overlap in any way with either disciplinary matters or with appraisal related to discretionary points or merit awards but many feel that it inevitably is likely to be viewed within these settings. The system is costly and will take up significant resources both on consultant time and bureaucracy but has considerable support within the profession.

Whatever happens it seems most likely that there will be some form of regular consultant and specialist appraisal of fitness to practise and it would seem most appropriate if the basis for such schemes were based on ideas generated from within the profession itself. The Royal College of Ophthalmologists in the UK is thus the most appropriate body to take up the challenge on behalf of ophthalmologists in the UK. Clearly, there is a considerable task ahead in view on the extensive subspecialisation that has occurred within ophthalmology in recent years and setting criteria for specialist reaccreditation in each of these, on the basis of practice performance, will require careful development.

Ultra-high speed imaging of thrombolysis
An ultra-high speed imaging system which has the capability of taking consecutive digital images at speeds of up to 100 million frames per second (the IMACON 468 from DRS Hadland) has been used at the Los Alamos National Laboratory to investigate the high speed ultrasonic lysis of blood clots in vitro, using a modelling system which it hopes will enable it to provide better information on the use of ultrasound in clearing thrombi causing heart attacks and strokes. During the experiments exposure times were as low as 500 nanoseconds. As yet the system has not been tried on vessels as small as those in the retina or at the optic disc but in the future it may be possible to consider the use of such techniques in ocular pathologies.

Does cortical region MST also subserve analysis of optic flow?
When we move through the environment, information concerning the direction in which we are moving or “heading” is derived from information concerning the speed and direction of movement of objects within the entire visual field; this is known as optic flow and not only regulates “heading” but also contributes to the control of posture and side to side swaying. Now it has been shown the the same region that is involved in the perception of stereopsis (MST, see first item) may also, in part, be involved in the perception of optic flow (Current Biology 1998;8:R554–6).

As for the experiments on stereopsis, the studies were a combination of behaviour (training) experiments and electrode recordings from cells in the region of the MST. Neurons in this region have much larger receptive fields that neurons in other visual cortical areas such as V1, but as the authors point out not large enough to account for the entire visual field in a single cell. Therefore, although MST is almost certainly involved in perception and analysis of optic flow, other mechanisms and/or centres are also likely to be involved perhaps by feedback or via networking arrangements.