



**The History of the Medical Curriculum
at the University of Sydney**

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**Occasional Address to the Faculty of Medicine Graduation
held at 11.30 a.m. on 10 May 2002**

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Chancellor, Professor Pesman, Professor Leeder, Ladies and Gentlemen
Today we witness the graduation of the second intake into the University of Sydney's graduate medical program, a program that has just been given an unqualified 10-year accreditation by the Australian Medical Council. It seems appropriate that I rehearse the history of the Sydney curriculum since 1859, so as to put matters in context.

At the time when the University was founded, a practical function for it was foremost in the minds of at least some of those involved. It was not seen primarily as a place where research would be done and scholarship fostered, but rather as a place where the sons of the gentry would be educated so as to take over roles in the next generation as part of the ruling elite. For this reason, therefore, the *Act of Incorporation* envisaged that the University would offer degrees in Arts (to train teachers and administrators) and in Law and Medicine (which specifically included Medicine, Surgery, Midwifery, Pharmacy).

The possibility of establishing a Medical Faculty arose soon after the University opened its doors with the appointment in 1852 of Professor John Smith as the foundation Professor of Chemistry and Experimental Physics. Smith held a Doctorate in Medicine from the University of Aberdeen and although he was appointed primarily to teach the physical sciences in the Arts curriculum, it was hoped by the professionally minded Fellows of the Senate that he might also initiate some training in Medicine at the Sydney Infirmary (now called Sydney Hospital). To this end, Senate appointed him Dean of the Faculty of Medicine in 1855, and established a Faculty of Medicine in 1856. The other members of the Faculty appointed at that time were all medical practitioners active in the community, including George Bennett, later to become famous as a naturalist, and Charles Nathan, the ancestor of the McLaurin/Mackerras family (and, incidentally, Australia's first resident opera composer). The wish to create a Medical Faculty was given some impetus by the fact that the Senate itself included a number of medical practitioners, in particular the Chancellor and Provost, Sir Charles Nicholson, the Government Medical Officer, Dr Bartholomew O'Brien, and a fairly flamboyant doctor/politician, Dr Henry Grattan Douglass. In addition, of course, W.C. Wentworth was a surgeon's son. The Faculty, presided over by Professor Smith as Dean, was charged with the responsibility of conducting examinations for award of the degrees of Bachelor and Doctor of Medicine. A curriculum (the first) was approved by Senate in 1859 although it was never implemented because Smith did

not self identify as a medical practitioner and, in common with Woolley, the Professor of Classics, and Pell, the Professor of Mathematics, he opposed opening a Medical School, one presumes because he feared it would take resources from his own discipline.

Medicine was unregulated in Sydney at that time - although the NSW Medical Board had existed since 1838, and it gazetted the names of registered practitioners, this did not prevent other less respectable practitioners from operating. Registration merely offered some measure of social respectability. A pathway to yet greater social respectability was to obtain a University degree since at that time most medical practitioners, even respectable ones, were not graduates, but only Licentiates of the Society of Apothecaries or Members of the College of Physicians or Surgeons of London, Scotland or Ireland. The Scottish Universities offered medical degrees, as, of course, did Oxford and Cambridge, but the number of English as distinct from Scottish doctors in the Colony with University degrees was very small. Even Charles Nathan, who was certainly respectable, held only an LSA and an MRCP. Despite the availability of the new Faculty examination process, only very few doctors from Sydney applied successfully to the Faculty for award of Bachelor or Doctoral degrees in Medicine. An entrance requirement mandating possession of an Arts degree and 10-years of practice will have restricted the field somewhat. The rate at which these degrees were awarded was increased slightly, however, by an interesting struggle going on in the 1860s and 1870s in Melbourne. There, a Medical School had opened (in 1863) and its examiners proved unwilling to grant degrees to existing non-graduate practitioners. In consequence six of them came north and applied to be examined in Sydney; some came twice, to collect both Bachelor and Doctoral certificates.

In all, 14 practitioners got medical degrees from Sydney University before the Medical School opened in 1883. Presumably the examiners felt that the candidates had fulfilled the requirements of the first curriculum, even if instruction according to it was never implemented. We have no record of who failed the examination, but there must have been failures since only 7 of the 14 successful candidates practiced in Sydney. One of the Sydney graduates was James Houison who, before studying medicine in Scotland and obtaining his Bachelor's degree, had been one of the earliest graduates in Arts from Sydney University (in 1863); he gained an MD at Sydney in 1870.

All this came to an end around 1883 when the University of Sydney opened its own Medical School and T P Anderson Stuart at the age of 26 arrived from Edinburgh to take up his post as the Dean and foundation Professor of Anatomy and Physiology. In order to start operation, a curriculum had been developed in 1882 (the second curriculum) in advance of Stuart's arrival to cope with the first intake of students. We don't know what it was like but it must have been fairly demanding since all the students failed at the end of the first year. Anderson Stuart revised the course after his arrival in 1883 (the third curriculum) and, in the case of the following intake (in 1884), most students passed first year and continued to progress satisfactorily. Eventually, five students from this second intake, plus one from the first intake who had repeated first year, graduated (after five years) in 1888. The graduation list included two outstanding students who went on to make international reputations for themselves: Peter Bancroft, who got first-class honours, went to Queensland and made a career in infectious diseases and public health, and William George Armstrong, who got second-class honours, pursued a career, also in Public Health, in England, New Zealand and New South Wales, where he became State Director General in the 1920s.

Nevertheless the early curriculum evidently needed adaptation, and further revisions were undertaken in 1885 and 1890 (the fourth curriculum). Before 1890 the students shared a common first year with Arts students, but from 1890 they had a separate five-year curriculum of their own. This fourth curriculum survived unchanged until the period of expansion following World War I and a major overhaul was not undertaken until 1922 (the fifth curriculum) after Anderson Stuart died, and again in 1926, when a six-year curriculum was introduced (the sixth curriculum).

It should be noted that, from the beginning, the shape of the curriculum was determined by the Scottish origins of most of the early teachers in the School, including of course Anderson Stuart himself. Scotland in the 1870s and 80s, had a first-rate general educational system and was at the forefront world-wide in its scientific approach to medical education. It pioneered a system in which basic physical sciences were first taught, followed by the medical sciences, and only when these had been completed did structured clinical training in the hospitals begin. A similar reform developed in North America after 1910 with publication of the report of Abraham Flexner from John Hopkins University, but there a graduate entry program was adopted, rather than a program for school leavers. For those who are

interested, Anderson Stuart's own undergraduate lecture notes, which he had bound in red leather, are in the library of the Royal Australasian College of Physicians in Macquarie Street, and a set of histological sections prepared by him during his anatomy classes while a student at Edinburgh are in the Fisher Library Rare Book Collection. From these, one can easily see the nature of the educational program that shaped his own thinking before he came to design a curriculum for Sydney. His teachers included the surgeon Lord Lister, of antiseptics fame, and Cunningham, of *Cunningham's Anatomy*. From 1926 until 1937 the shape of the curriculum at Sydney remained unchanged, beginning with Physics, Chemistry, Botany and Zoology, progressing to Physiology, Anatomy, Pathology, Bacteriology, and then on to Medicine, Surgery, Obstetrics and Materia Medica. As new disciplines like Biochemistry and Pharmacology emerged, however, they were taken on board and the quantity of material that students were expected to master increased considerably. The sixth curriculum, which we used to call "the old curriculum", took on its definitive shape in 1937, although it did get revised periodically, in 1939, 1944, 1948 and 1960 and again in 1968, by which time I had joined the staff of the University.

For those who are interested in how the students lived and worked in those days I recommend to them two books of H.V. (Paddy) Moran, *Viewless Winds* and *Beyond The Hills Lies China*. In these, Moran describes his experiences as a medical student in the 1930s and as a recently graduated medical practitioner, working in Sydney and in country New South Wales.

A problem with the curriculum emerged slowly over time. In 1880 the useful knowledge base was quite small since the scientific base of medicine had only just begun to expand rapidly, and new knowledge could be incorporated into the course as it became available without greatly increasing the learning load on students. Because there was an unquestioning acceptance of the notion that all factual knowledge should be presented to students in lectures, however, the number of lectures that students were expected to sit through grew steadily until, by the time I came to the University in 1966, a second year medical student was expected to sit through 20 one-hour lectures each week together with between 8 and 12 hours of practical classes, and every other spare moment in the day was filled up with anatomical dissection. The course could not be expanded any more and a groundswell of opinion arose demanding curriculum reform.

In 1974 a new curriculum, the seventh, was launched. The driving spirit behind its introduction was the then Dean, the late Professor David Maddison, and its architects were the late Professor Ann Woolcock and Professor John Chalmers, then an Associate Professor in the Department of Medicine. Strangely, this curriculum was only 5 years long. The logic behind the introduction of a shorter five-year curriculum related to a change in the NSW School curriculum which retained students at school for a year longer, plus a Faculty decision to eliminate what was perceived to be unnecessary teaching in Biology, Physics, Chemistry and Anatomy. It was felt that these courses had retained too much time in the expanding curriculum and many thought that all that was necessary to achieve reform was to reduce these courses in size to make room for a few new topics. In my own student days at the University of Queensland in the late 1950s I studied anatomy for 780 hours so there was certainly scope for a reduction. I should say that such simplistic reasoning was not the vision of David Maddison or John Chalmers. They had a far-reaching inspirational vision of a complete change in the way Medicine would be taught. Nevertheless, the forces of reaction were substantial and they surfaced as soon as Maddison left (to found the Newcastle Medical School) and Chalmers departed for Adelaide (to help found the new Flinders Medical School). The old guard of teachers who had resisted the changes they had introduced, took advantage of their departure to undermine the reforms by crowding all the old factual information into the new compressed timeframe.

The launch of the new five-year curriculum coincided with the arrival of Professor Richard Gye, the first full-time Dean of Medicine at the University of Sydney. After 10 years of struggling with the five-year curriculum, he initiated a further attempt at reform and in 1984 the Faculty adopted a new six-year curriculum, the eighth. The new six-year curriculum persevered with the cuts to the basic sciences made in the five-year curriculum and retained many important initiatives that had been introduced by Woolcock and Chalmers, but the extra year made it possible to introduce the new disciplines that were emerging without rethinking what was already taught or how it was taught. The basic problem remained that the knowledge base on which Medicine rested was continuing to expand very rapidly and the obligation to present all this factual material in lecture format meant that the course was diverging more and more from one that would meet the expectations that the community had of what medical graduates should be trained to do.

When I became Dean in 1989 there was a very strong push for a further attempt at reforming the way medical students were trained. The late Professor Ann Woolcock, Professor John Turtle and the late Professor Rodney Shearman all urged reform on me and the vision of where we might go was provided by Professor Stephen Leeder, the then newly appointed Professor of Community Medicine at Westmead Hospital, who had come to us from Newcastle University only in 1985. Early in 1991 the Faculty established a working group to examine the possibility of abandoning the traditional course aimed at school leavers and, instead, of moving to a model of professional training for students who had already successfully completed an undergraduate degree in some other discipline. Parallel with the wish to change the intake from school leavers to mature, motivated adults, was a drive to change the style of teaching from didactic lectures to one based on Problem Based Learning. Stephen Leeder, who had been actively involved in the development of such a course at the University of Newcastle, provided inspiration for us to attempt a further development of this model at Sydney. The difficulties were very great however. Unlike Newcastle, which was a small single-hospital Medical School with an intake of 60 students, Sydney was a large multi-hospital institution with established programs of campus- and hospital-based teaching, and an intake of over 300 students.

The Faculty met on 22 October 1991 and after long debate voted in principle to establish the new course. It did so however with its fingers crossed metaphorically behind its back since many members of Faculty were nervous and deeply suspicious, and some were quite hostile. It was not clear what resources would be available but there was a strong feeling that they would be inadequate. The Faculty resolved to review the matter after twelve months and to charge the Dean and his advisers with responsibility in the meantime for demonstrating that the introduction of a new course of this kind was financially sustainable. The Faculty met again, exactly a year later, on 22 October 1992, with the largest attendance at a Faculty meeting ever recorded, before or since. The debate was long but in the end the decision to go ahead was endorsed: some 164 members of Faculty voted in favour, with six against and one abstention.

The rest is recent history. In due course we appointed Professor Stephen Leeder as Head of the Department of Medical Education, Professor Ann Sefton and Associate Professor Michael Field as Associate Deans responsible for curriculum development, and Associate Professor Jill

Gordon as Head of the Medical Education Unit with a particular responsibility for training the teachers. Several hundred teachers had to be trained, new methods of selecting students had to be devised, and a curriculum created *ab initio*. Of course we had models to look to, in particular the so-called New Pathways curriculum at Harvard, and the five-year problem-based curriculum at Newcastle. As Dean, I had a role to play akin to that of the Producer of a Hollywood film, whereas, Leeder, Sefton and Field were the film Directors. As Producer I had to find resources, generate publicity and persuade all the stakeholders not to oppose the radical change: the three Directors had to articulate the vision and implement it. The number of stakeholders was considerable. Apart from the obvious players, such as the professional Royal Colleges, the AMA, the AMC, the Medical Board of NSW, and State and Commonwealth Departments of Health and Education, there were the Teaching Hospitals, the NSW secondary schools and even groups such as the Ethnic Affairs Commission, as well as numerous allied health groups. Within the University, the Vice-Chancellor had to be won over and the Academic Board, not to mention the governing body of the University, the Senate. Of course, resources had to be found: over a million dollars to build and fit out problem based tutorial rooms, and another million dollars annually for the ongoing employment of instructional designers, IT experts and other support staff. Critical to the development of the enterprise was the availability of new information technologies, particularly the emergence of the World Wide Web and its intra-institutional parallel, the Intranet. A young Senior Lecturer in Physiology, Simon Carlile, now Associate Professor Carlile, Assistant Pro-Vice-Chancellor for Information Technology, created an IT platform on which the curriculum could be delivered across New South Wales. It was a world “first”.

The first intake of new students into the ninth curriculum was in 1998 and the first graduation was in 2001. Unlike the intake into the Medical School’s first curriculum, where everybody failed, there were almost no failures or discontinuations in the ninth.

My audience today includes the second graduating class, their parents and their friends. You know what you have experienced and will make up your own minds about it. It is encouraging to note, however, that there has been universal enthusiasm from outside the University about the quality of the students and the quality of the course. When introducing a new curriculum, however, one needs to remember that any curriculum can ossify and it is

only by embracing continuous change that one can hope to avert this risk. Today's "old" curriculum was yesterday's "new" curriculum. The course has been fully accredited by the Australian Medical Council for 10 years but, rightly, the Faculty is not planning to wait so long to review it, and the process of reassessment is about to begin. Soon we may see the birth of the tenth curriculum. The Faculty has been especially fortunate in that its current Dean, Professor Leeder, had previously been a major participant in shaping the whole enterprise. In the near future he will be moving to another role and I will be retiring so it will be left to our successors to continue the process. Fortunately the margin for error is considerable because the quality of our teachers and our students is so high. Soon after I came to the University in 1966, someone wrote on a whiteboard, or perhaps then it was a blackboard, that there has never been a curriculum devised that actually prevented students from learning. That truism protects us from the effects of even our most egregious mistakes. On the other hand we continue to be heartened by the thought that we can devise curricula that make it easier for students to learn and we believe we have done so. Unashamedly, we believe our course is one of the best in the world. If it is, it is because so many inspired people worked to develop it and to deliver it, and so many committed young professionals chose to enrol in it.

I don't need to say more about the curriculum - I need only thank you for choosing to enroll here and to thank my colleagues for their dedication and professionalism.

To all I say, goodbye and good luck.