

TEACHING AND TESTING

*L'homme n'est qu'un roseau, le plus faible de la nature; mais
c'est un roseau pensant.*

(Man is only a reed, the weakest thing in nature; but he is a
thinking reed.)

Blaise Pascal, *Pensées*, 6: 37 (1670)

The establishment of educational posts from 1962 onward, referred to in the last chapter, was an attempt to introduce the concept that had served so well the needs of Antipodean trainees studying in London in the post-war period. Here, the English College offered a three-month course in which it was possible to become immersed in the basic sciences under the gifted teaching of men such as David Slome – a South African expatriate and a physiologist of distinction – and an Australian expatriate, Ray Last, who brought anatomy to life.¹ (Does the expatriate, one wonders, bring some special quality, some insight, to the teaching of younger and more fleeting expatriates?)

In its heyday the English College course attracted Australasian candidates in large numbers, but there were those who wished to attempt the Primary locally. In August 1955 (when I was in a state of post-course post-Primary euphoria in London) the New Zealand committee was resolving to 'pursue the matter' of a Primary examination in New Zealand. Two years later their pursuit had brought the examination to Dunedin, and they learned that there were 21 candidates on a preliminary course, run by John Borrie, of whom a mere six presented for the examination itself.

The institution of the Education Wing in the early 1960s may thus be seen as an attempt to provide, in English College fashion, for the needs of those who had previously travelled half-way round the world – and probably also for some of those who had filled the places at the Borrie course, and at others which shortly developed elsewhere in both Australia and New Zealand. The English College idea, in its native milieu, was brilliant; but it did not translate well to a couple of sparsely populated countries, and it was soon found desirable to spread the teaching of the basic sciences more evenly.

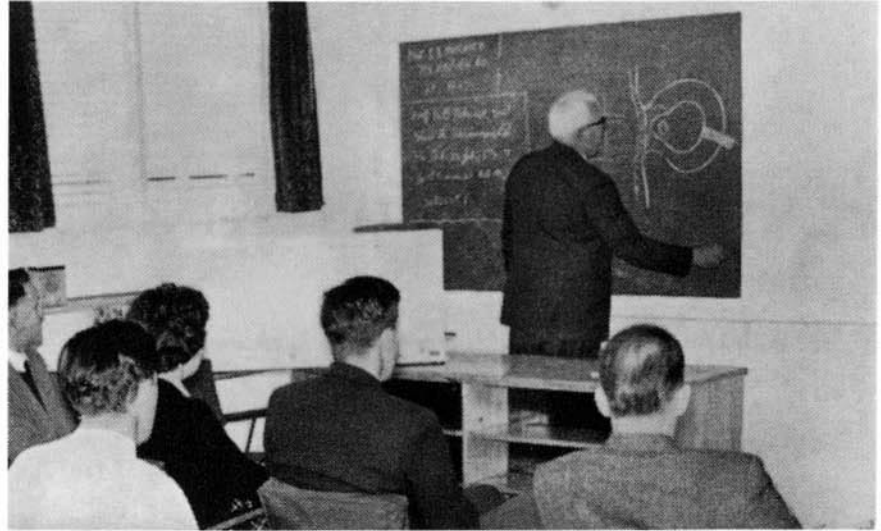
By 1960 quite structured opportunities already existed in Sydney, Auckland and Dunedin as well as in Melbourne, and less formal teaching was offered in other centres as well. In Sydney (where anatomy prosector posts catered for the aspirants) and Dunedin there



R.J. Last (above), the Australian expatriate, and his South African colleague, David Slome (below), were inspiring teachers of the Primary course provided in the 1950s by the English College. Ray Last became an Australasian Fellow by election in 1980.



Professor J.J. Pritchard teaches an anatomy class in the newly commissioned Stevenson building in Auckland.



were, of course, medical schools whose resources could be tapped; in Auckland a medical school was yet to be established. By 1958 Sealy Wood was teaching a course in the basic sciences, with such resources as the hospitals in Auckland could offer, and in May 1959 the New Zealand committee was informed that an anatomy licence was being sought. There was shortly a suggestion that prepared anatomical specimens might be distributed from Dunedin, under the mantle of the branch faculties of the Otago school that were well established in the four main cities.

Three years later (when the College Appeal had produced a building programme in Melbourne, as well as funds for basic science teaching in New Zealand) the committee discussed a proposal from its executive: that there should be one course in New Zealand, full time for six months, of a standard equal to that in London, mounted in a centre having adequate resources, and that if this could not be achieved candidates should be sent to Melbourne. Neither Dunedin nor Auckland could be expected to welcome the idea of one course – neither did, and three months later the Council had ordained that two courses might be offered.

Without an existing medical school, Auckland had to put together a suitable package. The teaching skills were there, logistic support had now to be assembled. The local surgeons found their local Nuffield in the person of Sir William Stevenson, who provided funding sufficient to allow the establishment of a purpose-built basic science teaching laboratory. (When the Auckland school did come into existence, Stevenson endowed a couple of chairs, in plastic and orthopaedic surgery.) W.S. Wood was licensed as an anatomist, A.F. Hunter as his deputy. Professor J.J. Pritchard of Belfast, in 1963, was to be the first of a sequence of visiting anatomy teachers.

The leaders of the courses available in that period, Gault and Gray in Melbourne, Sealy Wood in Auckland and John Borrie in Dunedin,



John Borrie (left), inaugurated basic science teaching in Dunedin, Sealy Wood (right), in Auckland.



taught well and rectified much of the problem stated back in 1958 by Sydney Sunderland – that a high failure rate such as then existed must argue a lack of preparatory courses. They were hampered in their teaching, however, by the lack of a properly defined syllabus. This was a problem that had been overcome in London, where Last cheerfully conceded that the object of the course was not to teach anatomy but to get candidates through their Primary – and everything, down to the correlation between candidates' numbers and the whims of the examiners they would face, had been thought out!

In 1968 Howard Eddey, having become a member of the Council the previous year, was designated chairman of the Board of Examiners. He achieved a number of reforms in rapid time: he persuaded the Council to allow a defined syllabus and to permit candidates to carry over a decent pass in a subject.

More significantly, he persuaded the Council to reconstitute the Board. Hitherto composed entirely of medical scientists, apart from P.J. Kenny and Eddey himself, it now gained an infusion of practising surgeons and younger basic scientists. Ross Hawker, professor of physiology in Brisbane and Michael Blunt, professor of anatomy in Sydney, were joined by men such as Ian Heinz, Hugh Dudley (then professor of surgery at Monash), Sam Mellick from Brisbane and John Heslop from Dunedin. It could safely be assumed that the teaching of the new syllabus would be along practical – or clinical, for those who prefer the term – lines.

Meanwhile, the Glasgow College² had introduced a Primary examination in which the written part consisted of multiple-choice rather than essay-type questions. This fitted the mood of the time, and candidates in the United Kingdom flocked to Glasgow to take their examination. (I am not sure, but I have a feeling that this was a significant factor leading to the demise of the Institute of Basic Sciences at Lincoln's Inn Fields.)

The Board of the Australasian College was not slow to take note

of all this. Its thinking went even further: given that multiple-choice questions (MCQs, routinely described as 'emsiqueues') can be clinically oriented, could not the entire examination consist of MCQs? If it could, the problem of distance would be overcome, for it is difficult, in a conventional examination conducted over an area extending from south-east Asia to New Zealand, to be demonstrably consistent in the clinical portion. It is also costly for an organisation to embark on the examiner interchanges needed to 'gain marks for trying' in the matter of consistency. For that matter, it is difficult enough to make even the written portion simultaneous across four hours' worth of time zones.

The idea of a purely MCQ examination captured the Board's imagination and was brought to the Council in June 1970. The next thing was to 'sell' the idea to those Colleges with which Australasia enjoyed reciprocity - by now, in addition to the four UK Colleges, South Africa and (with qualifications) Canada. The old military injunction, 'don't fire until you see the whites of their eyes', may well have influenced the older colleges in particular to demand an episode of personal contact as a part of the examination procedure.³ The problem was overcome by the insertion of an 'interview' which became an opportunity for counselling as much as mere assessment (and did at least allow the interviewer to verify that the candidate was neither a Hydra nor a Cyclops!).

The composition of MCQs is an art form, about which books have been written (including one of the College's own prompting), and it would be excessive to attempt here to analyse the art. It would equally be unkind to discuss the proposition that MCQs assess, better than anything else, the ability to answer MCQs! What almost three decades of their use - in what became the Part I, to distinguish it from the old Primary - have demonstrated is that the ability to master the art form correlates well with the ability to master the basic sciences as they apply to surgery.

The success of the Part I concept owes much to a further episode of serendipity. In 1969 the 5th International Congress of Plastic and Reconstructive Surgery was held in Melbourne, with B.K. Rank as convener. Benny, I recall, commissioned me to produce a flag based on the conference emblem. Of much greater import, he engaged as organising administrator June Lehmann. She was a native of Edinburgh who had been brought to Australia at the age of 10, had lately returned from a period of OE that had included its share of adventures and was now recently married.⁴

She would devote three decades to the service of the College, for after the 1969 congress she stayed on to administer the new Part I, with the title of examination secretary.

The new examination was introduced in 1973, as part of a 'package' of reforms which covered the whole process of training and



After she had been recruited as organiser of an international plastic surgical congress in 1971, June Lehmann devoted a generation of service to the College.

examination. The subsequent stages in this process will be examined in the two chapters that follow; it is enough here to note that candidates who passed the 'old' Primary prior to 1 January 1973 were allowed until 31 December 1978 'to complete their Surgical Training and the Final Examination under the old regulations'. Those who had been allowed to 'carry' a Primary subject were allowed until the end of 1973 to complete an old-style Primary, then carry on under the old system until 1978.

It will be recalled that publication of a syllabus had been permitted for a few years, and 'reading material' had indeed been produced already. To cover the transitional period the regulations provided that:

Initially the multiple choice question paper in the Part I Examination will test candidates on subject matter in this syllabus that is used in the current Primary Examination. Questions on new topics in this syllabus (e.g. chapters 1, 9, 24, 25, 26 and 27) will only be included six months after appropriate reading material is published by the College.⁵

Not only was the new examination more comprehensive, it was introduced with elaborate precautions to avoid penalising candidates during the transition.

In a valedictory history of basic surgical training, June Lehmann recalled that:

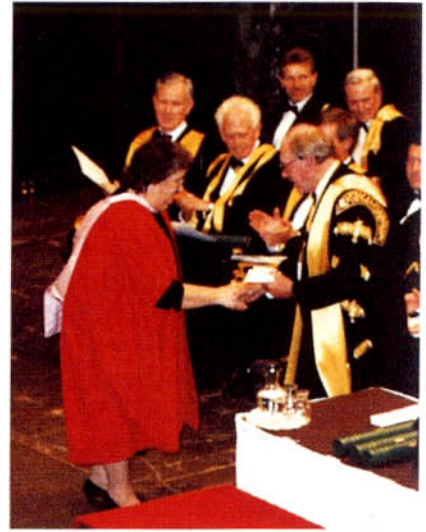
It was the belief of the Board and the College at that time, that the new examination could be taken from an in-service position without the need for external courses. However, the candidates did not share this view.⁶

Far from sharing the official view, candidates were as eager to enhance their prospects as their elders had been who took themselves to Lincoln's Inn Fields in the 1950s. June Lehmann goes on:

in response to pressure, a number of preparatory courses were organised at various centres by local personnel.

Of these, the most celebrated was that run in Dunedin by the husband-and-wife team, the Heslops, which was always fully subscribed from both sides of the Tasman. John, surgeon, Councillor from 1975, long-serving member and ultimately chairman of the Board, and Barbara, surgical scientist, Fellow of the College by election, a Board member too: they brought to their course a magical quality (a mixture of preparedness and confidence, not least in mastery of the MCQ 'art form') matched only by the insight with which they judged their candidates.⁷ It was the custom for Barbara to meet all the candidates at the start of the course and make privately her predictions for them. John was commonly involved in their subsequent interviews and could make predictions of his own at that stage. Legend has it that there

John and Barbara Heslop have been another notable husband-and-wife team in the service of the College. In 1990 they were the first recipients of the Sir Louis Barnett medal.



was 93 per cent correlation between these sets of figures and the outcome of the examination.

It was important, of course, for the College to recognise and preserve the distinction – almost theological in its nicety – between teaching and examination. There are not so many experts in the basic sciences that they can be divided into two camps. The same person may thus well be employed in both parts of the process, but employment as teacher will be on the basis of expertise. An appointment as examiner comes, however, on the basis of appointment to the Board (which appointment will have been on the basis of the same expertise!), and this ‘basis at one remove’ was reinforced by the decision that courses would not be endorsed ‘as official courses conducted by the Board’.⁶



With his colleague Ken Cox, John Royle (president 1995-96) brought the sophisticated analysis of the computer age into the Part 1 examination at a time when little science had hitherto been applied to educational activity.

Having reformed the Board and then the examination, Eddey was gracious in passing the chairmanship to G.D. Tracy (who would become president 1979-81), and Tracy set about putting into place the arrangements that would give substance to Eddey’s vision.

He recruited his fellow-professor from Sydney, K.R. Cox, who had made surgical education into a subject for scientific study. Hugh Dudley took over the assembly of the question banks, with J.P. Royle as his deputy in the early stages, then his successor when Dudley returned to England. These men were computer-literate ahead of their time, and Cox took care of the computer marking of scripts, while Royle analysed results and was able, in time, to offer valuable predictions on those who failed the examination at a particular attempt.⁸ This information could then be fed back to the candidate, so as to obviate the problem of the long-term loser.

The allied problem, of the candidate disadvantaged by language or other circumstances, was able to be identified at interview, and a ‘red flag’ attached to such a person’s file permitted special scrutiny of that

candidate's results. Impersonal at first glance, it was a carefully humane process, refined rather than dehumanised by the power of the computer.

To June Lehmann fell the task of administering an examination that came to be held in 13 centres in five countries. If we take into account that the spread was across four hours of zone time (with the added 'confusion factor' of summer time, or in Queensland over many years, *no* summer time!) we can admire the skill with which she handled a challenge that might have worried Joshua.

The several Board subcommittees that formulated questions for the respective 'question banks' had to ensure that these questions were understandable, that the 'correct' answer was defensible, and that the questions selected from the bank for a particular examination both covered the syllabus and represented a standard challenge to the candidate's grasp of the subject. Computer analysis helped in this regard: a question that posed unusual difficulties could be identified, and the spread of marks between one examination and the next showed how standard the challenge had been. As John Heslop recalled in his Gordon-Taylor lecture,

the *ad hoc* adjustments which had been put in place by Professor Hugh Dudley and continued by John Royle were put on a more formal basis by Professor Ken Cox, and the routine formula which he set up was adopted in due course.⁹

In February 1978, when the Part I had been in operation for five years, a residential seminar was held in Sydney to assess the whole subject of training and examinations. For a weekend councillors, teachers and examiners braved the distractions of King's Cross to engage in earnest discussion. The record of proceedings did not exaggerate, as I recall, when it held that:

The seminar revealed that the College Fellows are enthusiastic and dedicated when it comes to training surgeons and they display remarkable agreement in advocating certain changes.¹⁰

Some of these changes were adopted forthwith; other recommendations were ahead of their time and (as June Lehmann, writing 21 years later, points out) 'will feature for the first time in the restructured basic surgical training programmes due to commence in the near future'.

One recommendation that languished for many years was for a register of basic trainees. This was talked of in the 1978 seminar and recommended to the Council by the Part I Board in 1982. It was felt at that time that to place the name of a would-be basic trainee on a register (and by implication, charge a fee for doing so) would confer on that person a status which might be misinterpreted as an obligation on the part of the College. Indeed, it was conjectured that the very person the College would already wish to have off the register could



Hugh Dudley held the surgical chair at Monash when he applied himself to assembling question banks for the MCQ examination.



William Burnett has been called 'indefatigable'; his memorial was the College's publication of *Clinical Science for Surgeons* in 1981.

be the person who would demand of the College some sort of concession or recognition. Surgery, it was felt, is not altogether free of the 'sue-for-unjust-dismissal' personality. It will be interesting to see what emerges from the institution of a basic training register in January 2000.

The next refinement in what was so obviously a dispassionate process of assessment came in 1988 when a trial was conducted, in Adelaide, Perth and Melbourne, of the Objective Structured Clinical Assessment (OSCA). From the outset the Part I MCQs had striven to include questions that had a clinical flavour, but in late 1987 the Board was asked by the Council 'to clinicalise the examination'. Setting aside the unfortunate literary style of the request, it must be allowed that the UK Colleges were, by now, requiring evidence of clinical acumen in those about to enter advanced surgical training, and there had been murmurings for some while about the lack of any penetrating examination of clinical ability, in a relative handful of MCQs.

The trial was successful enough to prompt the institution of an official RACS OSCA in November 1990 and March 1991. This, of course, meant another of the College's familiar 13-centre, five-nation operations and was the first such simultaneous international postgraduate assessment. By 1999 the innovation had paid the price of its own success – it was renamed OSCE,¹¹ as befits what is now an examination, no longer a mere assessment.

The Board was quick to provide instructional material for those preparing for the Part I examination. In 1973 the first edition (and three years later a second) appeared, of what was styled the *Manual for trainees in Basic Surgery*. It was cyclostyled and distributed in a ring binder to allow the insertion of addenda (a hazardous process: in the copy I have, the list of contributors is punched on the wrong side of the page!). The production was handled by the editorial committee of the Board: William Burnett of Brisbane was convener, with H.A.F. Dudley, T.B. Hugh, J. Ludbrook, G.D. Tracy and the editing secretary June Lehmann.

It was a spectacular advance on the guide published in the 1972 handbook, only a year before the first edition of the *Manual*, where the prescription for anatomy stated simply that:

A detailed knowledge of regional, applied, radiological and histological anatomy is required. In the field of embryology and comparative anatomy the candidate will be expected to have a sound grasp of the general principles and a more detailed knowledge only of those aspects of the subjects which have special surgical significance.

A guide, certainly, but a fairly broad guide only, we may feel. It was rather like having to use the world map in the back of last year's diary to plan a road journey from Melbourne to Canberra.

The *Manual*, therefore, was a great success, so great, in fact, that

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the decision was taken to publish the material, suitably expanded, in hardcover book form. *Clinical Science for Surgeons* was edited by Bill Burnett. John Heslop has called him 'indefatigable' and indeed, behind a facade of defensive gloom, he was resolute in addressing the needs of aspiring surgeons. It was published in 1981 and brought great credit to its editor and contributors – and to the College. Sad to relate, Burnett himself died just as the book came to publication. The College awarded its medal, posthumously, to the man who had done so much to make its basic training programme widely known and respected.

In 1988 a second edition, edited this time by Vernon Marshall and John Ludbrook, attracted this comment in a Foreword from Francis D. Moore of Boston, the doyen of surgical scientists:

The purpose of this wonderful textbook... is to help surgeons, especially students and residents, learn both these things: the fine art of 'safe convalescence' and the ways of applied human biology that will meet new challenges... It is a thrill to read this book, to study it, and to sense the inspiration students will receive.

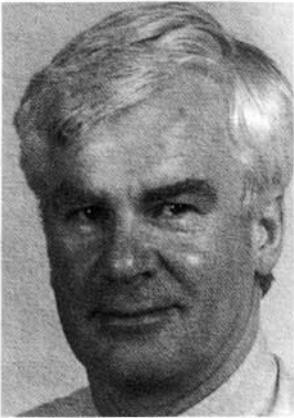
To digress briefly: there was a postgraduate course on shock in Dunedin many years ago, with Francis Moore as guest speaker. In a question-and-answer session, one participant delivered a ten-minute 'paper', then remembered the nature of the session and ended, 'And what would you say to that?' Moore replied: 'What can I say, except – halleluia!' Reading his tribute to the book, we may echo his words!

With the approach of a new century, a new publication has also been prepared: *Integrated Basic Surgical Sciences*. Given its pedigree, its success seems assured.

In October 1997 the Council agreed to a name change for the Board of Examiners. Its new title, the Board of Basic Surgical Training, took account of the degree to which the old dichotomy between teaching and examining has disappeared, so that the two processes were now seen as a continuum (with registration of basic trainees at the beginning of their training as an 'outward and visible sign' of the College's concern for them).

With such a concern goes the need for in-training assessment of trainees, by means of an assessment portfolio than can adapt to regional variations in employment conditions. To Jenefer Martin, a colorectal surgeon, as co-ordinator of surgical education, falls the task of introducing this portfolio. It follows the precedent of the advanced trainee logbook, which has been in use for twenty years (and informally even before then) but transfers the emphasis from the recording of operations to experience 'across the board'.

The anatomy, physiology and pathology banks remain the core of the Part I process. Each, in the year 1999, had its own subcommittee, chaired by R.K. Brodribb, D.G. Hill and J.E. Payne respectively. To these must now be added the OSCE bank subcommittee chaired by P.G. Devitt and, of course, the examinations committee which gathers



At the close of the 20th century, the 'bankers' who chaired the Part 1 sub-committees were (from left, top row), R.K. Brodribb (anatomy), D.G. Hill (physiology), J.E. Payne (pathology) and, (lower row), P.G. Devitt (OSCE). Below: N. Bogduk chaired the examination committee.



these elements together. It is chaired by Nikolai Bogduk who, as befits an anatomist, is also deputy chairman of the anatomy bank subcommittee. In the final issue of the *RACS Bulletin* in November 1999 he was able to claim that:

The College conducts one of the fairest examinations in Australasian postgraduate medicine... After each examination, every question is automatically processed by computer, and a record is kept of its difficulty and discriminant value. Questions that attract atypical or strange performance are checked for accuracy... Any disparity in performance is factored into adjustments of the average performance of candidates in the latest examination... compared with... the previous four examinations. By these means candidates are protected against examinations of irregular difficulty.

The efforts that the College makes to render its examinations fair are unsurpassed by any other examining body.

The idea of an MCQ examination was imported, as we saw, from Glasgow. (It has flourished since, in the runaway fashion of imported species like the rabbit in both Australia and New Zealand.) Two other, more recent, imports from other Colleges are now firmly established in the basic training programme.

From the American College came the idea that was dubbed ATLS in its native territory but has been the EMST - Early Management of Severe Trauma - course in its Antipodean version. The English College has provided the model for the small series of skills laboratories now being established.

Courses in resuscitation are nothing new, and the practising of surgical skills, from knot-tying onwards, is a traditional method of acquiring that dexterity which, whatever other abilities may be requisite, defines the operating surgeon.¹² What is new is the development of structured courses at a high level and of sophisticated facilities for the nurturing and testing of these skills.

At the end of 1999 the *RACS Bulletin* devoted much of its final issue to the topic of basic surgical training, and it is interesting to



Faculty members from the original EMST course of 1988 held a reunion ten years later. From left: John Graham, Gordon Trinca, Peter Danne, Christine Allsopp, Ian Civil, Brian Miller, Stephen Deane.

note comments from representatives of the committees responsible for the Australasian application of these two 'introduced species'. The deputy chairman of the EMST committee (Peter Danne, one of the noted triad that included Stephen Deane, the original chairman, and Ian Civil, his successor) welcomed the move of this course from advanced training – or even later – to basic training, a period in the trainee's life when its benefits are especially relevant to the daily work of most junior registrars. The problem of coping with the 'bulge' of basic trainees and residual more senior candidates is acknowledged – that is to say, part way towards being solved!

Writing on behalf of the skills laboratory education support committee, John Windsor identified four areas in which the College is active. The first of these is represented by the basic surgical skills courses, which can be mounted without the need for specialised premises or facilities. In July 1999 the Great Hall at the College provided an arena for such a course, attended by 18 trainees. Next come the more sophisticated skills laboratories, of which the first is in Perth,¹³ and then the College's support committee which is 'driving' the initiative. The fourth area, that of 'training the trainers', is once again an inter-collegiate import (in part from the American College, in part from the English) which may serve to lead us into the next chapter.

NOTES

1. Between the course and the examination students were coached by another gifted teacher, Frank Stansfield – whose relaxation was trainspotting on the threatened branch lines of the period – with an intensity that made his charges feel like members of an Olympic squad. His rallying call was: 'The price of the Primary is...' Students (loudly and in unison): 'CEASELESS REPETITION!'

2. The Faculty of Physicians and Surgeons of Glasgow was incorporated in 1599, but became 'Royal' only in 1910; it was renamed a Royal College in 1962.
3. The injunction, I find, is due to Gustavus Adolphus (1594-1632) who led Sweden to a string of victories in the Thirty Years' War.
4. The term 'OE', for overseas experience, is in general use in New Zealand, where the practice of travelling to the northern hemisphere for a year or two is almost universal among young people. The letters are even accepted in the 'occupation' box on official forms. But I understand that, although the practice is equally widespread among young Australians – enough to have seen the Earl's Court district renamed 'Kangaroo Valley' – the descriptive term may be less well known. Hence this note...
5. 1972 Handbook, p.63.
6. Lehmann, J (1999) *RACS Bulletin* 19:3:22.
7. I have called it 'their' course, because the Heslops were so very much a team, complementing each other neatly, strongly, comfortably; but the official 'owner' of the course was Barbara. She built it up, I understand, to prove that it could be done - and that the Primary, or Part 1, need not be an ordeal.
8. In 1976 Cox and Royle published papers which demonstrate both the precision and fairness of the examination (Cox, K.R., *Aust. N.Z. J. Surg.* 46: 269) and the future prospects of unsuccessful candidates (Royle, J.P., *Aust. N.Z. J. Surg.* 46: 278).
9. Heslop, JH (1988) *Aust. N.Z. J. Surg.* 58: 529.
10. Proceedings of the seminar on surgical training and examinations, 1978.
11. In an OSCA (for that matter, in an OSCE) the candidate faces a battery of clinical tasks – history-taking, clinical examination, routine procedures, interpretation of imaging and laboratory results – and is judged against a standardised checklist at each of, say, 20 stations.
12. A distinction has been drawn in the past between the consulting surgeon and the operating surgeon. It used to be said that you went to Paget for an opinion, but to Fergusson for the operation itself. The Prince Consort in 1849 opted for skill and chose Fergusson as his personal surgeon (Lawson, R.S. (1973) *Aust. N.Z. J. Surg.* 42:221). These days, surgical training seeks to foster both mental and physical skills.
13. The Perth Centre for Medical Surgical Skills has the unexpected acronym CTEC. It is a joint venture of the University of Western Australia, the state Health Department, the Australasian and English Colleges, Hill Surgical Workshops and the Centre for Anaesthetic Skills and Medical Simulation. Opened by Her Majesty the Queen on 1 April 2000, it can meet the needs of courses from basic level up to master classes in demanding aspects of the surgical specialties. It is to be complemented by a facility in Sydney, and these two are to form the foci of a system of skills laboratories around Australasia.