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CHIRON

CHIRON THE CENTAUR, TEACHER OF MUSIC, MEDICINE AND HUNTING

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Contents

Front cover: The main highway in northern Zaire. When road access is poor it is difficult to get medical services to rural areas, and difficult for rural people to get to urban hospitals.
Photo: Frank Shann – see *The State of the World's Children* on page 23.

Back cover: Dates to Remember.

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EDITORIAL

TRANSITION

IN THEIR EDITORIAL in the 1996 *Chiron*, Professor Harold Attwood and Liz Brentnall referred to the changes which were taking place in the School, the Faculty, the University and the community which we serve. Change continues at what seems to be an ever-increasing pace as we move into what I would term a phase of Transition.

As our new Vice-Chancellor, Professor Alan Gilbert, has defined in a seminal document entitled 'Earning Esteem', the University of Melbourne faces new and profound challenges in a more competitive, more uncertain, more pervasively international environment. We must take up these challenges, seeking the opportunities which are implicit in times of transition, while maintaining our strengths and traditions.

The Faculty and School of Medicine structures have been altered to meet the new environment and I would like to draw attention to the appointment of three new Associate Deans in the persons of Richard Larkins for Academic Programs, Bruce Singh for International Affairs and Richard Wettenhall for Research. These offices and their extraordinarily well-qualified occupants signal the imperatives of curriculum reform, internationalisation and research augmentation, which the Faculty and the School of Medicine in particular have led and continue to lead within the University.

The School has decided to undertake a substantial review of the MB BS Program, with greater emphasis on principles and concepts rather than on detailed factual information, concentration on acquisition of the skills of self-directed learning for life-long continuing education, on vertical and horizontal integration and on the early introduction of clinical relevance. Teaching of the scientific basis for Medicine will be maintained, indeed strengthened, but there will be a greater emphasis on community issues and on the personal development of students. You may ask how this course will be different from others in Australia and around the world, since many of the principles are already in place in other centres. The main elements which will make the Melbourne medical program unique lie in the flexibility of selection and of the conduct of the course, and will introduce a 'new pathway', such as that attempted but not fully implemented by Harvard University in the past. Selection will involve two processes, with one stream, probably two thirds of the intake, entering straight from secondary school and the other, probably one third of the class, entering as graduates from other tertiary-level courses. School leavers will be selected by a combination of Tertiary Entrance Score and psychometric skills tests, based on those introduced by Newcastle University. Graduate entry will be by mechanisms similar to those used by other Australian medical schools which have moved entirely to graduate entry – Flinders, Sydney and Queensland Universities – with a combination of grade point average from tertiary studies, knowledge and skill-based tests (GAMSAT) and structured interviews.

On selection to the straight-from-school stream, three avenues will be open to students, all of which will lead to the awarding of combined degrees. The 'combined' degrees of MB BS will be discontinued and we will revert to the MB which was first established by the University of Melbourne in 1862 (the BS was not added until 1879), so that we will use the generic term Medicine for the Bachelor's degree of the School to complement our highest degree, the Doctor of Medicine. The majority of students will be offered a six year course, with after an initial two and a half years a diversion to the research-based degree of Bachelor of Medical Science undertaken over one year, followed by a return to the defined course for a further two and a half years. Students will then graduate with the combined degrees of MB BMedSc at the end of Year Six. Other alternatives are to take a combined MB BSc or MB BA degree over a seven year period, with entry to first year Science or Arts, completion of the second year of Arts or Science during the initial two and a half years of the MB course and completion of year three in the intercalated year. Graduates will enter at Semester Two of Year One and will undertake a four and a half year degree course with the school-entry stream, advancing one cohort when the others undertake their intercalated year.

It is my belief that the flexible intake and flexible course will produce a varied, well-educated and well-rounded group of medical practitioners. Only time will tell whether I am correct in this assumption, but the School is eager to undertake this educational challenge.

The Vice-Chancellor has also offered us the challenge of being the true National University of Australia before becoming the first truly International University in Australia. The School of Medicine is already involved in the processes of internationalisation. We have a proud history of provision of undergraduate and postgraduate education for overseas students and the numbers of such students currently within the School greatly surpasses any previous involvement. The new curriculum will encourage our students to undertake study abroad. We have strong international links in research and teaching but these are usually individual rather than institutional. Three specific points deserve special mention. First, the Faculty will develop a more formal process for the marketing and delivery of the undoubted skills which we have to offer both in Australia and to our near neighbours. Second, the School has close links with a private medical school, the International Medical School in Kuala Lumpur, and we receive our first students (including the gold medallist from the College) in mid-1997. These students will complete the last three and a half years of the Melbourne MB BS course in Melbourne and will graduate from the School with the Melbourne degree. Such twinning arrangements are common in all other disciplines and Melbourne is proud to be the only Australian School involved with this particular College. Third, the School is also an integral part of an AusAID-funded program coordinated through the Royal Australasian College of Surgeons for the design and delivery of postgraduate education through the Fiji School of Medicine and the University of the South Pacific. Members should understand that this project is very dear to my own heart since I am a Fijian by birth. These steps will continue a long journey of strengthening our international involvement.

The Faculty, led by the School of Medicine, is already the University of Melbourne's strength in the research field. We bring in almost half of the externally-funded research income and produce over one third of the University's publications. This does not include the contribution from the Biomedical Research Institutes which are affiliated with the University of Melbourne and which, with the University, make this a unique strength within Australia and indeed the world. And yet, if we compare ourselves with our overseas competitors, we are not quite as strong as we might believe. There is certainly room for improvement. I have no doubt that we can sustain such an improvement and the move to establish more Scholarships and Fellowships for young research workers is but one step on this path. At a time when public funding support for Tertiary Institutions is diminishing, contributions towards such Scholarships and Fellowships is one way in which graduates can express their gratitude for the training which they have received from this University. Sadly, the tradition of giving by alumni in Australia does not match that in the United States.

I am proud to have participated in the efforts of the Faculty and particularly the School of Medicine for a period of almost twenty years, the last two as Dean and I declare my confidence in the ability of both the Faculty and the School to pass through this phase of transition to earn further esteem.

Gordon J A Clunie

WHO's Global Program for Vaccines and Immunisation

G J V NOSSAL
Department of Pathology
The University of Melbourne

TWO HUNDRED YEARS after Edward Jenner's introduction of vaccination against smallpox, and twenty years after the total eradication of that dreadful scourge from the world, it is opportune to ask how true the world has been to the Jennerian legacy. Are all the world's children reaping the benefits of immunisation, arguably history's most cost-effective public health tool? The answer must be probed at three levels. First, how are we doing at deploying the vaccines which, by universal agreement, all children require? Secondly, what plans exist to make newly-discovered, important vaccines accessible in developing countries? Thirdly, what is in the research pipeline and how are we doing in respect of research promotion and co-ordination?

Three years ago, the Director of the World Health Organization gave the author an awesome challenge. It was decided to amalgamate two previously existing programs, the Expanded Program on Immunisation and the Program for Vaccine Development together with one new effort into assurance of supply and quality, into one large overarching program termed the Global Program for Vaccines and Immunisation. The strategic development of this Program was to be scrutinised by SAGE (the Scientific Advisory Group of Experts) of which the author was made Chairman. Furthermore, there are players other than WHO in the world immunisation scene, prominently including UNICEF, the World Bank and a number of non-governmental organisations and foundations. They had been knit into a loose confederation of interests termed the Children's Vaccine Initiative. It was decided that the SAGE should also oversee its activities.

To put the matter into perspective, the following statistics are of relevance:

- about 130 million children are born into the world each year, the great majority of them in developing countries;
- there are about twelve million deaths per year in children aged one week to fourteen years;
- approximately nine million of these are due to communicable diseases;
- while vaccination is surely preventing very many deaths, there remain about three million deaths per year from diseases where vaccines presently exist; the other six million deaths are for diseases where either no vaccine exists or where full registration of the vaccine has not yet occurred.

In view of the above, there is clearly a huge challenge ahead for SAGE, but a good beginning has been made. Let us consider first the eight vaccines which are supposed to be universally deployed. These are diphtheria, pertussis, tetanus, poliomyelitis, measles, BCG for tuberculosis,

GUSTAV NOSSAL

hepatitis B, and yellow fever in countries where this disease is endemic. At the time of the smallpox eradication triumph, immunisation rates were extremely low, but now about eighty per cent of the world's children are being reached, though it must be admitted that not all of these complete the full immunisation schedule.

The most encouraging progress has been made in the case of poliomyelitis, where there is a very good chance of total eradication by the year 2000. The industrialised countries have been essentially free of polio for quite a few years, and polio transmission has ceased in the Western Hemisphere, there being no case of natural polio in any American country over the past five years. Bearing in mind how poor some of these countries are, this is a great public health triumph and a tribute to not only WHO and UNICEF but also to Rotary International through their Polio Plus Campaign, and to the health ministries of the Latin American countries. As a result of this success, many other countries have buckled down to the task of polio eradication, the chief tool being National Immunisation Days to supplement regular infant immunisation programs. On a National Immunisation Day, all children under five receive the oral poliomyelitis vaccine, regardless of previous vaccination history. This is a very powerful tool in breaking transmission chains. Highly successful National Immunisation Days have been held in China and in India. It is hoped that the Western Pacific Region, including China, will be polio-free within a year or two, leaving India and particularly sub-Sahara Africa as very major challenges.

The success of polio eradication in the Americas has posed an interesting problem for richer countries like the United States. Given that there is no more natural polio transmission, many feel that the very occasional (perhaps one in a million) reversion to virulence of the oral polio vaccine represents an unacceptable risk. United States citizens, therefore, are to be offered Salk-type inactivated polio vaccine as two injections prior to two further doses of oral polio vaccine (and in some instances even four inactivated vaccine shots). While this is more expensive than the oral vaccine, the cost differential is not a major factor in a rich country. The oral vaccine remains the favoured tool in developing countries.

There has also been great progress in measles control and again a significant number of Latin American countries appear to have achieved total eradication. Here, interestingly, the industrial world is lagging behind although the United Kingdom has recently succeeded in essentially wiping out measles infection (although sporadic imported cases still occur). Many feel that measles, which still exerts a two to three per cent mortality in developing countries, should be the next disease targeted for eradication once polio is gone.

Neonatal tetanus remains a big problem in countries where obstetric hygiene is defective. Here the task is to immunise pregnant women so that antibodies can pass the placenta and protect the infant. A tremendous help here would be 'one shot' vaccines because sometimes it is difficult to persuade women to return for booster injections.

Unfortunately, the BCG vaccine has not proven to be as good as was originally hoped. It does do a good job in protecting infants from tuberculous meningitis and miliary tuberculosis, but the protection is clearly not strong enough to safeguard against pulmonary tuberculosis in young adult life. A better vaccine is badly needed.

Hepatitis B is a recent addition to the list of vaccines in the WHO program. Although the costs have come down sharply since the first introduction of this excellent vaccine, they still remain an order of magnitude higher than the other vaccines on our list, so new resources are badly needed. One advantageous feature will be transfer of vaccine-producing technology to some of the larger developing countries, thereby solving hard currency problems.

The Challenge of Newly-Introduced Vaccines

Beyond the eight vaccines discussed above, it will be imperative to make available to the developing countries some of the newer vaccines that have emerged from the research pipeline. One excellent example is *Haemophilus influenzae* B or HiB vaccine against meningitis. This sophisticated vaccine is a conjugate which appropriately stimulates T cell-B cell collaboration and has proven remarkably effective against the major cause of bacterial meningitis. In a recent trial in The Gambia, it has also proven effective against other forms of invasive HiB disease, such as HiB pneumonia. Once again, resources will have to be raised to enable this vaccine to be more widely delivered.

Similar conjugate vaccines should soon be available for meningococci and pneumococci. Within this category of emerging vaccines there are also new and much more effective vaccines against cholera, typhoid and perhaps other diarrhoeal diseases such as bacillary dysentery. As yet, it is unclear whether funds will be available to deploy such vaccines throughout the countries that most need them. SAGE and WHO are working with industry in an attempt to introduce tiered pricing, with countries being divided into five bands according to degree of affluence or poverty. It is felt that many countries will need only encouragement and persuasion, whereas others may need virtually the whole cost of the vaccines subsidised through the international aid system.

Vaccine Research and Development

Both academic laboratories and industry appear to have got a 'second wind' with respect to vaccine research and development. As a result, there are exciting developments, both with respect to diseases for which vaccines are being actively sought and with respect to new ideas about vaccine delivery. In the former category there are extremely difficult problems such as malaria and HIV, but also more accessible developments such as rotavirus diarrhoea, respiratory syncytial virus, dengue and new approaches to a tuberculosis vaccine. As regards the latter area, one could mention at least five new developments. A range of non-toxic adjuvant substances suitable for human use are in advanced clinical trial. Microencapsulation techniques permitting 'one shot' vaccination are on the threshold of success. Vectored vaccines, where genes for the antigen of interest are engineered into a harmless virus or bacterium, are also in clinical trial. Mucosal immunisation, where the vaccine is delivered orally or intranasally in combination with a mucosal adjuvant, are showing promise. Finally, and perhaps most excitingly, it has been shown that intramuscular or intradermal injection of nucleic acids can lead to immunisation. This involves engineering suitable plasmids with the gene for an antigen or antigens of interest, preceded by a strong promoter. Amazingly, this manipulation can lead to both T and B cell immunity despite clear evidence that the amount of antigen produced is very small. This is an extremely rapidly developing area of vaccinology research.

Vaccine research is not confined to diseases chiefly of interest to the developing countries. Recently, an acelluar pertussis vaccine has been introduced which seems to get around the problem of reactogenicity of current whole killed bacterial pertussis vaccine. A great deal of research has gone into vaccines against the sexually-transmitted disease, herpes simplex type 2 which causes genital herpes. Active research is promoting vaccines against those strains of the human papilloma virus that are associated with cervical cancer. Several strategies are being used to develop a *Helicobacter pylori* vaccine as a preventive of peptic ulceration and possibly of gastric cancer. Anti-cancer promise is also present in vaccines against hepatitis B, hepatitis C and Epstein-Barr virus. More distantly, exciting possibilities exist for anti-cancer vaccines using a variety of tumour associated antigens.

The Global Program for Vaccines and Immunisation is not too likely to run out of work to do! That being said, it seems certain that within twenty years the situation with regard to communicable diseases globally will have improved very materially. Prevention is not only better than cure, it is also much cheaper. With health costs globally being under very great strain, this is no trivial point.

SEMINAR

26 JULY 1997

THE NEW GENETICS – FOR GOOD OR ILL?

Convener
Professor Richard Smallwood
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WHAT IS THE NEW GENETICS?

Professor Bob Williamson
Director, Murdoch Institute
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WHAT A CLINICAL GENETICIST DOES

Dr Eric Haan
Director, South Australian Clinical Genetics
Service, Women's and Children's Hospital
(Adelaide)

DISCUSSION

ETHICAL ISSUES

Emeritus Professor Max Charlesworth AO
Former Professor of Philosophy and
Dean of the School of Humanities,
Deakin University

DO WE NEED NEW LAWS?

Associate Professor Loane Skene
Associate Professor and Director of Studies,
Health and Medical Law, Law School,
The University of Melbourne

DISCUSSION

WHO SHOULD HAVE ACCESS TO GENETIC INFORMATION?

Dr John McKeand
Chief Medical Officer,
National Mutual Life
Association of Australasia Ltd

Ms Rhonda Galbally AO
Chief Executive Officer,
Victorian Health Promotion
Foundation

Dr Chris Cordner
Lecturer,
Department of Philosophy,
The University of Melbourne

DISCUSSION

The New Genetics – For Good or Ill?

Introductory Remarks
Professor Richard Smallwood


PROF RICHARD SMALLWOOD

A REVOLUTION has been going on in medical science in recent decades. James Watson and Francis Crick hit upon the structure of DNA in 1953, and in the years that followed the genetic code was deciphered. By the mid-1970s much was understood about the structure and function of genes and how they are regulated. We are now in a position to identify individuals with disorders of single genes, to screen populations for carriers of disease genes and, indeed, to map the whole of the human genome, a task which will probably be complete by the turn of the century.

Where is this powerful technology leading us? There have been exaggerated fears about the harm that will befall should such technology get into the wrong hands: fears grounded in somewhat fanciful ideas of what molecular genetics can technically achieve, together with a simplistic notion of what makes up human character or intelligence. The Brave New World of genetically engineered super-beings will never materialise, although a danger might lie in the possibility that some will nonetheless try to make it materialise.

There are, however, more immediate issues which arise from present technical achievements. We can now diagnose with precision a large number of disorders due to single gene abnormalities. This is true not only where the patient has already developed symptoms; it is also possible to predict, while they are still healthy, that an individual will be likely to develop a particular disease.

Who should have access to this information? Some would argue for absolute confidentiality – no individual should be put in the position where they might be discriminated against on the grounds of likely future ill-health. Others would argue that such information should be disclosed under certain circumstances, for example, when a person is assessed for life insurance.

Screening for serious genetic diseases in babies before they are born provides parents with the choice of whether or not to continue the pregnancy. But the community is divided on the question of abortion, undertaken for whatever reason, and the rights of the unborn child warrant some consideration. Should we be countenancing the termination of any pregnancy where the baby has a disability? If not, where do we draw the line?

The most exciting opportunity for molecular genetics will be to transform approaches to population health. It is very likely that we will soon be able to predict the susceptibility of individuals to common diseases of later life which have a significant genetic component, such as diabetes or cancer. It will then be possible to better target health promotion and prevention strategies to those who stand to benefit most.

This seminar will provide an opportunity to consider some of these issues and discuss how we should manage the powerful technology of the 'new genetics'.

What is the New Genetics?
Professor Bob Williamson


PROF BOB WILLIAMSON

CLONING A GENE is a biological trick. A DNA sequence from a person is inserted into a bacterial virus. This allows unlimited replication, and the isolation of large amounts of pure DNA, usually a single gene, coding for a protein.

When human genes were first cloned back in the mid-1970s, people mostly wanted to use them to make proteins: insulin, or interferon, usually in the context of biotechnological industries. I think that most people missed what I regard as the mostimportant point about human gene cloning: when you clone a gene from a person, the DNA sequence you get is person-specific, is *unique* to that individual. It was inherited by the individual from his or her parents, and will in turn be passed on to their children. Having cloned a person-specific gene gives us the power to correlate the DNA sequence with the kind of person we're looking at; to compare genotype and phenotype.

There are about a hundred thousand human genes in all. As a result of the human genome project, the great majority (probably about eighty-five or ninety thousand) have now been isolated – a dramatic change from just two or three years ago. However, we really only understand the function of about ten thousand. It's interesting to note that the genes we understand least about are the ones that are expressed only in the brain or the early embryo. The two great unmapped areas of molecular genetics are the way the brain functions and the way the embryo develops. Fortunately, many of the genes really important to human health are in that group of ten thousand or so that have been characterised and are well understood.

People often focus on the catastrophic single gene disorder, the single DNA sequence which has mutated so that someone has cystic fibrosis or Friedreich's ataxia. These rare catastrophic diseases affect about one per cent of the population and, of course, are the most important health consideration for the families concerned. However, most of us will be more concerned as genes are identified which predispose to the more common diseases such as cancer, or heart failure, or Alzheimer's.

When we speak of genes predisposing to a disease, we rarely refer to the effects of just a single gene. Usually several genes are involved, interacting with each other and with the environment. When I trained during the late 1950s, genetics and environment were thought of as being separate. We now understand that this is not the case. Your genes determine how you will interact with your environment and your environment determines which genes play a part.

There may be people here with alpha-1 antitrypsin deficiency. If you don't smoke and you never work in a dusty atmosphere you may well never know you have this genetic condition because you will have no symptoms. Similarly, a Maori colleague was recently discussing genes for alcoholism in the Maori population. He stated, correctly, that such genes may exist, but there was no Maori alcoholism problem until the middle of the nineteenth century when white people came to New Zealand and introduced alcohol. Until alcohol was there, there was no alcoholism, whatever the genetics.

Our knowledge of the new genetics is giving us the tools to understand our environment. The great majority of interventions that will eventually take place will be environmental rather than genetic. We want to understand the genetic bases of predisposition to common diseases so that people can take steps to guarantee maximum health. It is worth emphasising here that we talk about genes that predispose to disease but every gene that predisposes to a disease has another form, a different allele, that predisposes to health. Let's stop thinking about genes as if they predispose to something bad, they also predispose to something good. And in general, the more diverse the genetic population the healthier it is for the species, so we don't want to think in terms of reducing the number of genes to the absolute minimum. Geneticists actually *like* diversity.

. . . the more diverse the genetic population the healthier it is for the species . . .

The human genome program

I sometimes feel a little bit like Mark Twain, who commented that there he was speaking prose all his life, and he never knowed it. The human genome program has been going for twenty-five or thirty years. Then some civil servants in the United States decided that they needed to give it a name, and five years ago, all of a sudden, the 'human genome project' burst on the scene.

The project pulls together existing research and it is very cheap. You may challenge this surprising statement, and ask, very cheap in comparison with what?. The total cost of the genome program in Australia is less than the cost of one interceptor fighter plane in the Australian Defence Force. The total cost of the clinical genetics program in Australia is less than the cost of a couple of heart and liver transplants. In comparison with the normal sorts of things we spend money on (even in health care, never mind such absurdities as gambling, tobacco or the military), the human genome program is incredibly cheap, both in absolute terms and when considering the likely pay-off. The pay-off in this case is increasing our understanding of the way genes interact with the environment and the ability, not just to prolong life (as prolonging life *per se* is not an advantage), but to prolong *healthy* life by giving people the tools to understand what their risks are and what steps they can take to ensure better health.

I've been working with families with thalassaemia and cystic fibrosis for a long time and I'm very positive about what molecular genetics has to offer. What forms will these benefits take? Through screening we can offer knowledge and through knowledge we can offer the opportunity for choice. The first set of choices are reproductive.

Carriers who are at risk of having children with a serious inherited disease can decide to have pre-natal diagnosis, and then can decide whether they wish to continue or terminate an affected pregnancy. However, it should be noted that even pre-natal diagnosis technology is changing; for some conditions pre-implantation diagnosis after IVF is available, and we may soon have pre-fertilisation diagnosis where the egg is analysed before it is even fertilised, put back in the woman and normal intercourse results in a child who is known not to have a particular genetic handicap.

Somatic gene therapy

Before I came to Australia in 1995 I was involved in initiating a somatic gene therapy for cystic fibrosis in London. My colleagues and I took a normal copy of the CF gene and put it into cells lining the lungs in an attempt to achieve a clinical result for a patient. No-one attempts to alter people's inheritance – in most countries in the world, although not, interestingly, in Australia, germ line gene therapy is illegal. It is also not something which we could achieve even if we wished to, and it is universally regarded as unethical.

Somatic gene therapy is only proposed for serious disorders – cancer, cystic fibrosis and such conditions - and it's 'low tech'. Although people talk about genetic therapy being 'high tech', I regard this type of genetics as an essentially green and environment-friendly approach. We are trying to use a normal copy of a gene, which the great majority of people have, to treat someone who, because of an acquired or an inherited illness, does not happen to have a functional copy of that gene. I can think of few things as natural as such an approach.

Finally I want to outline one or two of the issues that will be dealt with today. The first issue is who owns genetic information; should people be allowed to patent genes? This is not a simple issue. It is easy to make a rousing speech about how our DNA belongs to everyone, and no one should be able to patent our human essence and make money from it. But if any of you are associated with the pharmaceutical industry, you might well reply: 'Who is actually going to invest $200M in making a marketable product from your gene unless they see some sort of protection for what they're doing?'. We do not have an answer to this dilemma. In what sense does our human genetic information belong to all of us, and in what sense can it belong to an individual, a family, or even a pharmaceutical company? When do public policy issues intervene?

The second issue I'd highlight is choice, which I want to present in a particular context. I am totally in favour of choice. I think that people have a right to genetic information: couples have a right to know if their child is going to be affected by a severe genetic disease and they have a right to choose whether or not to continue a pregnancy. But the choice is only real in the context of the best care of people who have a handicap. Only if we have the best prevention and the best care side-by-side can one talk about choice. I would like to see an alliance like that beginning to develop in the United Kingdom – between disabilities groups and geneticists – to make this point. Let's not glamorise or romanticise handicap – it's no fun being handicapped. We have a common cause: we all want to see fewer people affected by severe handicap, but also to ensure that those who are handicapped are given the best possible medical and social care. It's only if the two are advanced side-by-side that we can call ourselves a first world society.

What should we screen for? How serious is serious? Is reduced height serious? If height is relevant (which it clearly could be for someone at risk of one of the dwarfing syndromes), do we accept that being four-foot tall is seriously handicapping? Is being four-foot-six-inches handicapping? What of five-foot? Where does one draw the line on the seriousness of a particular handicap?

I regard these as rather complex issues, since the definition of handicap is essentially personal. However, in thirty-five years in this field I have never had anyone come to me and ask the colour of their baby's eyes or of their hair. I've had a lot of people come to me and ask about a *healthy* baby, but I've never had anyone (in spite of all of the talk in the press) talk to me about wanting a *perfect* baby.

Finally, should the law come into this? If the law does come in then what should be barred by law? Sex selection? Cosmetic gene therapy? At present, we train medical students for six years, then we train surgeons for another six years and plastic surgeons for another three years after that – and then they bugger off to Collins Street and do plastic surgery on people for the shapes of their noses and their breasts. We don't regard that as unethical. Is gene therapy for cosmetic reasons unethical? I don't know, but it's worth considering that we presently allow other forms of cosmetic surgery without so much as a murmur.

We have a unique opportunity to use the new genetics in a positive way. There is no way in which this research will not proceed. The fates of too many people who are suffering from serious diseases are bound up in the advances of molecular genetics. If any of you say this work should not go on, I want you to repeat this to the young people with cystic fibrosis and Friedreich's ataxia and other conditions, who are depending on this work to give them better health and a better life. This work must proceed. The issue is in what direction and under which controls it will proceed, and how we will guarantee that it is used in a positive way.

What A Clinical Geneticist Does

Dr Eric Haan

DR ERIC HAAN

CLINICAL GENETICISTS are medical practitioners, about thirty in Australia, who, with their colleagues, contribute in a specific way to the care of people with genetically based disorders. Like other doctors, they undertake diagnosis and treatment, but their emphasis is on issues which arise from the genetic and heritable nature of many conditions.

Most come to see a clinical geneticist for 'genetic counselling'. This is a process that seeks to assist affected and at-risk individuals to understand the nature of a genetic disorder and its transmission, and their options for management and family planning. It includes making or confirming a diagnosis, explaining the features of the disorder and how they might vary within and between families, outlining the effect of the disorder on quality of life, talking about what is available by way of prevention or treatment, explaining the genetic basis and inheritance of the disorder, and assessing the risk that others in the family (alive or unborn) might have it. Genetic counselling is not directive or coercive; it aims to assist people to reach the point at which they feel confident to make their own decisions.

It is a time consuming process. Most people have a limited knowledge of medicine and genetics, the words 'gene' and 'chromosome' are often foreign and off-putting, inheritance patterns remain mysterious, and many find little meaning in numerical risk estimates. Genetic disease can create deeply felt emotions, beyond those resulting from direct effects of the disorder on affected individuals. There is the guilt associated with transmitting a disorder to one's children, the need in many cases to consider prenatal diagnosis, the sense of impotence which can arise because the future seems predestined, and the fact that genetic disease can impinge on interpersonal relationships within families as some members will have the disorder and others not. A particular challenge to the patient is to remember it all, sometimes until their children are thinking about families of their own.

Genetic disease can create deeply felt emotions beyond those resulting from direct effects of the disorder on affected individuals.

The clinical geneticist will also discuss available options to assess risk more accurately or to prevent the disorder from recurring in the family. Usually some form of genetic test is involved and it is here that the new genetics and clinical practice meet.

The human genome project and related research activity has identified about 10 000 of the estimated 100 000 or so human genes. Many of these have been identified and their normal genetic code is known. The main clinical impact has been in the area of diagnosis. It is the clinical geneticist's task to keep abreast of new genetic knowledge in order to make its applications accessible to those in the community who might wish to use them.

With regard to diagnostic applications of the new genetics, I tend to think in terms of the following situations: symptomatic diagnosis, presymptomatic diagnosis for disorders caused by a fault in one gene, susceptibility testing for disorders caused by the interaction between multiple genes and the environment and lifestyle, and carrier detection. I will give you an overview of each. The last two, susceptibility testing and carrier testing, can be applied to individuals or to whole populations.

Symptomatic genetic diagnosis

In this situation the gene is present, the person has symptoms and testing is simply a way of confirming a diagnosis suspected by the doctor. It parallels other testing technologies but has the advantage of testing the gene itself rather than the protein it makes, or some more distantly related phenomenon. For example, until recently, we diagnosed cystic fibrosis by the amount of salt in the sweat, a very indirect manifestation of the genetic fault. It is now diagnosed by direct gene testing in many cases.

DNA testing has many advantages over conventional testing. First, it may be the only way to make a diagnosis. Until very recently Huntington's disease could only be diagnosed clinically. Now it is diagnosed by identifying the characteristic mutation in the gene. There is no alternative technology, nor is one necessary.

Second, DNA testing may replace existing methods because the technology is often more precise and can be simpler, faster, cheaper and less burdensome for the patient than other methods. Often tiny samples can be used: a few cells from a mouthwash sample or even a single molecule of DNA. Finding a mutation in the gene for a disorder may save the patient a battery of expensive, complex and often unpleasant indirect tests.

However, DNA diagnosis is not always possible. All is well when the disease-causing mutation is the same in everyone with the disorder (e.g. fragile X mental retardation or sickle cell disease) or, when the disease-causing mutation varies between families, it has already been identified in one family member. In contrast, a lot of technically challenging and costly work can be involved in screening a gene to find a family's disease-causing mutation for the first time. When the number of disease-causing mutations in a population is small there are less difficulties. In certain European countries cystic fibrosis can be dealt with by searching for a small number of known mutations and essentially all carriers of the gene will be found. For many diseases however the number of mutations is large, or the gene is large and techniques to screen for mutations have not yet been perfected e.g. the BRCA1 and BRCA2 breast cancer genes. Fortunately rapid progress in this area places accurate, cheap, fast and automatable screening methods on the horizon.

Presymptomatic diagnosis

Unquestionably, the most contentious use of DNA diagnosis is in this area. Here the disease-causing gene is present but symptoms have not yet appeared. The test predicts that the person tested, though healthy now, will develop symptoms later in life. It needs to be remembered that we have been able to do presymptomatic testing using existing technology for many years, so the concept is not novel. For example, in families with familial hypercholesterolaemia, we have been able to measure blood cholesterol in children and identify those who will develop premature coronary artery disease.

What is new, is the increasing number of disorders where predictive testing is possible, the precision of the prediction, the time scale over which predictions are made, and the medical, social and legal environment.

Presymptomatic tests are currently offered to families with disorders such as Huntington's disease, myotonic dystrophy and polycystic kidney disease and to a very small proportion of families with inherited breast and colon cancer and motor neuron disease.

Presymptomatic testing should provide clear benefits for the tested individual. There may be strategies for preventing the disorder but if not, early diagnosis may be possible resulting in improved health and survival. However, testing can also be worthwhile because it removes uncertainty. Some people are keen to be certain whether or not they have inherited a disease gene and use the information when making important decisions about marriage, reproduction, financial commitments and career choices.

Such testing involves a comprehensive counselling process designed to ensure that acceptance of testing is a truly informed decision. There is a strong emphasis on the possible consequences, including coping with bad news, changed perceptions of personal health, the potential for altering relationships with one's spouse, children and siblings, and the implications for insurance, employment and life plans. It is recognised as something not to be

undertaken lightly. The only disorder for which we have data on utilisation of presymptomatic testing is Huntington's disease; only fifteen to twenty per cent of those at fifty per cent risk choose to be tested. The figure is likely to be higher for disorders with a lesser impact or where some preventive strategy is available, like inherited cancer.

Prenatal diagnosis is a special case of presymptomatic testing. A baby is tested in early pregnancy to see whether it has inherited the gene for a disorder and if so, it is predicted that symptoms will appear, usually later in the pregnancy or during childhood. Most prenatal diagnosis is performed for serious early-onset disorders. The outcome of prenatal diagnosis is different from presymptomatic diagnosis performed after birth. Instead of the information being used by the tested individual, the parents use it to decide whether or not to continue the pregnancy.

Susceptibility testing

In susceptibility testing we are not usually dealing with single gene disorders but with disorders where susceptibility is determined by the interaction of genes, often multiple genes, with the environment and lifestyle. Family history can provide a clue to the presence of susceptibility genes but in the absence of a family history only screening will detect susceptible individuals. Testing is more complex and interpretation less certain because multiple genes and multiple environmental and lifestyle factors will be involved in each instance. The motivation to test would be to protect individuals from their risk using preventive strategies. Examples might be coronary artery disease, diabetes, hypertension, obesity, alcoholism, cancer, dementia, asthma and psychiatric disease.

At present very little testing of this type can be offered, essentially because of lack of knowledge about the relevant genes and environmental factors, and lack of proven strategies to reduce risk. For example, we have no way of preventing schizophrenia or diabetes or asthma even if we could identify those destined to develop the disorder. However, more susceptibility testing is likely to become available in the relatively near future, as knowledge about gene-environment interactions increases and especially if preventive strategies become available. Susceptibility testing raises very similar medical, ethical, legal and social issues to presymptomatic testing.

Carrier detection

Carrier detection aims to identify people with a faulty gene which will never cause them symptoms. For example, carriers of cystic fibrosis and thalassaemia are healthy people, however if they marry another carrier they could have children with the disorder. The opportunity exists to prevent the birth of affected children either by limiting family size or prenatal diagnosis. The technology used to detect carriers can be applied both to individual families where the disease has occurred before, or to population-based screening for carriers of relatively common and severe disorders such as cystic fibrosis in Caucasians, beta-thalassaemia in the Mediterranean region and Tay-Sachs disease in the Jewish community

The effect of population screening is well exemplified by beta-thalassaemia screening in Cyprus. There, one in seven people is a carrier and until quite recently, one in 160 newborn babies had this severe anaemia, which without treatment is fatal early in life. This century, treatment by blood transfusion became possible which has been combined more recently with a drug to remove excess iron which accumulates from the transfusions. Such treatment is very expensive.

In 1973, the Cypriots realised that unless the number of affected people was reduced, within twenty-five years roughly forty per cent of their total community would need to give blood every year to transfuse the children and adults with thalassaemia and their total drug budget would have doubled. In 1983 a national control program was instituted. With community education and support it was possible to essentially eradicate the disease over a period of twelve years by detecting carriers and offering prenatal diagnosis to carrier couples.

Clinical geneticists are not just users of the new genetics, they also contribute to it by participating in conventional research projects and by chance encounters with instructive patients and families in everyday practice. Discovery of the genes for Duchenne's muscular dystrophy, polycystic kidney disease, tuberous sclerosis, and several other diseases depended on observations or tests on single patients. Truly the power of one!

Privacy and confidentiality

We now know that by twenty-five years of age, five per cent of Australians will have symptoms of a disorder to which genes contribute and that genes create people's susceptibility to most of the health problems of adult life. Modern medicine is increasingly about identifying genetic susceptibility to disease and the ways in which diseases result from the interaction of genes with the environment and lifestyle.

It is self-evident that susceptibility genes are shared by members of families and one consequence of this is that doctors will increasingly have the opportunity to improve the health of family members other than the individual who consults the doctor. Taking a family history is an accepted part of good medical practice and in the past this was done to gather information which could benefit the patient sitting in the consulting room. However, the information gathered also identifies people who have not consulted the doctor, yet may be able to use the insights which come from the family history, especially when coupled with the diagnostic possibilities generated by the new genetics.

This creates difficulties for the patient and the doctor alike. Taking a family history affects the privacy of other family members as information about them is given to the doctor without permission. Yet doctors could not provide the best care without it. Whose responsibility is it to disseminate potentially useful information within a family: the patient or the doctor? How do we deal with the possibility that some family members will not welcome information which we provide with the best of intentions? How do patients communicate with family members they do not get on with? Under what circumstances, if any, would it be appropriate to breach patient confidentiality for the benefit of other family members?

These issues create challenges for clinical geneticists. At present, the law sets individual confidentiality above any possible benefit to other family members. This is reflected in clinical practice where doctors give patients the task of communicating with the family and take little responsibility for transmission of the information or its accuracy.

Clinical geneticists are using advances in molecular genetics for genetic testing in a variety of settings. Benefits are already flowing to individuals, families and populations. The benefits will be much greater once strategies are developed to prevent or treat disease in susceptible individuals. However, the social consequences of testing require further thought and discussion at a community level. We also need to develop novel approaches to transfer of information within families if the full benefits of molecular medicine are to be achieved.

Ethical Issues

Brave New Genetics?

Emeritus Professor Max Charlesworth AO

PROF MAX CHARLESWORTH

MANY PEOPLE THINK that the human genome project and the new genetic technology that will be developed from it raise radically novel ethical issues which will have far-reaching consequences for the way we view human nature.

Certainly in the popular mind, and in the mind of the media, neo-eugenicist 'brave new world' scenarios are conjured up in which human beings will be genetically designed 'to order' by genetic technologists using the data from

human genome analysis. One is given the impression that the new biotechnology has given us the power to alter and reshape the basic components of human nature very much as we do with animal and plant breeding. Indeed, it has been suggested that human nature as some kind of fixed and universal structure no longer has any meaning, because the new genetic technology will enable us to design a variety of very different human natures. (Sinsheimer 1987, p145, Engelhardt 1986). For the first time we will have a 'biologicised ethics', an ethics or morality deriving from our biological make-up.

I want to argue, however – perhaps unfashionably – that despite such extravagant rhetoric, the genome analysis project and the new genetics do not in fact have the momentous philosophical and ethical implications ascribed to them. They do not involve a radically new view of science as the basis for a neo-eugenic re-fashioning of human nature and do not provide the basis for a biology based ethics. No doubt the new genetics raises new and unprecedented ethical problems: for example about the privacy and confidentiality and ownership of genetic information; the uses of genetic screening and manipulation; counselling about genetically based diseases to enable people to make informed decisions about treatment; the limits of genetic experimentation; problems about our genetic responsibilities to future generations and so on. So, lots of problems, but in my view the new genetics does not lead to a radically new view of human nature or to a new ethics.

As I have intimated, the eugenicist dream lies behind a good deal of the present hype (and fear) about the new genetics. The dream is that we can breed for (or genetically engineer) desirable qualities, character traits and dispositions (intelligence, courage, docility, sociability, or even homosexuality or heterosexuality) in human beings in more or less the same way that we breed for physical qualities and traits (weight, speed, stamina, colour, resistance to disease etc.) in animals. This is a very ancient idea which keeps on reappearing in different guises. Nevertheless it is an incoherent idea because the central human character traits and dispositions are quite unlike *physical* or bodily traits and they cannot be 'engineered'.

First, they are non-specific in the sense that whereas, say, the size or weight of a bull or the milk productivity of a cow are specifically determinable characteristics or qualities that can be bred for or engineered, the qualities of human intelligence or kindness or courage or peaceableness are indeterminate. One has only to think of the multitude of different ways of being intelligent; the creative intelligence of a da Vinci, the scientific intelligence of an Einstein, the philosophical intelligence of an Aristotle, the political intelligence of a Nelson Mandela and so on. What kind of intelligence could one set out to engineer? Second, what I have called the central human traits can be defined only in particular contexts. Being aggressive, for example, may be undesirable in certain contexts (for example, in fostering social relationships) but wholly desirable in another context (for example, in resisting an enemy). In themselves, aggressive feelings and dispositions are neither desirable nor undesirable: it is what we do with them, how we employ them in particular situations or contexts, that makes them morally desirable or undesirable. The same is true of sexual dispositions and inclinations: it is how we use them to construct a style of life that makes them distinctively human.

To put this point in a different way, central human characteristics involve an act of choice or 'construction' on our part. Kindness, for instance, means being aware of the needs of other people and being willing to help them satisfy those needs even if they conflict with your own immediate needs. Being courageous means being able to face up to obstacles and to overcome them even when this goes against your instinctive desire to flee from them. You cannot be caused or determined to be kind or courageous any more than one can be caused to love another (by, for example, taking a love-potion.) The same is true of all the other central human qualities; they have in some sense to be chosen or appropriated by people for themselves.

Very much the same comments could be made about gender as, first, a biologically and genetically determined or 'given' disposition, and, second, as a chosen way of human life. In one sense, of course, you are biologically 'born' a female or a male but you also choose to be a female or a male of a certain style, so to speak, and construct a life out of your raw biological (anatomical and physiological) gender structures and dispositions. It seems to me that the debate about gender is systematically confused because people oscillate between the two senses: now seeing gender as something that is biologically 'given' and determined in the same way as the colour of your eyes, and then seeing gender as a human construct that we choose and creatively elaborate.

In parenthesis, it is worthwhile (though possibly dangerous!) saying something about the fatuous notion of the 'gay gene', that is, the idea that homosexuality is genetically determined and that it might be possible by appropriate genetic engineering to change a person's gender orientation. If what is meant by this is that a person's biological *disposition* to engage in sexual relations with others of the same sex has a genetic basis, this may or may not be true. But if it means that a person's choice of a complex style of life – forming a permanent union with another of the same sex, choosing not to have children of one's own, cultivating certain attitudes and conventions of love and friendship – is genetically determined or caused, then this is subject to the objections I have just raised. From this point of view, you are not 'born' a homosexual (or a heterosexual or a celibate); rather you *choose* to be a homosexual (or a heterosexual or a celibate) and to adopt a particular style of sexual life. What one is born with, and what may be genetically determined, are certain biological dispositions which have to be appropriated by us and given meaning in a certain style of life. Some may incorporate those dispositions in a homosexual style of life; others may incorporate them in a heterosexual life; others may, for religious or other reasons, 'sublimate' them in a celibate life. The biological sexual dispositions are in themselves indeterminate or plastic and they are given human meaning and significance only by our choices. It is worthwhile remembering in this connection that in classical Greek and Roman society aristocratic men often chose homosexual love for pleasure and personal fulfilment (since homosexual love was 'non-productive' or childless it was thought to be a 'purer' or more 'liberal' form of love; one loved the other for himself and not as a means to having children). On the other hand, they *chose* heterosexual love for begetting children and forming families and fulfilling their civic duty by contributing future citizens to the community.

> *. . . human nature is not a fixed and inflexible 'essence' but an open-ended structure that allows a great deal of creativity and invention.*

In his work *History of Sexuality* (Foucault, 1984) Michel Foucault shows very clearly how different the idea of homosexuality in ancient Greek thought and practice was from our idea. For the Greeks homosexuality was one way of shaping or constructing a person's sexuality.

Much the same point has been made from a scientific point of view about the genetic basis of sexual orientation. As Richard Horton has put it:

> Perhaps we are asking the wrong question when we set out to find whether there is a gene for sexual orientation. We know that genes are responsible for the development of our lungs, larynx, mouth, and the speech areas of our brain. And we understand that this complexity cannot be collapsed into the notion of a gene for 'talking'. Similarly, what possible basis can there be for concluding that there is a single gene for sexuality, even though we accept that there are genes that direct the development of our penises, vaginas, and brains? This analogy is not to deny the importance of genes, but merely to recast their role in a different conceptual setting, one devoid of dualist prejudice. (Horton, 1995)

I conclude with some general remarks about the concept of human nature. I have suggested that we distinguish very clearly between the biological and genetic sub-stratum of human nature and the styles of human life we construct out of those biological

and genetic materials. The former sets constraints upon the latter but there is nevertheless a great deal of creative invention that is possible within those constraints. An analogy with language may be helpful here: a language is a system of signs which allow the emergence or generation of completely new meanings; but at the same time you cannot do what you like in a language because it has a phonemic and lexical and grammatical structure which sets constraints.

In the same way human nature is not a fixed and inflexible 'essence' but an open-ended structure that allows a great deal of creativity and invention. But the creation of human meanings takes place within biological and physical constraints: indeed it can take place *only* within those constraints. All attempts to erect theories of morality or theories of human nature on the basis of pure reason must fail because human beings are biological and genetic entities. But equally, all attempts to erect theories of morality or theories of human nature on the basis of biology and genetics must also fail, because human beings are meaning-making creatures who use their biological and genetic dispositions for their own purposes. As it has been said: 'Humanity cannot be cut adrift from its own biology, but neither is it enchained by it' (Rose *et al.*, 1984). I cannot see how the human genome analysis project and the new genetic technology puts that piece of wisdom in doubt.

I suggest then that many of the speculations about the 'brave new world' implications of the new genetics are in the realm of fantasy and that, while we should be attentive to the particular ethical issues raised by genetics (the issue of the privacy of genetic information, for example), we are, fortunately, not really likely to be faced by a 'brave new world'.

References

Engelhardt HT, 1986, *The Foundations of Bioethics*, Oxford University Press, New York, p381.

Foucault M, 1984, *History of Sexuality*, Pantheon, New York.

Gould SJ, 1977, *Ever Since Darwin*, Norton, New York, pp4-5.

Horton R, 1995, 'Is Homosexuality Inherited?' *The New York Review of Books*, XL11, 12, July 13. (Horton reviews Simon Le Vay, *The Sexual Brain*, MIT Press, 1994, and Dean Hamer and Peter Copeland, *The Science of Desire: The Search for the Gay Gene and the Biology of Behaviour*, Simon and Schuster, New York, 1994).

Kaye HL, 1986, *The Social Meaning of Modern Biology: From Social Darwinism to Sociobiology*, Yale University Press, New Haven.

Kevles DJ, 1985, *In the Name of Eugenics: Genetics and the Uses of Human Heredity*, University of California Press, Berkeley.

Kitcher P, 1985, *Vaulting Ambition: Sociobiology and the Quest for Human Nature*, MIT Press, Cambridge, Mass.

Lewontin R & Levins R, 1985, *The Dialectical Biologist*, Harvard University Press, Cambridge, Mass, pp262-3.

Lewontin R, 1989, 'The Science of Metamorphoses', *New York Review of Books*, 36, 27 April, p18.

Rose S, Kamin L & Lewontin R, 1984, *Not In Our Genes: Biology, Ideology and Human Nature*, Penguin, London.

Sinsheimer RL, 1987, 'The Prospect of Designed Genetic Change' In: Chadwick RF (ed), *Ethics, Reproduction and Social Control*, Croom Helm pp136-146.

Wilson EO, 1975, *Sociobiology: The New Synthesis*, Harvard University Press. Cambridge Mass.

Do We Need New Laws?

Associate Professor Loane Skene

ASSOC PROF LOANE SKENE

THE 'NEW GENETICS' RAISE numerous issues which may require new laws. Are new laws needed concerning the confidentiality of genetic information?

The law should provide statutory protection for doctors against legal proceedings by patients where the doctor breaches confidentiality by disclosing to members of the patient's family that there is a serious genetic mutation in the family and the family members could gain a substantial benefit from having that information. Although doctors may be *justified* in warning third parties in certain circumstances, the doctor should not have a legal *duty* to warn relatives. However, legislation is not necessary to protect doctors from legal claims by third parties for failure to warn and, in any event, could probably not be drafted in such a way as to protect doctors entirely.

Justification for breaching confidentiality

The justification for excepting genetic information from the general requirement of confidentiality is that, unlike other medical details specific to the patient, the existence of genetic mutation is 'common' to the family. Information about family members is

> *. . . unlike other medical details specific to the patient, the existence of genetic mutation is 'common' to the family.*

implicit in any genetic information and may have very significant consequences for them. If there is a serious genetic mutation in the family, family members who know about it may be able to take steps to avoid harm arising from it (such as pre-natal testing for foetal abnormality; or later-life screening and surgery for familial cancer).

The use of genetic test results is obviously an issue on which any person requesting a genetic test should be counselled before the test is done and the person should be encouraged to tell family members about a harmful mutation in the family; or, perhaps better, to allow the doctor to tell them.[1] However, if the person will not consent to the information being given, or later withdraws consent, then the doctor should nevertheless be permitted to give the information to relatives in certain circumstances. The same applies if the patient who was first tested is not available to consent, for example, a patient who has since died.

The information that the doctor should be permitted to give to relatives should be limited to the fact that the mutation is present in the family. The doctor should not be permitted to say whether a particular person has the gene in question. That information is specific to the patient and should not be revealed unless the patient consents to it being provided.

Protecting doctors from legal proceedings for breach of confidentiality[2] in these circumstances would probably require a change in the law. Disclosure of 'common' genetic information to family members may fall within the exceptions to the obligation of confidentiality in the AMA's Code of Ethics,[3] but the law is less clear. The law has recognised that it may be lawful to breach confidentiality where there is a *serious* risk to others;[4] and it is arguable that a doctor who knows that a patient carries a harmful genetic mutation would be both ethically and legally justified in advising a relative who could take measures to avoid or minimise harm, or who is about to start a family and could undertake testing for the mutation. However, the matter should be clarified by specific legislation that provides statutory protection for doctors who reveal genetic information to family members in these circumstances.

Duty to warn

I do not believe that the legal *justification* for providing information to relatives about a serious family genetic mutation should extend to a *duty* to warn affected relatives, so that a failure to warn them might found an action by a third party against the doctor for compensation for an injury that could have been avoided if they had had the information. Although such a claim is perhaps arguable on general negligence principles;[5] or by analogy with American cases recognising a duty to warn identifiable third parties about a patient's potential violence[6] or infectious disease,[7] there have been no Australian cases recognising a duty to warn. Moreover, genetic factors are only one cause of a condition and the part played by environmental factors is still uncertain. A genetic risk therefore seems less imminent and threatening than one of violence or infectious disease. There may also be pragmatic

difficulties for a doctor in contacting relatives and imparting sensitive genetic information (which they may not want). In the only case I know alleging a duty to warn of a genetic condition, the court held that a doctor need only tell the patient that the condition is genetic; there was no duty to tell relatives directly.[8]

Australian courts are therefore probably unlikely to hold that a doctor has a positive duty to warn (in contrast to being justified in warning in certain circumstances). Legislative immunity for doctors is not necessary especially as courts could later read down that immunity if it were challenged.

Footnotes

1 If a doctor gives the information, it will be accurate and fully explained. Counselling can also be provided.

2 Legal proceedings are probably unlikely against a doctor who breaches confidentiality in these circumstances. The patient could generally not prove physical injury caused by the breach and so would not succeed in negligence (pure economic loss is probably not recoverable). However, an action in equity for breach of confidence is conceivable and that does not require proof of loss.

3 An amendment to the Code in February 1996 acknowledged that '[E]xceptions may arise where the health of others is at risk . . .'. Note that this is not limited to *serious* risk.

4 *W v Egdell* [1990] 1 All England Reports 835 (psychiatrist justified in breaching confidentiality in revealing report on patient's mental condition in court hearing concerning his future treatment); *Duncan v Medical Practitioner's Disciplinary Committee* [1986] 1 New Zealand Law Reports 513, 521 (A doctor who 'fairly and reasonably believes that [another's life is immediately endangered and urgent action is required] . . . must act unhesitatingly to prevent injury or loss of life even if there is to be a breach of confidentiality' (Jeffries J)).

5 *Donoghue v Stevenson* [1932] Appeal Cases 562 (House of Lords): duty to take reasonable care to avoid foreseeable harm.

6 *Tarasoff v Regents of University of California* 551 P 2d 334 (1976).

7 *Bradshaw v Daniel* 854 SW 2d 865 (1993); *Gamill v US* 727 F 2d 950 (1984).

8 *Pate v Threlkel* 661 So 2d 278 (Fla 1995) (daughter whose mother was diagnosed as having a genetic disease sued mother's physician for not warning her that she also might be at risk. Held that physician had not duty to warn daughter but should have told mother that condition was genetic.)

Who Should Have Access to Genetic Information?

Dr John McKeand

DR JOHN McKEAND

IN EARLY 1996, genetic epidemiologist, Professor Henry Lynch stated: 'Clearly, for insurers to remain solvent, they will require access to the same genetic information that is available to their applicants, when these individuals are applying for insurance cover'.[1]

Professor Lynch's statement clearly recognises the issue critical for insurance industry: the issue of whether insurance companies should have access to the results of genetic tests.

Voluntary insurance can only be viable where the insurer can measure the risk involved in each insurance contract. This is because the insurer needs to be able to calculate premium rates sufficient to pay the claims that will result from the pool of insured risks. The terms of the offer of insurance must reflect both how likely it is that the applicant will make a claim in future and the likely timing of such a claim. *That is, insurers must offer terms which reflect the cost of providing the insurance.*

If the insurer did not do this, but rather offered insurance on the same terms to all applicants, then those individuals who perceived their risk to be high would consider the offer to represent very good value for money and would be likely to accept the offer. On the other hand, individuals who perceived their risk to be relatively low would forego the cover, believing that the offer did not represent good value.

As more of the high risk individuals, and less of the low risk individuals take up the offer of insurance, the average cost of insurance would increase. The insurer would need to pass on this increase in cost to the insured individuals so as to ensure that premiums were sufficient to cover the cost of claims. This would contribute to a further price spiral. Eventually, the majority of consumers, and/or the majority of insurers, would withdraw from the market and the remaining products would become financially unsound.

Voluntary insurance can only remain viable where the insurer can measure the risk involved in each insurance contract.

Historically the Australian life insurance industry has insured approximately ninety-three per cent of life insurance applicants at standard premium rates. Premiums have been loaded for five per cent of applicants and two per cent of applications have been declined. If a greater proportion of applicants are to be insured at standard premium rates, the cost of cover must increase substantially for all.

Private health insurance in Australia is currently community rated. This means that all individuals and families pay the same premium regardless of age and health status. There is no requirement to disclose health history or other risk indicators. Community rating implies that the issue of insurers' access to genetic tests is not relevant to health insurance because the cover is not underwritten. In the USA, where health insurance is underwritten, the debate over genetic testing and insurance is focused largely on health insurance because of the issue of access to the health care system.

Genetic testing issues.

Some of the key issues are:

- Should insurance companies perform genetic tests on applicants?
- Should insurance companies have access to tests previously performed?
- What privacy safeguards are needed?

Should insurance companies perform genetic tests on applicants?

The prognostic nature of genetic tests is such that the psychological impact of the result may be devastating for some people. It has therefore become customary to conduct professional pre-test counselling and to obtain informed consent prior to performing all genetic testing. Many individuals prefer not to know their risk, particularly for diseases for which there is no prospect of prevention or cure and which have no implications for others.

The Life, Investment and Superannuation Association (LISA) has therefore proposed that it would be inappropriate for insurance companies to request applicants for insurance to undergo genetic testing. The decision to undergo a genetic test should properly be taken by the patient in consultation with their professional adviser. The insurance industry does not anticipate any change to this policy in the foreseeable future. Additionally LISA has removed any indirect coercion to undergo genetic tests by arguing against offering special favourable terms on the basis of genetic tests.

Should insurance companies have access to tests previously performed?

As previously explained, voluntary insurance is a mechanism for protecting individuals against *unpredictable* events. Risk may

be very predictable for individuals who have had genetic tests for serious conditions. To allow such individuals to obtain insurance without disclosing their high risk means that insufficient premiums will be collected to cover the claims that will eventuate. This implies that premium rates must rise for all which in turn will lead to some low risk individuals dropping out of insurance, causing the previously outlined upward spiral in the cost of cover.

Allowing people who (as a result of a genetic test) are aware that they are at high risk of early death or disability, to obtain life or disability insurance without disclosing their high risk would enable them to profit financially at the expense of other policy-holders.

It may seem surprising to some that the insurance industry is so concerned about access to genetic tests. I believe our concerns are well encapsulated by statements made in a 1993 report on genetic information and health insurance prepared by the National Centre for Human Genome Research which stated: 'For policy purposes, it will become increasingly difficult to distinguish genetic diseases from non-genetic diseases, and genetic information from non genetic information'. The report went on to state: 'Recognising that our genes affect many common diseases not previously thought of as genetic will transform the scope and meaning of terms such as genetic information, genetic test, asymptomatic condition, pre-symptomatic condition, and genetic predisposition to disease'.

As the distinction between genetic and non-genetic diseases becomes increasingly blurred, an inability of insurers to share the broad band of genetic information known to the applicant would progressively diminish their ability to measure risk. Such a scenario implies unattractive premium rates and a probable collapse of voluntary life insurance. In this scenario it becomes a question of whether approximately two per cent of the population are unable to obtain insurance or whether insurance is unavailable to all.

It is argued that it is unfair to discriminate against those with genetic abnormalities because there is nothing individuals can do about them. Given that most diseases have both a genetic basis and a lifestyle component, the argument about lack of control therefore applies to most diseases to a varying extent. I personally believe the moral argument in favour of giving one group of diseases special treatment compared to others is difficult to sustain.

Privacy

It may be possible to draw inferences about the genetic status of relatives of an individual from the result of a genetic test performed. Insurers in Australia have therefore proposed that in the interests of privacy, the result of a genetic test should only be used to assess the risk of the individual on whom the test was performed.

Strict standards of confidentiality should apply to the handling and storage of all medical information including genetic test results. The life insurance industry has an outstanding record in respect of confidentiality of sensitive information which it is committed to maintain.

Conclusion

The issues involved in insurance and genetic testing are complex and emotive and I have only been able to summarise some of the key issues. The solution to these challenging issues must be both viable and socially responsible. I hope that the Australian industry's approach I have outlined meets these criteria. It should ensure the long term viability of an industry which serves an important social function. It has been designed to maintain the current accessibility of life insurance to well over ninety-five per cent of the population at affordable premium rates.

Footnote

1 Professor Henry Lynch, Creighton University Nebraska. Noted for HNPCC. *Journal of Tumour Marker Oncology*, Spring 1996

Who Should Have Access to Genetic Information?

Ms Rhonda Galbally AO

MS RHONDA GALBALLY

PRENATAL SCREENING CAN now ascertain, with a reasonable degree of accuracy, whether a baby has a range of conditions that lead to clearly observable pathologies. If you believe the more enthusiastic propagandists for genetic determinism, we will be able to do very much better than that in the foreseeable future. There are some genes which indicate a raised predisposition to certain cancers. More generally, genes have been claimed as predisposing to homosexuality, manic depression, alcoholism, schizophrenia, creativity, obesity, intelligence, and Alzheimer's disease.

Currently genetic testing can reach acceptable levels of accuracy only with a relatively small number of conditions covering a relatively small number of people. Wider claims are still subject to difficulties and complexities that may be insuperable. Nonetheless, we must explore in advance the principles that should guide access to current and future genetic information.

In doing this it is salutary to see the past impact of information about genes in a particular case. In America in the 1970s screening for the gene that caused sickle-cell anemia turned ugly when some insurance companies began to deny coverage to black carriers on the grounds that they had a pre-existing medical condition or that their children were bad risks. The US Air Force Academy rejected black applicants who were carriers. Some commercial airlines refused to hire carriers as flight attendants because of the erroneous belief that such individuals were particularly likely to faint at high altitudes. Prominent scientists suggested on network television that the best solution to the anaemia problem would be for blacks carrying the gene to forego breeding – a suggestion that

> *The health system is characterised by notions of normality becoming synonymous with bodily perfection . . .*

naturally fed fears that the screening was really genocidal in intent. In short, the testing did more harm than good by becoming a tool of long-standing prejudices.[1]

This past experience builds on the key value behind the health system in Western cultures that is its goal of the 'body beautiful'. The health system is characterised by notions of normality becoming synonymous with bodily perfection and which are fully reinforced by the cultural paraphernalia of advertising, marketing, film, song, television, sport and recreation. This valuation of the perfect body means that a person with chronic illness or disability is an affront to the goal of health. Within this context genetic screening can lead to 'geneticisation' – the reduction of the total meaning of a person's life to simply the readout of their DNA.

Hence the right to know, the right not to know, and the right not to tell are aspects of the same theme. We can already screen for Huntington's chorea, and the people who are liable to have the gene probably know that they are vulnerable because someone in their family has had it. Nonetheless, extensive screening programs in the United States and Canada have found that only a very small percentage of at-risk people have taken the test. The risk is that gene carriers may prematurely become 'patients', possibly forfeiting years of otherwise good health; and this risk of iatrogenic diagnosis occurs in many screening programs.

Prima facie it seems only fair that insurance companies should not be able to discriminate between people on the basis of their

genes, and that the companies should be forbidden to require genetic data from clients. It is not clear, however, whether under these new circumstances a non-discriminatory system is compatible with having an insurance system at all.

The problem arises from the fact that insurance is based on the gamble that the policy holder will die quicker than the insurance company thinks they will. As in any bet, if one party has inside knowledge then the other party is seriously disadvantaged. If an insurance company is disadvantaged too often, it has to raise its premiums for all applicants; what the person with the genetic condition gains, the other policyholders lose. It is for this reason that people who already have cancer, or other diseases, cannot take out top table insurance at the same rate as someone who does not have the condition.

On the other hand, if companies can take genetic conditions into account, then there are going to be various undesirable social consequences. One of these is that there will be stigmatisation of individuals. If people with physical conditions are set aside as exceptions to the general protective mechansims, this will thrust them away from integration with society, make it difficult or impossible for them to find work, and reverse the trends of recent years towards integration. If people who do not yet have any impairment are going to be treated as if they were in some respects disabled or ill, the bounds and the disempowering effect of disablement will be extended. This is a general loss to society, independent of the loss or gain to people with insurance policies, and society can legitimately intervene to prevent it.

There are other public policy considerations. If there is an obligation to disclose to insurance companies everything known about a genetic condition, then it will be a matter of self interest to know as little as possible.

If it is believed that the public policy considerations are important enough, then insurance companies will be forbidden to take account of genetic data, in the same way that they are not now permitted to adjust their rates for the known differences in life expectancy between men and women, rich and poor people, and indigenous and non-indigenous people. Drawing up legislation would be difficult but not impossible.

It is also certainly possible that the genetic component will prove to be of much less importance in the scheme of things than other factors. Smoking is a more important factor in lung cancer than genetic predisposition, and the discovery of a gene predisposing for lung cancer will not necessarily reduce the occurance of lung cancer; people with bad genes for tobacco may perhaps lower their smoking rates, but if the larger group whose risk is low or medium are reassured and begin smoking more heavily, the benefit will soon be reversed.

We have the advantage in Australia that universal medical coverage protects us from the worst consequences of insurance difficulties. In the United States people can go without medical help altogether if they cannot get insurance. In Australia there is still medical care of last resort available, government funded and thus paid for by all Australians in a form of metainsurance.

The insurance dilemma may be overcome only by compensating customers for the losses they may suffer by discovering their genetic risks. If people with genetic disabilities are to have higher health insurance expenses than people without disabilities, then provision for this needs to be built into the pension structure. Disability pensions should leave the recipient in the same position as an Australian without a disability. As disabilities, and the costs of disabilities, vary, this will require that disability pensions are made up of a two-level payment – one variable, to cover the costs of the disability, and one ordinary pension on top of that. If this balance is built into the pension structure then it may relieve the pressure on the insurance system.

The problem of how insurance companies, or anyone, responds to people who do not yet have a condition but may in the future is the problem we already have with HIV/AIDS, and the lessons from that experience will have to be learnt again - support, not stigma, and the involvement of the people with the condition in every decision at every stage.

Footnote

1 Rennie, J, Grading the Gene Tests, Scientific American, June 1994, 67-74

Some Ethical Questions about Genetic Testing

Dr Christopher Cordner

DR CHRISTOPHER CORDNER

THE MAIN THEME of my brief remarks is the need for careful thinking about how widespread we think genetic testing should come to be. To many this will seem like undue caution, or even scaremongering. It can seem only natural to think of the possibility of genetic testing for a whole range of conditions as nothing more than an extension of the range of choices open to people – nobody is forced to have such tests, but if they are available then people's freedom and power are increased because they have more options open to them than previously. This we can call the supermarket principle: the supermarket with more goods to choose from is, to that extent, a better supermarket than one with fewer goods. Provided there is no pressure on people to make use of these tests and that the offer of them is circumscribed by appropriate counselling, what is the problem?

Well, there are a number of problems. The strongest case for genetic testing is in relation to people at risk of catastrophic diseases with certain or almost certain onset given the relevant gene mutation, and for which there is a proven treatment. Unfortunately these are rare. There are many more catastrophic diseases for which there is no proven treatment, including Huntington's disease, cystic fibrosis, Fragile X, Duchenne muscular dystrophy, and Tay Sachs disease. Then there is genetic predisposition to conditions with much less than certain onset, such as breast cancer, in which a BRCA 1 gene mutation gives a woman a seventy to ninety per cent lifetime chance of developing breast cancer. In such cases genetic testing may still be thought worthwhile. There may be treatments of possible but uncertain efficacy – prophylactic bilateral mastectomy for a woman with the BRCA 1 gene mutation for instance. Then there is the relief of a negative test result, reducing one's risk of the relevant condition to that of the normal population. Also, people may be keen to use the genetic information to help them make important decisions about marriage, children, financial commitments and career. But let us just stop here, and consider this case of inherited predisposition to breast cancer more closely. I shall throw out a challenge. Is it *clear* that information about her BRCA 1 status, say, could help a woman make those decisions better than she would make them in the absence of that information? I do not mean that I find it difficult to imagine someone's being anxious to know the answer to such a question, and deciding (for example) not to marry and have children if she has the gene. That is very easy to imagine.

> *. . . it is naive to suppose that provided we don't press genetic tests on people, they won't take up the option if it is not good for them.*

But is it clear that her decision will be a better one? Perhaps she decided against having children because, given the intensity of her desire for them, the prospect of developing breast cancer and dying while they are still dependent on her is devastating. But suppose she never develops breast cancer, or not until she is sixty by which time her children will be well grown up. How can she know *now* what bitterness, what recriminations, might come to attend this eventuality? And the repression of what matters most to her – having children – might well manifest itself in all sorts of

physical and psychological symptoms. This woman might well wish that she had never known of her genetic status, and that she had simply taken life as it came.

The general point here is that it is naive to suppose that provided we don't press genetic tests on people, they won't take up the option if it is not good for them. Every day people in their thousands make free decisions to get married, yet over a third of them get divorced. I imagine many of them would say that their (undeniably free) choice here was not a wise one, and not good for them. That might suggest a social policy: make it *harder* to get married. Don't prevent people from making 'free' decisions, but change the social context in which those decisions get taken. Likewise, I am suggesting that there is ample room for discussion and reflection about the kind of context we think we should aim to shape, as a society, in which decisions about having gene tests are made. Perhaps we should seek to shape a context in which the weight of expectation is against gene testing, except for conditions of certain or almost certain onset and for which there is proven treatment.

For conditions with uncertain onset or unproven treatment, there is a further problem with thinking of genetic testing not as in itself a good thing but as an option which some people will want to take up for the sorts of reasons mentioned above. It is in practice difficult (I do not say impossible) to preserve this sense of the 'status' of a genetic test, against the background which shapes the doctor-patient interaction. The doctor is the person who knows and is in control, and for many people the mere fact of being offered a test by a doctor *means* 'this must be a good thing or the doctor would not be offering it to me'. While the existence of counselling – a necessity in relation to all genetic testing – will help here, it may not by itself dissolve this difficulty.

So far I have spoken of people's decisions about having a genetic test themselves. Testing for genetically transmitted diseases in embryos raises further questions. The commonest reason for such a test is so that the embryo can be aborted if it has an unacceptable condition. Such testing is already widespread for a few serious either congenital or early onset conditions. There will be indefinitely increasing scope for detection of genetic predisposition to a range of more and less serious conditions, of later onset as well as early onset conditions, and of conditions ranging from certainty of onset all the way down to only slightly increased probability of onset. Will genetic testing of embryos continue to be only for catastrophic early onset conditions? Perhaps current attitudes and values suggest so. But I think it is naive to rule out the possibility that increased genetic testing capabilities might transform people's attitudes and values. After all, this kind of thing happens often enough. When the contraceptive pill came in, it did not just provide an option for those who already had a certain attitude towards sex outside marriage. It helped radically transform social attitudes towards sex, in ways which almost no-one in 1950 would have believed possible, and most at that time would have rejected with some force. We could debate whether these changes are good or bad. My point is only that a small change in the choices available to people effected real transformations in attitudes and values, and that ethical questions can be raised about these changes. The very availability of genetic testing for all sorts of conditions may similarly lead to a transformation of people's attitudes and values. Now add in the distinct possibility in the near future of in vitro gestation with stored ova and sperm to be used as desired. The technically simple option of creating and destroying embryos until you have one maximally free of defects - and perhaps also maximally endowed with desirable qualities, such as high IQ, athleticism, reasonable height, good teeth, and so on — will be an easy one to take. When pressed, some may conclude that this would be no bad transformation of our attitudes. I could not agree with that, but my present point is only that we have very little reason to be confident that such a transformation will not occur. (A *further* question is the effect such a transformation would have on people's attitudes to those who still did have more or less severe disabilities. It may well mark an atrophying of our capacity to engage with them as fully-fledged members of the human community.)

Finally, predictive genetic testing runs the risk of labelling healthy people sick. Many people will never suffer from the condition for which they have a predisposing gene. Yet they live, and will always live, under its shadow, and if the condition is known by others, will also be seen as living under its shadow. This is a serious blurring of the boundary between health and illness. Being identified as having a condition which, while not an illness, can sometimes be linked to illness may contribute to *making* people sick. A study by Dr David Sackett of the Cochrane Centre has shown this in relation to high blood pressure. It is not difficult to envisage the same phenomenon in people who are identified as having a gene which *may* generate a certain condition in the future. Moreover, if healthy people may thus stigmatise themselves, we should consider the possibility that others may stigmatise them too. Already there has been the case in the USA of perfectly healthy black Americans being refused work in the airline industry because of a genetic predisposition to sickle cell anaemia higher than for other racial groups. Discrimination against healthy people for ailments they may never come to have will likely be a problem arising again and again.

Let me end by stressing that I have no Luddite aversion to advances in knowledge and technology. We can all very readily envisage situations in which we would indeed want to make use of genetic testing, and with good reason. But this does not mean that the growth of the practice will be free of dangers. We need to continue to think carefully about the possible implications of increased genetic testing.

The Opium Poppy – Friend or Foe?

University of Melbourne Medical Society Lecture

Thursday 24 October 1996

by Professor Emeritus David Penington AC

DAVID PENINGTON

THE USE OF OPIUM is documented in Asia some 6000 years ago. Although native to Asia Minor it came to be domestically cultivated across the Middle East and central Asia. Homer wrote of opium as *nepenthe* and it held an honoured place in the Hippocratic collection (fifth century BC). A detailed description appeared in Dioscorides' *De Materia Medica* (first century AD) and Arabian physicians used it for pain relief and sedation. Growth of the opium poppy was common in India by the fifth century and in China by the seventh century AD.

Morphine was isolated from opium by the German pharmacist, Serturner, in 1805, but was not significantly manufactured until the 1830s. By the mid-nineteenth century morphine and codeine were the two important, biologically active alkaloids derived from many identified in the poppy. In 1898, heroin, di-acetyl morphine, was made by the group of Bayer chemists who acetylated salicylic acid to improve solubility and usefulness. Heroin was used as an effective cough suppressor!

Until chemotherapy began with Ehrlich's salvarsan (1910) and, thereafter, the rapid growth of the new pharmacopoeia, medicine had few effective interventions in disease. Opiates were important in pain relief and sedation. An alcoholic extract of opium, *Tinct. Opii* or *Laudanum*, was used in treating diarrhoea, coughs and many minor disorders and opium extracts were rubbed into the gums of children to quell teething problems.

During the nineteenth century in Britain, it was increasingly recognised that opium was addictive; that its common use might cause social problems and even drug related deaths, particularly among young people. These concerns produced the Pharmacy Act of 1868, requiring labelling of dangerous drugs and placing the prescribing of such drugs in medical hands. Over the next thirty years usage fell in Britain. Similar legislation was adopted in many European countries, but nothing similar appeared in the US during the nineteenth century.

The Chinese Connection

The alteration of mood by opium, marijuana and alcohol goes back thousands of years. Some Muslim countries currently prohibit possession and use of alcohol. For other countries, the major problem is cocaine or the opium group. In China, opium was identified as a social problem in the nineteenth century.

The history of public policy in relation to opium has many fascinations. In 1773, the British East India Company was granted an exclusive licence to cultivate opium in Bengal and developed a trade with China based largely on this commodity – in return for a thriving trade in tea, spices, silk etc. By 1830, a private opium industry in western India had also developed, still handled through the British East India Company. Export of opium from India produced about half the total income of the British Government of India by the mid-nineteenth century.

Chinese authority had actually outlawed both opium and tobacco smoking in 1792 during the dying days of the Ming dynasty. The illicit trade was seen as undermining central authority of the imperial court, as well as the commitment of the State to its Confucian ethic. In 1820, 5000 chests of opium, each weighing 145 pounds, reached China from India; by 1834, the number of chests from the East India Company had risen to 20 000! The trade involved smuggling the opium ashore and the subversion of poorly paid government officials and the market involved an estimated ten million addicts in China.

In 1839, when the Manchu Emperor sought to curb the trade, he faced the full onslaught of British arms to force entry of the drug. The Chinese were defeated and both British and European countries imposed treaties securing their right to trade freely with their products, including opium for which there was a tax in silver. These rights were set out in the 1858 Treaty of Tientsin and were confirmed in the 1860 Convention of Peking. Forcing the opium trade on China was an act of economic and political imperialism when the Ch'ng dynasty was crumbling, and when there was growing concern in Europe that opium was a significant problem at home.

In the US, major immigration, particularly of men from China, had been associated with the discovery of gold and the building of railroads across the continent between 1840 and 1880. In San Francisco concern grew about the spread of Chinese opium dens and their growing popularity with white American workers. Racial fears became high and, in 1875, the city outlawed the sale of opium. Similar moves followed in some mid-western states. Concerns grew as uncontrolled availability of opium and morphine became a problem in New York and elsewhere. Cocaine, from central America, became widely available and was even included in soft drinks such as 'Coca Cola'. Many proprietary medicines contained morphine.

In the Philippines in 1903, Governor Taft established the Opium Investigation Committee which raised the issue of Chinese use of opium and possible need for control. President Roosevelt supported the first Opium Convention in Shanghai in 1909, a time when the Manchu government was losing control and corruption from the opium trade was considered a major social and political problem. The US took a strong line against British and French imperialism in Asia – no doubt motivated as much from international power politics as from specific concern over opium. The Shanghai Convention had a major impact on British standing in China and was followed in 1912 by the Opium Convention in the Hague aimed at curbing the growing international trade in opium and cocaine; again the British and French opposed American initiatives. The First World War intervened, but findings of the Hague Convention were ratified in the peace treaty processes, binding signatories to control production and curb trade in opium and cocaine. Responsibility for the treaties was carried by the League of Nations.

The International Conventions

In 1925, The Geneva Convention on Opium, again led by the US, brought together more countries to collaborate in curbing trade in opiates. The US failed in their attempt to include heroin in the treaty. It is said that during this convention, Egypt proposed that cannabis be a prohibited drug out of a concern that mental illness was more prevalent in men than in women in their country where more men than women smoked cannabis. With support from other new members, Turkey and South Africa, this was agreed. The following year, Australia complied by passing a law forbidding trafficking and use of cannabis, although it was virtually unknown in Australia.

Responsibility for international regulation of narcotics was given to the United Nations in 1946 and, in 1948, extended to synthetic drugs of similar nature. In 1961 the Single Convention on Narcotic Drugs strengthened existing treaties and in 1968 the International Narcotic Control Board was established. In 1972 and 1988, the Single Convention, with US leadership, was further developed and amended.

The Growing Ethos of Prohibition

By 1919, the move to prohibition of alcohol in the US had come to a head after more than twenty years of lobbying by the Anti-Saloon Movement and other 'temperance bodies'. The 18th Amendment to the Constitution came into effect in January 1920. Naturally, attitudes to opium products were similar and supported by the same middle class 'temperance' movement, linked with the strong evangelical Protestant ethic of that time.

Mounting organised crime and corruption with boot-legging and the widespread consumption of illicit alcohol led to the abandonment of alcohol prohibition following the election of Franklin Roosevelt in 1933, and adoption of the 21st Amendment. However, controversial issues were raised about the message the Amendment would deliver to young people and about consequent moral decline in society.

The approach to opium did not change with the 21st Amendment. The Harrison Narcotic Act of 1914 continued to regulate sale of narcotics in the way the Pharmacy Act had done in Britain from 1868. However, the Supreme Court subsequently interpreted the Act as preventing doctors prescribing drugs to addicts, so the basis of prohibition was established. During the prohibition of alcohol, heroin had become the favoured narcotic for recreational use in New York and its manufacture was prohibited from 1924.

For thirty-two years, Harry J Anslinger, former senior official of the alcohol prohibition administration, led the Federal Narcotics Bureau. In 1929, the US Surgeon General made extraordinary statements about the dangers of marijuana, then widely used by Mexican workers, many of whom were unemployed; the Marijuana Tax Act of 1937 was used by Anslinger to extend prohibition to marijuana. Again the story was complicated by racial issues. The Federal Narcotics Bureau has now been subsumed into the Office of National Drug Control Policy, led by a former four star general, widely referred to as the 'Drug Czar'.

The history of heroin regulation in Australia is briefly discussed by Wodak and Owens (1996)[1]. In 1895 South Australia introduced the first legislation outlawing opium smoking, motivated by concern about the life style of male Chinese immigrants which might threaten white Australian women. Other states followed – remarkably like the situation in the US last century. Later developments in Australia followed the Versailles decisions and have been almost entirely governed by international treaties.

What of the picture in the US and internationally?

In the US, prohibition of narcotic drugs has been similar to the pattern of the prohibition of alcohol although penal sanctions have mostly affected Afro-Americans and poorer immigrant communities in larger cities. With the international treaties, both traffickers and users are treated as criminals. Over 1.2 million people are in prison for drug related offences and another 2.3 million on probation or parole – the highest per-capita level of incarceration and control of any industrialised country (Drucker 1995)[2]. It is stated that twenty-five per cent of all Afro-American males aged 25-45 are either in prison, on probation or on parole – the majority for crimes related to narcotics. Including state and federal expenditure, the cost of law enforcement related to narcotics is estimated at $60 billion a year, but there is no evidence these processes curb the growth of international trade. Narcotics continue to flood into the US. A recent government report has shown a rapid increase in usage of marijuana and heroin among teenage Americans.

Because of the culture of complete prohibition, needle exchange programs have not been supported by the US government and HIV-AIDS has become rampant in the eastern seaboard cities. The situation is similar to that in South East Asia, Brazil and a number European centres where infection is spreading rapidly among women and a fast increasing number of infants are born with the disease.

International trafficking in drugs is conservatively estimated at US$ 400 to 600 billion p.a., around ten per cent of all international trade in goods and services. The Center for Strategic International Studies in Washington DC (CSIS) convened a meeting of experts in 1993 and concluded that:

- production of heroin, cocaine, cannabis and synthetic drugs is at an all time high and will continue to rise in the foreseeable future;
- drug trafficking organisations are taking advantage of the tumultuous changes throughout the international system to develop new markets;
- the seeds for widespread drug consumption exist practically everywhere as do the worrisome signs that the drug epidemic is spreading swiftly to the Third World and many of the former Communist states;
- the current US National Drug Control Strategy is simply no match for the challenge.

George Schultz, former Secretary of State to President Reagan had said in 1990

> . . . that the war against drugs is doomed to fail . . . that the conceptual basis for the current program is flawed . . . that we need to consider and examine forms of controlled legalisation of drugs.

In 1993 the General Accounting Office of Congress released a report *Confronting the Drug Problem: Debate Persists on Enforcement and Alternative Approaches*.

The huge cost of the 'war on drugs', linked with evidence that it is achieving little, has shaken the most hard-headed of conservative political groups examining accountability for government outlays.

Recently the conservative US journal National Review published an issue led by William F Buckley Jr entitled *The War on Drugs is Lost*[3]. The findings were very similar to those above.

In Australia the story is similar. In 1988, a Commonwealth Parliamentary Committee on our National Crime Authority (the Cleland Report) estimated the value of our trade in heroin, cocaine and cannabis alone at $2.6 billion or about 0.5 per cent of GD. It concluded:

> . . . not only that our law enforcement agencies have not succeeded in preventing the supply of illicit drugs to Australian markets, but that it is unreasonable to expect them to do so. If the present policy of prohibition is not working then it is time to give serious consideration to the alternatives, however radical they may seem.[4]

No action followed because of political sensitivities.

An example of living with narcotics

William Stewart Halstead graduated from the College of Physicians and Surgeons in New York in 1877 and determined to learn all he could from leaders of Vienna surgery, before seeking to break new ground in the US. He worked under Bilroth and learned of the use of cocaine as a local anaesthetic which provided new opportunities for the careful, patient surgical approaches which were to categorise all his surgical work. Imbued as a young man to try any new approaches on himself, he sadly became addicted to cocaine, and was given morphine as a means of escaping from cocaine addiction.

Despite dependency on morphine through most of his creative years, Halstead reshaped the practice of surgical technique and the training of surgeons in the US and had enormous influence in surgery worldwide.

Medical supervision of narcotic administration clearly can succeed, but British experience with it has been far from trouble free. In Britain, the medical profession sought to have heroin and other opium derivatives available for clinical use, and since the 1920s, that country has permitted prescription of heroin for drug dependency. It is of interest that, when the Commonwealth moved in 1953 to legislate against any use of heroin in Australia in conformity with the United Nations treaty of 1949, the Australian branch of the BMA, forerunner of the AMA, strongly opposed the legislation, emphasising the value of the drug under medical control in normal medical practice, particularly in pain relief.

Origins of the Victorian Inquiry into Illicit Drugs

The Victorian Premier's Drug Advisory Council was set up in response to public concern about heroin trade in Footscray involving young people. The death toll from drug overdose in Victoria had risen rapidly over the last three years and accounts of increasing availability of heroin, particularly to school children, stimulated concern that something ought to be done.

Our terms of reference required us to look at the full range of issues related to illicit drugs: the current legislation, law

enforcement processes, public health, treatment facilities and education.

We had a Council of eight people from very varied backgrounds. Two had considerable experience in dealing with drug dependency and two, extensive experience in youth work. The Deputy Chairperson of the Ethnic Affairs Commission was a member, an important connection, as there had been media comment on possible trafficking links with a particular group of recent immigrants. One had a background in criminology and one in the law and court procedures.

We were required to consult widely in the community and received over three hundred submissions from the public. Public hearings were held in metropolitan and country regions of Victoria: all but one were relatively easy to control. People who were drug users, people who were drug traffickers, people with intense feelings against illicit drug use or against the current arrangements argued with passion before us. We heard moving stories of anguish from parents of drug dependent people and from others whose children had died, with harrowing accounts of their experiences and their frustrations when they or their children had sought help. We consulted with police, with judges and with magistrates. We consulted within the field across Australia and internationally and were able to canvass experience in dealing with the issues of illicit drugs very widely.

We committed ourselves to reach no conclusions until we had looked at all the evidence and heard a variety of views. The whole process took little more than ten weeks from start to finish. It was only some seven weeks into the process that we really began to try to think through what recommendations should be made. Several of my fellow Council members would say, in retrospect, that they started at a very different point to where they ended up.

All of the evidence led us to only one set of conclusions. We made over seventy recommendations, every single one of which was unanimous. It was an interesting process. We had to take into account public opinion and to some degree, political processes and constraints under which politicians would feel they had to operate. Nonetheless, we resolved that we had to go in a positive direction in each facet of the terms of reference – to have done otherwise in the face of the mounting death toll and evidence of active recruitment of young Victorians into highly unsafe use of heroin would have been a serious neglect of our responsibilities.

We concluded that the present legal and law enforcement arrangements have not worked in preventing supply or curbing illicit drug use and, further, that they could not curb illicit drug use in Australia. Money and goods move around the world more readily and rapidly than ever before. Heroin is flooding into this country in pure form and at a lower price than ever before and production of opium in South East Asia will continue to increase. Those trafficking in heroin are seeking new markets. The new markets they are finding are, sadly, amongst young Australians.

Where do the alternatives lie?

The Rand Drug Policy Research Center of Santa Monica, California published a study on cocaine use in 1994 pointing out that every dollar spent on treatment of cocaine users led to societal savings of $7.48, whereas every dollar spent on customs and police work saved 52 cents; a dollar spent on interdiction saved 32 cents whilst that spent on control in source countries saved 15 cents. The cost to society of a heroin addict was estimated by the New York Academy of Medicine as over $US40 000 pa, compared with the cost of incarceration at $45 000 pa and the cost of methadone treatment at $3,500 pa. The cost of corruption to society is difficult to estimate.

Our conclusion was that the only way ahead was to seek to reduce demand for illicit drugs through effective education and treatment. We considered that with such high usage of marijuana amongst young people, the only way to mount an effective educational program was for this to be taken outside the criminal realm and for the whole context of education about drugs to be moved to a new and open arena.

Heroin is now available on Australian streets at prices little different from the cost of marijuana. Amphetamines and their derivatives present a further major problem. Whilst there was no ready way to provide alternative sources of heroin in the short term in Victoria, the possibility of domestic production of marijuana by the users or their families offered the possibility of a first step against the trafficking industry. Support of the very cautious ACT Heroin Trial, with medical supervision of heroin prescription, was another important step.

Why was there such resistance to change?

I went into the study knowing it would be controversial. I knew we would be dealing with a situation where some in the community have strong views that any use of illicit drugs is an immoral act. To them, to even attempt to publicly analyse such issues was, in itself, a threat.

A second, larger group, particularly parents of young or teenage children, are fearful of illicit drugs and their possible effects on children. They fear that any 'liberalisation' of criminal law would lead to greater use of drugs regardless of clear evidence from elsewhere that this does not occur. That fear emerged again and again in discussions, at every level, all the way through to Members of Parliament. Such fears are difficult to dispel despite the fact that evidence has been collected from many situations where decriminalisation of marijuana has not been followed by any significant sustained increase in usage. The fear remains and people find it hard to face the evidence.

We were told by the Police Association, that to decriminalise marijuana would lead to 'carnage on the roads'. This statement was made repeatedly despite the fact that a study in three different states in Australia, in which the Victoria Police participated in the early 90s, similar studies on either side of the United States, and a study in Europe, all came up with the same answer – that marijuana is not a cause of fatal road traffic accidents.

It is true that if one analyses forensic data from fatal road accidents, there are residues of cannabis in some victims. But the statistics reveal a concentration of young males amongst victims of fatal road traffic accidents, which are mostly associated with alcohol. Marijuana residues stay in the body for up to six weeks after a person has smoked, and among young males there are many who are smokers of marijuana. The long-lived residues are not, of themselves, associated with altered mental states and the incidence of the cannabis residues was no greater then expected from the age and sex characteristics of the population – a very different picture from that of the incidence of high levels of alcohol in the blood, or indeed of the amphetamines and other drugs.

We recommended the development of a road-side test for the short lived metabolites of marijuana – this is scientifically possible. Such a test might reduce the likelihood of young people indulging in chaotic high intake of the drug at parties. Nonetheless, there is no evidence that marijuana users drive dangerously. They drive fearfully – slowly and very, very cautiously – quite differently from the risk-taking behaviour of the person with a large amount of alcohol on board. Marijuana smokers are often pulled up by police for driving along at 20km/h in heavy traffic!

Another frequently stated concern was that of multiple drug use. The so called 'stepping stone' theory of drug use has wide currency. However, studies in the US have established that movement from marijuana to heroin or cocaine is due to the environment in which young people obtain their marijuana. If it is obtained from drug traffickers, they are also likely to be offered heroin or cocaine. This was one of the strongest arguments in favour of permitting limited domestic production of marijuana at a time that our market is being increasingly flooded with cheap heroin. No evidence exists that use of marijuana carries a direct risk of heroin usage and addiction.

A further frequent claim is that marijuana causes schizophrenia. Heavy usage of marijuana can almost certainly aggravate a latent or developing schizophrenic psychosis. If a person is developing schizophrenia, they are likely to be desperately unhappy and be looking for anything that will relieve that unhappiness. If they are young, particularly if they are male, they are more likely to take marijuana than anything else. However, the very big increase in usage of marijuana over the past thirty years, has not been associated with any increase in the incidence of schizophrenia in our community.

The link between marijuana and psychosis needs to be better understood, and young people need to understand possible connections if they choose to experiment. Hopefully a study now being commissioned by the Victorian government will help to clarify this issue. However, extravagant claims that decriminalisation of marijuana would unleash schizophrenia on the community have no scientific basis.

The major risk to the Victorian community lies in the effects of the trade in heroin and amphetamines and their derivatives. These effects include crime on the part of drug dependent people, corruption associated with the traffickers, spread of hepatitis C and other diseases from intravenous drug use under unsafe and insanitary conditions, and the mounting toll of drug related deaths.

The way ahead

We need to create an environment where we can effectively provide education to young people which they will accept as rational, and not see as hypocritical. Surveys reveal that young people regard alcohol and tobacco as much more dangerous than marijuana. They see it as hypocritical that society says it is criminal to experiment with marijuana whilst people in their own families, or elsewhere, abuse alcohol or tobacco. Unless they can believe what they hear about marijuana, they are unlikely to listen to advice relating to heroin, amphetamines, ecstasy and other drugs.

The surveys indicate that nearly fifty per cent of boys and up to forty per cent of girls in secondary schools in Australia have experimented with marijuana before they finish school. Does it make sense to label them as criminals for doing that? They will continue to do it.

The question then arises, are there dangers with marijuana? Of course there are, as with every drug. What matters is to be able to talk about the difference between use and abuse of a drug. One cannot discuss that openly, and expect young people to discuss it openly, if any use is seen as criminal. We have to be able to talk about the danger signs that come from frequent or daily use of marijuana.

The amount of law enforcement, police activity and court time taken up with marijuana possession and use is enormous. In Victoria there are some 14 000 prosecutions each year, related to illicit drugs. The great majority of these involve growth or possession of small amounts of marijuana. Marijuana is probably the second largest cash crop in northern New South Wales, in Queensland and in South Australia and continues to come into Victoria through the traffickers.

A large amount of police time, court time and legal aid money is being poured into prosecution and defence of these people before the courts. These are resources which ought to be directed elsewhere – against trafficking and strategies to reduce demand. We want the police involved in community policing and the development of local community programs to try to alter attitudes of young people, and to have more resources to support people who seek to be retrieved from the effects of illicit drugs. We want improved rehabilitation and treatment programs for heroin and amphetamines. We want to move, as has happened in Singapore and Sweden, to regard heroin usage as a health issue, not as a court and police problem so that people are referred immediately for treatment and education. We also recommended many changes in treatment, in rehabilitation, in the way users are handled by police, in the courts and in prisons.

The outcomes

Many of our recommendations have been adopted by the Victorian Government. Others, particularly those relating to marijuana, will be considered by an all-party committee of the Parliament. An increase of $25m per annum has been allocated to support treatment and rehabilitation programs, and to support drug education.

Remaining problems

Issues relating to illicit drugs are a difficult area of public policy. In Victoria, deaths from illicit drug abuse continue to rise and are now approaching the number of road traffic accident deaths. There is not a family in our community that could not be affected.

One of the most important issues is to gain a better understanding of the problem in our community. Whilst the recent public debate was not always well informed, at least many now recognise that there is a problem – this provides a better starting point for the future, as well as the possibility of better understanding of the issues in families, in schools and other institutions and with many young people – the section of our community most at risk.

Those who want to regard heroin, or for that matter, marijuana or amphetamines as 'evil' are seeking to put the blame elsewhere for the tragic human problems which have affected their children, families or friends. The poppy, *papaver somniferum*, is a thing of beauty. The effects of its juices, known for many centuries, have been welcomed by many people in their suffering. The problems are ours, not those of the poppy. Much of the suffering now caused is due to the process of prohibition itself and the huge international trade which depends on it. The remaining problems depend on education for their mastery – something we must tackle as a community.

So that the issue is not ignored, I issue a call for the number of fatalities due to drugs to be publicly released every quarter. Making an impact on this problem depends on the whole community just as much as does doing something about the road traffic toll!

1. Wodak A & Owens R, *Drug Prohibition: a Call for Change* UNSW Press
2. Drucker, E (1995) *Drug Prohibition and Public Health: It's a Crime.* Australian and New Zealand Journal of Criminology pp 67-73.
3. National Review, February 12, 1996 pp 34-48.
4. *Drugs Crime & Society* Report by the Parliamentary Joint Committee on the National Crime Authority, Commonwealth of Australia, 1988.

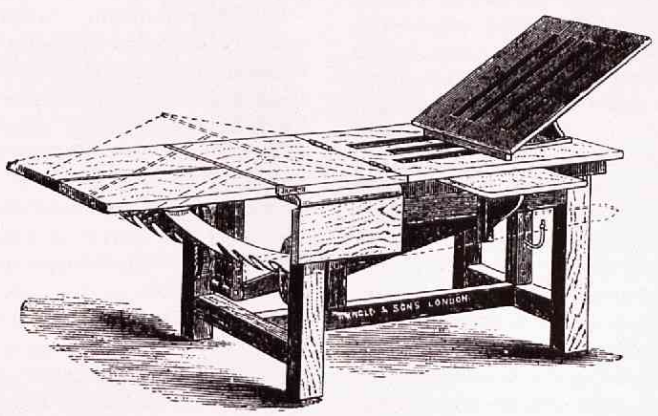


Fig. 2772.

Operation Table (Arnold & Sons' Improved), Fig. 2772	£20	0	0
Ditto	ditto	ditto	ditto	without lever movement	15	0	0
Ditto	ditto	ditto	ditto	second quality... ...	10	0	0
Ditto	ditto (Guy's Pattern) ...			... £10 10s. and	12	0	0
Ditto	Apron and sleeves, waterproof				1	4	0

PSYCHIATRY: AN IMPOSSIBLE PROFESSION?

62ND BEATTIE SMITH LECTURE

SIDNEY BLOCH

Associate Professor and Reader, Department of Psychiatry

The following paper is an abridged version of the 1996 Beattie Smith Lecture, the full text of which was first published in the Australian and New Zealand Journal of Psychiatry, *April 1997, Vol 31, No 2.*

WHEN ACCORDED the honour to give the Beattie Smith lecture, I jumped at the opportunity and knew immediately what my subject would be. The longer I practise psychiatry, the more challenging I find the question as to whether my colleagues and I are able to serve as professionals: whether the task is so inherently complicated that any attempt to fulfil the professional role is merely an exercise in futility.

I was not always so burdened. Indeed, as a trainee I tackled my job confidently, harbouring few if any doubts that I could function as a proper doctor. After all, I surmised, psychiatry was an intrinsic part of medicine and no special caveats hindered my practice of it.

My rather idyllic experience came to a disturbing halt in the late 1960s during the course of what was to become a pivotal clinical encounter. A student in his mid-twenties consulted the clinic but obviously with great reluctance. His complaint was bafflement about his sexual orientation. Inclined to homosexuality, he had experimented accordingly. As greater trust evolved between us it emerged that John had been apprehended by the police a few weeks earlier and told in no uncertain terms that his loitering with other men in a public place was socially unacceptable and legally risky. Moreover, he should seek psychiatric help *post haste* in order to remedy his sexual deviation.

Quite inexperienced in treating this area of human functioning, I sought guidance. A clinical psychologist unhesitatingly recommended a behavioural approach, and so it was that we launched a program in which John was administered mild electric shocks on viewing slides of homosexual scenes but was spared the same when viewing heterosexual scenes. At the end of treatment neither of us were persuaded that anything had changed although I assumed, no doubt rationalised, that I had fulfilled my professional responsibility as best I could. Today, I shrink back in horror on recalling the role I played and can barely mollify myself by believing that I acted in accordance with scientific principles then prevalent and in harmony with corresponding social norms.

How ironic it was that a mere five years later, in 1974, a substantial majority of psychiatrists of the American Psychiatric Association (APA) voted through a referendum 'to eliminate homosexuality *per se* as a psychiatric disorder'[1] substituting a new category, 'sexual orientation disturbance'. Twenty years later, in the fourth edition of the APA's classification, a single line only appears, namely, 'Persistent and marked distress about sexual orientation'[2].

One might have hoped this was the end of the sorry saga. But perusal of the media, for instance, reveals that the position on homosexuality is far from settled. Some politicians in Tasmania[3] have pressed for harsher penalties for those who practise homosexuality. In the recent US presidential race Republican hopefuls have talked of the 'evil' of same-sex marriage and dubbed homosexuals as 'satanic'[4].

My own clinical experience with John illustrates blatantly the utter confusion that can envelop a sphere of human behaviour as it becomes a target for scrutiny. The corollary is clear: the psychiatrist operates in a social matrix within which a multitude of forces impinge; moreover, he or she is saddled with expectations from these forces to interpret human behaviour in the light of certain preferred values. We could conclude that the psychiatrist mirrors the prevailing ethos by construing psychological functioning in ways shaped by the dominant zeitgeist.

THE STATE AS THE EXTERNAL FORCE: THE SOVIET CASE

With John I was unwittingly carrying out a role delineated by society and its representative agencies: the law in the guise of the police. The disconcerting realisation that I too was in effect a social agent, potentially acting at the behest of others was brought into bold relief when I spotted a brief letter in the British Journal of Psychiatry[5] in late 1971 dealing with allegations of the misuse of psychiatry in the Soviet Union. My initial incredulity was magnified by scrutiny of the documents I later received from the letter's signatories.

On moving to London in 1972 I contacted the Working Group on the Internment of Dissenters in Mental Hospitals comprised of human rights activists, psychiatrists and political scientists, all intensely concerned about the allegations. They had detected a practice of flagrantly unethical character: the labelling of dissenters, troublesome to the Soviet State, as mentally ill solely on the grounds of the views they espoused, and their compulsory treatment in mental hospitals, sometimes for years on end, until they had recanted. I was horrified to learn that evidence from diverse sources – the dissenter-victims themselves, underground publications or samizdat, and a handful of courageous psychiatrists – pointed to widespread victimisation, with psychiatrists either active as perpetrators or colluding passively, afeared of rocking the boat. My own research confirmed these preliminary findings. Peter Reddaway, an eminent scholar of Russian politics, and I were able to authenticate 210 cases of improper detention in our report *Russia's Political Hospitals* published in 1977[6]. The volume was widely cited and served as a tool both to publicise the abuse and to bring pressure on the Soviet authorities to bring it to an end.

How Soviet psychiatry came to be used as a State-sanctioned weapon to quell dissent is a complex story. A useful step is to examine the historical context, particularly the rise to power and to a virtual monopoly over the theory and practice of psychiatry by a core group of psychiatrists led by Andrei Snezhnevsky.

Professor Snezhnevsky became head of a psychiatric hospital by age twenty-eight. He thereafter held several prominent positions culminating in the accolade: Director of the Institute of Psychiatry of the Academy of Medical Sciences, the most influential body in Soviet psychiatry. His power was extended by his election to membership of the Academy of Medical Sciences (a rare distinction for a psychiatrist) and by his assuming the editorship of the principal Soviet psychiatric journal.

In 1950, he led the pro-Pavlovian camp at a critical joint session of the Academies of Sciences and Medical Sciences – many eminent scientists were sacked in an ideological upheaval tantamount to a widespread purge, reminiscent of many others that typified the Stalin era.

Following this triumph Snezhnevsky's main task for over three decades concerned the diagnosis of schizophrenia. He devised concepts which profoundly shifted the way the condition was used clinically. This was no mere academic exercise. Several assumptions were made which were to have crucial repercussions: a) schizophrenia was *always* genetically determined; b) although its features might only manifest intermittently, the biological foundation of the illness always remained; c) recovery was not possible; d) the main question was the speed with which the patient would deteriorate; and e) rather sinisterly, because the illness might

present with mild symptoms and only progress later, schizophrenia was much more common than was previously thought.

A particular form of the disease, sluggish schizophrenia, accounted for the much wider limits placed on the use of the concept, named so because its rate of progression was so slow. Typically, patients given this label were purportedly able to function almost normally. Their symptoms might resemble those of a neurosis or take on a paranoid quality including grandiose ideas of reforming society (a handy means for the State to enlist psychiatry to pursue its political purposes).

This development facilitated the application of a label of disease of the most serious kind to people whom psychiatrists in the West would have regarded as normal, mildly eccentric or at worst neurotic. It did not require much for a person to be designated as mad by a Snezhnevsky-trained psychiatrist.

A schizophrenic label in the Soviet context also allowed for a person to be declared not responsible for an offence much more readily than previously. Thus, Georgy Morozov[7], then chief forensic psychiatrist, could proclaim: 'Schizophrenia is a disease in which patients are with rare exceptions deemed not responsible'. Yet, he conceded that: 'Forensic psychiatrists often experience difficulties when . . . symptoms are mild and the presence or absence of schizophrenia must be established . . .'. Diagnosis was then made on a history of past symptoms, long before the offence was committed. Thus, the defendant might appear normal when under psychiatric examination but still harbour the disease. A new phrase, 'seeming normality', entered the psychiatric lexicon: a touch of Orwell in an already Orwellian society.

The Special Psychiatric Hospital at Oryol where Soviet dissenters were unjustifiably detained.

THE RISE OF PSYCHIATRIC REPRESSION

The psychiatric gambit was in fact in use before Snezhnevsky's rise to power. The idea first took hold during the Second World War when a small number of 'political' patients were interned in the Kazan Prison Psychiatric Hospital. This practice continued after the War but there is no evidence to suggest this was State-inspired policy.

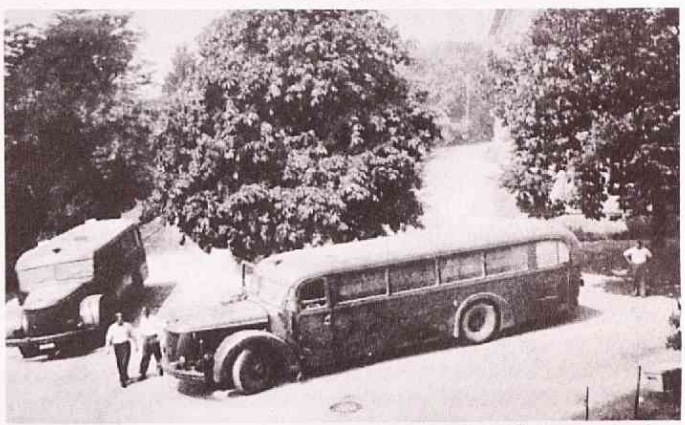
In the Khrushchev period the need to portray the Soviet Union as a civilised society became more pronounced, probably paving the way for the more widespread use of psychiatry to counter dissent. Khrushchev himself provided the necessary backing as reflected in his equating social deviance with insanity.

Human rights and religious activists, would-be emigrants, and other dissidents were deviating from 'generally recognised standards of behaviour'. The behaviour, possibly the result of a diseased mind, might also at the same time be contravening Soviet law, especially articles of the criminal code dealing with 'dissemination of deliberate fabrications which discredit or defame the Soviet political and social system' (Article 190, 1) or 'propaganda carried out with the purpose of subverting or weakening Soviet authority' (Article 70)[6]. It was not too big a jump to suspect mental illness in those who violated these laws. Then, given the enormously wide conceptualisation of schizophrenia, including the sluggish form, it might again not be too much of a jump to regard the deviant behaviour as a manifestation of that disease. Finally, given the seriousness of the offence it might be reasonable to declare the defendant not responsible and in need of high security psychiatric treatment.

I have acted as devil's advocate in spelling out this ostensibly logical sequence because the evidence of abuse as we accumulated it pointed to a quite different explanation. A core group of senior psychiatrists were deflected from their proper professional practice by powerful socio-political forces. These psychiatrists might have viewed reformist behaviour as potential symptoms of schizophrenia but in the case of human rights activists and other dissenters they would have recognised that the latter were fully aware of their so-called 'behavioural deviation' and harboured no illusions that their actions might not place them in great peril.

By way of synthesis we can conclude that Snezhnevskyism probably arose out of a sincere conviction about the nature of mental disorder but that from the mid-1960s its doctrine became available, most conveniently, to the State, following the adoption of a policy to harness psychiatry in the battle against dissent. At this point the psychiatric establishment succumbed to extreme pressure. An arrangement was 'devised' between the parties but one, at least initially, so implicit that the participating psychiatrists would not have anticipated the sinister consequences that would ensue. However, once embedded in the arrangement there was no way of extricating themselves save by jeopardising their careers and perhaps more. The pact had been sealed and could not be tampered with.

These events continued to occur into the 1980s, the practice finally ceasing only after years of sustained Western protest and campaigning by the dissenters themselves[8] and then only in the wake of Mikhail Gorbachev's policy of liberalisation.



Specially disguised bus used to transport patients to the six Nazi extermination hospitals.

THE NAZI CASE

It could be argued that the Soviet abuse was a one-off aberration, the product of a confluence of unique social and historical factors. I conclude otherwise, convinced that the nature of psychiatry as a profession lends itself to being buffeted by forces beyond its inevitably blurred boundaries. The point can best be made by looking for other instances of such exploitation. The most flagrant was the practice of psychiatry in the third Reich. This rivals the Soviet example for its sheer inhumanity as well as highlighting psychiatry's vulnerability.

At the end of the 19th century Social Darwinism began to gain support in Germany, as indeed elsewhere in Europe. For instance, Alfred Ploetz, a notable eugenic scientist, proposed in 1895 that doctors should be authorised to 'weed out' genetic inferiors and to kill degenerate children[9]. Although racial hygiene then entered scientific discourse, its early proponents, like Ploetz, were more motivated by a concern that the human race would degenerate in the absence of eugenics.

The picture altered radically in the 1920s, spearheaded by publication of a short tract, *The Permission for the Destruction of Life Unworthy of Life*, by Karl Binding, a professor of jurisprudence at Leipzig, and Alfred Hoche, a renowned professor of psychiatry at Freiburg[10]. Through their concept of 'life unworthy of life' the authors identified the mentally ill as 'absolutely worthless human beings' and advocated their urgent death. Not only did they constitute 'a foreign body' in society, but their medical care was a heavy burden on the State.

While Binding and Hoche's book was considerably influential, it also crystallised the growing acceptance within Germany of racial

hygiene ideas. These fitted snugly into Nazi ideology, so much so that it took a mere six months following Hitler's ascendancy to power for the Reichstag to promulgate its first racial hygiene law – *On the Prevention of Inherited Ill Offspring*[11]. Compulsory sterilisation was legitimised. Aimed at 'purifying the national body', it applied particularly to mental illnesses, those regarded as genetic in origin: manic-depressive illness, schizophrenia and Huntington's Chorea among them, and intellectual retardation. During the course of the program an estimated quarter of a million men and women (perhaps up to 400 000) were sterilised. The diligent role of Ernest Rudin, a distinguished professor of psychiatry in Munich, is a shameful aspect of this episode. Not only did he provide the scientific rationale for the sterilisations but he also helped to formulate the law itself.

October 1939 saw the implementation of the most barbaric aspect of racial hygiene policy: euthanasia of the mentally ill and intellectually retarded[12]. Euthanasia is a complete misnomer for an activity in which patients were put to death in awful circumstances. This grotesque perversion of psychiatry paved the way for the idea that Jews (as well as Gypsies and homosexuals) were, like the mentally ill, examples of 'valueless life'. Moreover, the technology developed to kill patients was transferred almost intact to Poland in October 1941 as the trial for the mass exterminations that were to follow in Auschwitz and other camps.

Hitler's own racial obsessions were evident in his issue of an edict in October 1939 to launch medical killing. The edict authorised Phillip Buhler, a top official in the chancellery, and Karl Brandt, a physician, to '. . . expand the authority of certain doctors . . . in such a manner that persons who, according to human judgement, are incurable may upon the most careful consideration of their medical condition be accorded a mercy death'.

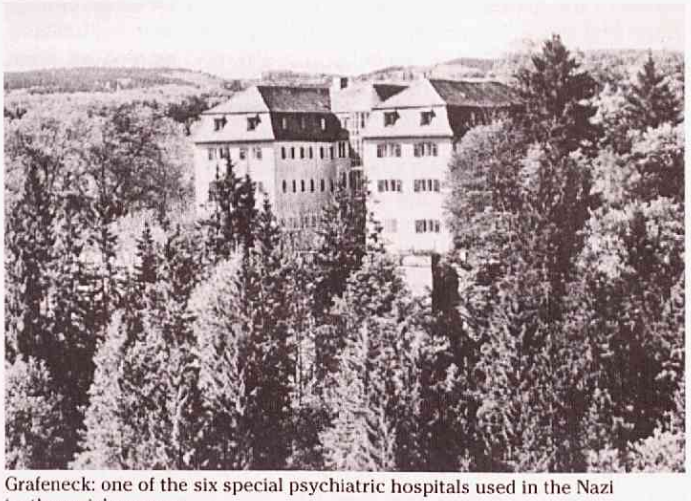
'Most careful consideration' in practice was little more than a medical bureaucracy participating in a minimalist selection routine. From a secret operational centre in Berlin, registration forms were dispatched to German mental hospitals seeking data about their patients. Completed forms were in turn hastily examined by medical panels, comprising mainly psychiatrists, who determined whether the patient would live or die. Among the panellists were the most distinguished of academic psychiatrists. For example, Werner Heyde[11,12], Professor of Psychiatry in Würzberg, was the chief assessor of the program.

Karl Schneider[11,12] held an even more prestigious post as chairman of psychiatry at Heidelberg. Alongside his celebrated academic activities, Schneider contributed energetically to the euthanasia program. A party stalwart from 1932, he became imbued with the Nazi vision, particularly racial hygiene. Ironically, he was able to pursue two contradictory pathways. On the one hand he elaborated progressive measures of rehabilitation for the chronically ill and, on the other, participated actively in furthering both the sterilisations and medical killings. Moreover, he developed a grand plan to establish a research institute dedicated to biological anthropology, launching his studies with the examination of brains derived from victims.

The criteria for death were remarkably straightforward: a diagnosis of schizophrenia, epilepsy, senile disorder, intellectual retardation, and the like; hospitalisation for five or more years; an incapacity to work productively in the mental hospital setting; or not being of German race and nationality (all Jewish patients were killed). The 70 000 patients who met these criteria were shunted off to transit centres in specially disguised buses and thence to one of six special hospitals. Mercy killing was merciless killing. Naked patients were herded into chambers, camouflaged as showers, and gassed with carbon monoxide by hospital staff. Relatives were subsequently informed of the patient's 'unfortunate' death from a medical condition and commiserated with. Killing by gas ended in August 1941, only in the wake of a hard-hitting sermon by Bishop Clemens Von Galen of Münster, a solitary dissenting voice in the Church[13]. Once the secrecy of the program had been shattered, there was no alternative but to abandon a policy which, it was feared, might undermine German morale. After all, the mentally incapacitated could be followed by other categories of victim: the elderly, the infirm, even the severely wounded soldier.

The extermination program, however, continued unabated, albeit in a new form. Patients were now starved and their deaths precipitated by a drug overdose. One hundred thousand patients are estimated to have died during this period of what was dubbed 'wild euthanasia'. Psychiatrists themselves implemented the killings, without explicit State directive. The implicit message however was that they should feel free to carry on their practices. Extraordinarily, the ideology behind euthanasia had achieved such momentum that the collapse of the official program was no impediment to its perpetuation in another form.

The tragic descent of Nazi psychiatry into an ethical abyss is perhaps the greatest blight on the psychiatric profession throughout its history. Notwithstanding the totalitarian setting, a sizeable proportion of psychiatrists were more than willing, indeed eager, to identify with and support a dehumanising ideology[14]. In the process they lost any vestige of professionalism, blatantly ignoring the paramount principle of serving, first and foremost, the needs of patients and their families.



Grafeneck: one of the six special psychiatric hospitals used in the Nazi 'euthanasia' program.

FRAGMENTATION FROM WITHIN

Those who do not learn from history are doomed to repeat it, claimed Santayana. What can we learn from the Soviet and Nazi horrors? We can recognise in both contributory elements derived from concepts moulded by the psychiatric profession itself. In the USSR the monopoly of Snezhnevskyism facilitated the State's embrace of psychiatry to stifle dissent. In Nazi Germany, the eugenic movement, led in part by distinguished academic psychiatrists, was the foundation on which Hitler could erect his murderous edifice. Psychiatry is not necessarily an innocent victim when forces beyond its borders seek its connivance to pursue pernicious goals.

At this point, having used the term 'profession' so frequently, it is incumbent on me to weave in the concept with a view to assessing how psychiatry may become embroiled in unethical practices. I do so in the spirit of Socrates when he asserts that 'The unexamined profession is not worth trusting'.

Robert Fullinwider[15] suggests that a profession embodies special knowledge and training, serves the needs of a vulnerable clientele and customarily contributes to the common good.

Is psychiatry's special knowledge adequate to meet the needs of the clients it serves and does it have the wherewithal to recognise these clients' vulnerability?

THE KNOWLEDGE BASE OF PSYCHIATRY

Consider psychiatry's special knowledge. Most observers would concur that the profession has made enormous strides in recent decades; in neurobiology, psychopharmacology, psychological theory, epidemiology and social psychiatry, and much more beside. But, this progress, I contend, has come at a cost – a tendency for the profession to fragment. Centrifugal forces representing powerful competing interests have commonly destabilised the foundation of knowledge. Leon Eisenberg[16], lambasts both a brainless psychiatry particularly as evidenced in American psychiatry's rigid adherence to psychoanalysis as the most fundamental science in the post-Second World War years, and a mindless psychiatry concerned solely with advances in neurobiology and psychopharmacology which neglects the experience of the patient as person.

Psychiatry's continuing failure to address both biomedical and psychosocial dimensions of professional knowledge in an integrated fashion has been a major hindrance to its progress. Moreover, it has at times been an undignified phase typified by intra-professional conflict, even ridicule of colleagues who espouse alternative positions.

Apart from this divisiveness, we have witnessed a pattern in which competing explanations, not uncommonly contradictory, of the cause and treatment of mental illness are propagated, on occasion to the point of incoherence. The unfortunate outcome is a profession working without a sense of unity and seemingly oblivious of the peril it faces.

A NEW ICON FOR PSYCHIATRY

Is there a remedy for this state of affairs? I propose we need to devise a new paradigm which takes into account the multi-faceted nature of the professional task. Let me suggest a symbolic change in the first place. After removing such compartmentalised icons as the couch or the brain let us substitute a three-legged stool. Such a modest piece of furniture for such a complex profession? Let me explain. I see the legs representing the science, the art and the ethics of psychiatry. Moreover, for the stool to be steady the legs need to be of precisely the same dimensions. I picture the psychiatrist perched on it in his or her full awareness that stability depends on the stool being firmly grounded. Let us consider each leg in turn.

THE SCIENCE OF PSYCHIATRY

In terms of the science, one model recommends itself above all others, namely the biopsychosocial, as propounded and elaborated upon over the past three decades by George Engel[17,18]. His brilliant and deceptively simple extension of the traditional biological model in medicine to incorporate psychological and social factors in an integrated way has the virtue of recognising that only with this expanded paradigm can medicine (and psychiatry) 'encompass the human domain'.

Psychiatrists, by virtue of the inherent nature of their subject, are exceedingly well placed, if not optimally, so to deal with the biological, psychological and social dimensions of human functioning. They obviously cannot master every associated skill. However, training and functioning within the biopsychosocial framework should ensure that they arrive at informed judgements about a person's needs and how they can best be met.

THE ART OF PSYCHIATRY

The second leg of our stool, the art of psychiatry, pertains particularly to Fullinwider's second criterion of a profession: serving the needs of a dependent and vulnerable clientele. We are concerned here with qualities that are not so much wedded to special knowledge (although there are links) but more to attitude and the adoption of a particular role vis-a-vis those in need of help. Epithets immediately springing to mind are empathic, sensitive, respectful, caring, humanistic and imaginative. The derivation of the term 'psychiatry' itself provides an insight into this intangible dimension, psyche, the soul, iatreia, healing. Anna Freud has observed that: 'Many doctors . . . are not primarily healers. They want to know, they want to figure out, they take pleasure in fixing something . . . '; she then suggests that empathy and compassion are the key ingredients of healing.[19]

THE ETHICAL LEG

Finally, we focus on the ethical dimension of the psychiatric profession. Let me confine my comments to codes of ethics since I see them as a key feature. Because professionals are privileged in being granted the authority by society for self-regulation, codes of ethics are of crucial relevance.

Placing codes of ethics at the profession's centre is not a universally held position. Francis Braceland[20], has suggested that discrete codification of prescribed ethical behaviour for doctors is not necessary since they are part of society and therefore act in accordance with accepted standards that apply to all its members. However, as we saw in both the Soviet and Nazi cases, this position fails dismally as a safeguard. If only psychiatrists had *not* acted in accordance with standards then prevailing, the abuses may not have been possible.

A more trenchant criticism of ethical codes is that by John Ladd[21] who argues that to impose ethical principles on others 'contradicts the notion of ethics itself, which presumes that persons are autonomous moral agents'. Ladd's position weakens by not taking into account the fact that a profession is made up of members who ineluctably share a corporate responsibility for their clients and an obligation to one another to ensure that the group's integrity is promoted. In other words, we are not dealing with individual morality alone.

We must distinguish between codes of practice and codes of ethics. With a code of practice, moral principles *per se* are not intrinsic to its development or compliance although they may feature implicitly. Instead, pragmatism is valued and the resultant rules are designed to control professional behaviour and procedure in specific domains.

Codes of practice and codes of ethics can be conveniently juxtaposed. A code of ethics has the potential to elevate standards from minimalist, where the sole constraint is a set of rules, to a more ethically-informed level. Ethical principles, in contrast to rules, call for a greater degree of moral commitment. The most demanding standard exceeds this by requiring the fulfilment of an ethical code's provisions based on virtue; beneficence replaces duty alone and altruism supplants self-interest.

What balance of duty and virtue should a code of ethics have? At first sight, combining the two would seem preferable. This pairing is problematic since a code based on duty enjoins the professional to comply with what are in effect a set of guidelines whereas a virtue-driven code highlights personal qualities like compassion, honesty and benevolence which are difficult to define or characterise.

Another purpose of a code of ethics beyond self-regulation, is its capacity to promote moral sensitivity. By moral sensitivity we refer to a state of receptivity whereby professionals are alert to impressions of an ethical type, particularly through awareness of moral dilemmas inherent in their work.

An ethical code has the potential to raise the level of moral sensitivity in two ways: (a) the code's very existence influences professionals by serving as a prod in the event of a morally discomforting or baffling encounter; and (b) the code's content, in the case of psychiatrists, is bound to resonate with their experience of cardinal issues like involuntary hospitalisation, prevention of suicide and obtaining informed consent from an incompetent patient.

Missing in the moral sensitising function is another equally cogent component of an ethical code, namely moral reasoning. Although codes are not didactic, a study of their principles permits the appreciation that even the most complex moral problems can be subjected to analysis. Thus, psychiatrists can learn to make ethical decisions through rational argument. Through a code, they may also become familiar with pertinent concepts in moral philosophy which serve as a foundation for ethical reasoning and apply to professional practice.

CONCLUSION

To conclude, let us return to the title of my talk. Can we answer the question as to whether or not psychiatry is an impossible profession? I believe that we just 'scrape home' but only subject to a set of provisos. The three I have in mind are: a) that we appreciate the need to achieve, with humility, a coherent and integrated body of special knowledge, inseparable from the genuine creative process, and notwithstanding that from time-to-time such creativity results in uncomfortable tension; b) that we promote the art of psychiatry by cultivating an ethos of caring and sensitivity, aware that the humanities inform as much as the sciences as to how we work; and c) that we function within an articulated ethical framework with due respect for codes of ethics as guides.[22,23]

I gather that Dr Beattie Smith was a keen wine grower. He would have told us that a successful wine has both a body and a soul. I suspect that the optimal psychiatric profession also has a body and a soul. The body comprises the science, and the soul the art and the ethics. I propose a toast to such psychiatry. May it carefully cherish both body and soul and thus prosper long.

References

1. *Diagnostic and statistical manual.* Second edition. Washington DC: American Psychiatric Association, 1968.
2. *Diagnostic and statistical manual.* Fourth edition. Washington DC: American Psychiatric Association, 1994.
3. *The Age,* 26 January 1996.
4. *The Age,* 12 February 1996.
5. Richter D. *Political dissenters in mental hopsitals.* British Journal of Psychiatry 1971; 119: 225-226.
6. Bloch S, Reddaway P. *Russia's political hospitals.* London: Gollancz, 1977. (*Psychiatric terror.* New York: Basic Books, 1977 in the US).
7. Morozov GV, Kalashnik IM (eds). *Forensic Psychiatry.* New York: International Arts and Science Press, 1970.
8. Bloch S, Reddaway P. *Soviet psychiatric abuse.* London: Gollancz, 1984.
9. Lauter H, Meyer JE. *Mercy killing without consent. Historical comments on a controversial issue.* Acta Psychiatrica Scandinavica. 1982; 65: 134-141.
10. Binding K, Hoche A. *Die Freigabe der Vernichtung lebensunwerten Lebens.* Leipzig: Meiner, 1920.
11. Müller-Hill B. *Murderous science.* Oxford: Oxford University Press, 1988.
12. Burleigh M. *Death and deliverance. 'Euthanasia' in Germany* 1900-1945. Cambridge: Cambridge: University Press, 1994.
13. Wertham F. *A sign of Cain.* London: Robert Hale, 1966.
14. Proctor RN. *Nazi biomedical policies.* In: Kaplan AL, ed. *When medicine went mad.* Totowa NJ: Humana Press, 1992.
15. Fullinwider, R. *Professional codes and moral understandings.* In: Coady M, Bloch S, eds. Codes of ethics and the professions. Melbourne: Melbourne University Press, 1996.
16. Eisenberg L. *Mindlessness and brainlessness in psychiatry.* British Journal of Psychiatry 1986; 148: 497-508.
17. Engel GL. *The need for a new medical model: a challenge for biomedicine.* Science 1977; 196: 129-136.
18. Engel GL. *The clinical application of the biopsychosocial model.* American Journal of Psychiatry 1980; 137: 535-544.
19. Coles R. *Anna Freud. The dream of psychoanalysis.* New York: Addison-Wesley, 1992.
20. Braceland F. *Historical perspectives of the ethical practice of psychiatry.* American Journal of Psychiatry 1969; 126: 230-237.
21. Ladd J. *The quest for a code of professional ethics: An intellectual and moral confusion.* In: Rhode D, Luban D, eds. Legal ethics. St. Paul: Foundation Press, 1992.
22. Bloch S, Pargiter R. *Developing a code of ethics for psychiatry.* In: Coady M, Bloch S, eds. Codes of ethics and the professions. Melbourne: Melbourne University Press, 1996.
23. Bloch S, Chodoff P. *Psychiatric ethics,* eds. 2nd edition. Oxford: Oxford University Press, 1991.

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DEAN'S LECTURE SERIES
2 APRIL 1996

THE STATE OF THE WORLD'S CHILDREN

PROFESSOR FRANK SHANN

Intensive Care Unit, Royal Children's Hospital

EVERY YEAR, ABOUT 140 MILLION babies are born, and twelve million of them (or about nine per cent) will die before they are five years old. This means that a child dies every 2.6 seconds, which is equivalent to a jumbo jet full of children crashing every twenty minutes. More than 90 per cent of these deaths are preventable (if the world's under five mortality rate were equal to the developed country rate of 0.9 per cent of live births).

Deaths in developed countries are almost irrelevant when we consider the state of the world's children, as 97.6 per cent of all under five deaths occur in developing countries. Of every ten children born today in developing countries, in five years time, one will be dead, four will be malnourished, and only five will be normal.

Although the situation is grim, it is better than it was thirty years ago. The world's under five mortality rate has fallen from 216 deaths per 1000 live births in 1960, to 106 in 1991 – it has halved. This is spectacular progress, but the rate of 106 deaths per 1000 live births still compares poorly with that of 5.6 in Victoria in 1994.

WHY SAVE MORE LIVES?

Is it sensible to try to reduce child mortality, when overpopulation is already such a problem? Last century, the world had a high birth rate and a high mortality rate, so the population increased very slowly. Around 1900, in developed countries, child mortality fell, and the population rose very quickly for a time; but, soon afterwards, the birth rate fell, and population again became almost constant. The process of change from a period with a high birth rate and high mortality rate, to a low birth rate and a low mortality rate, is known as the demographic transition (Table 1).

However, in many developing countries, mortality has fallen without a compensatory fall in fertility, and there is a grave danger that the sustained and rapid population growth will result in irreparable damage to the environment. Maurice King has called this phenomenon 'the demographic trap' (*Lancet* 1990;336: 664-667).

Poverty has a very important influence on the interaction between fertility and poverty. Poor countries cannot afford social security, so there are no sickness benefits or old-age pensions, and you need to have surviving children to look after you when you are ill or old. Because of poverty, child mortality is high, so you need to have a lot of children to make sure that some of them survive – and the high birth rate perpetuates poverty.

Table 1. The demographic transition, and the demographic trap

Transition	Mortality	Birth rate	Population
Before	High	High	Stable
During	Low	High	Increasing
Trapped	Low	High	Unsustainable
Escaped	Low	Low	Stable

Because of this interaction between poverty, child mortality and fertility, *no country has ever reduced its birth rate without first reducing child mortality.* In a poor country with no social security and high child mortality, contraception just does not make sense to ordinary citizens – they need to have many children. On the other hand, reducing child mortality does not guarantee that birth rates will fall – people must also be given access to contraception and, preferably, also have some social security provisions for illness and old age.

John Bongaarts has published a detailed analysis of the factors that reduce population growth (*Science* 1994;263:771-776) in which he estimates the effects of unwanted fertility (births that occur because contraception is not available), desired high family size (because of poverty, lack of social security and high child mortality), and population momentum (births that would occur, even if fertility fell, because there are so many young people who have not yet had children). He illustrates that we need to further reduce child mortality (to reduce the desire for large families), but that there is a great need to provide access to contraception (and so reduce unwanted fertility), and an even greater need to encourage people to delay having children until they are older (which reduces population momentum).

AN EXAMPLE – PAPUA NEW GUINEA

Although it has some unusual features, Papua New Guinea is in many respects a typical developing country. Table 2 shows that, in comparison to Victoria, Papua New Guinea has a young, rural population with a very high proportion of all deaths occurring in children, a per capita health expenditure that is about three per cent of Victoria's, with less than five per cent of the number of doctors, and an under five mortality rate that is seventeen times that in Victoria.

Table 2. A comparison of Papua New Guinea and Victoria

	PNG	Victoria
Population, 1993	4.2 million	4.5 million
Proportion rural	83%	13%
Proportion 0-15 yr	43%	23%
Deaths aged 0-5 yr	28%	1.4%
Total health budget, A$	$170m	$6000m
Health A$ per capita	$40	$1300
Number of doctors	456	9600
Deaths <5 yr/1000 births	95	5.6

ACCESS TO HEALTH CARE

A major problem for developing countries is that it is very expensive for them to build and maintain roads and, even when roads are available, many people cannot afford to use public transport. Because it is so difficult for rural people to get to centralised health clinics, it is very important that health care be provided at the village level. A study of people in Bangladesh showed that they rarely used a health clinic if they lived more than five miles away from it, and that mortality from diarrhoea was much higher the further children lived from a clinic (*Am J Public Health* 1982;72:1124-1128).

Very poor rural communities have the highest mortality rates and the greatest need for medical services, but their citizens are least able to travel and they are least able to provide properly functioning community health services. As David Morley has pointed out, the problem is exacerbated by a gross maldistribution of health resources (*Lancet* 1976;2: 1012-1014).

> Although three-quarters of the population in most developing countries live in rural areas, three-quarters of the spending on medical care is in urban areas, where three-quarters of the doctors live. Three-quarters of the deaths are caused by conditions that can be prevented at low cost, but three-quarters of the medical budget is spent on curative services, many of them provided for the elite at high cost.

Health services in the rural areas of many developing countries are very poor indeed: there are often too few clinics and, worse, those that do exist have staff who are poorly trained, poorly supervised, poorly supplied and, therefore, poorly motivated. Health services in developing countries need greater emphasis on rural children, on the commonest causes of death, and on the interventions that prevent death. These activities have to be integrated in the government health service, and the government health service has to be helped to work effectively (*Soc Sci Med* 1988;26:891-898).

WHY CHILDREN DIE

If we are to reduce child mortality, we have to have some idea of the causes of death. WHO and UNICEF estimate that about six million children die from pneumonia and diarrhoea every year (Table 3). The real figure is even higher than this, because many of the children with measles and pertussis actually die from bacterial pneumonia. Note that the top six causes of death in Table 3 are all acute infectious diseases. With the exception of malaria, they are the same diseases that killed children in Victoria last century, before our demographic shift.

Table 3. Causes of death in children <5 years old, 1993

	Million
Pneumonia	3.0
Diarrhoea	2.7
Measles	1.2
Malaria	0.9
Tetanus	0.6
Pertussis	0.4
Other	3.4
Total	12.2

World Health Report. Geneva: WHO, 1995

One condition is missing from Table 3 – malnutrition. Analysis of the effects of malnutrition (*Bull WHO* 1995;73:443-448) suggests that malnutrition contributes to about half the deaths in children less than five years of age (Table 4). Because it is so common, mild to moderate malnutrition (46 per cent of deaths) has a greater effect on mortality than severe malnutrition (ten per cent of deaths).

Table 4. Malnutrition and deaths in children less than five years of age

Not associated with malnutrition	44%
Effect of mild-moderate malnutrition	46%
Effect of severe malnutrition	10%

Pneumonia, diarrhoea and malnutrition used to be called 'the synergistic triad'. In fact, there is now substantial evidence that diarrhoea does not have a substantial long-term effect on the nutritional state of children in developing countries (*Eur J Clin Nutr* 1990;44:611-628 and *Lancet* 1991;333:921-922).

The prevalence of malnutrition can be reduced by breastfeeding until at least twenty-four months of age (with no artificial milk feeds), introducing solids supplemented with energy-dense foods at six months, increasing the variety and frequency of snacks between six and twelve months, hand washing, and serving food immediately after preparation (*Malnutrition and Child Mortality*. Washington: USAID, 1995).

Table 5 summarises the interventions that are available to reduce child mortality.

Table 5. Interventions to reduce child mortality

Non-specific interventions		
Family planning, education, economic development		
Specific interventions		
Malnutrition	–	breastfeeding, solids at 6 months
Immunisation	–	20% to 50% of deaths
Diarrhoea	–	breastfeeding, hand-washing, rehydration
Pneumonia	–	standard treatments, new vaccines

REDUCING MORTALITY – IMMUNISATION

Immunisation is the most effective way to reduce child mortality at modest cost. Measles, tetanus and whooping cough are responsible for about twenty per cent of child deaths, and they can all be prevented with readily available vaccines. Standard low-dose measles vaccination is associated with a thirty per cent reduction in mortality - an impact that is much larger than the proportion of deaths attributed to measles, presumably due to some form of immunostimulation (*Soc Sci Med* 1995;41:673-683).

Although we have had cheap and effective vaccines against measles, tetanus and pertussis for many years, they still kill more than two million children a year. This illustrates that it is not sufficient to merely develop a technology we have to be able to deliver it. The problem is largely one of organisation, although new technology may help: for example, if genetic engineering can be used to insert measles and other antigens into the BCG vaccine, this new vaccine could be given at birth to give permanent protection against several diseases.

REDUCING MORTALITY – ORAL REHYDRATION

The incidence of diarrhoea can be reduced by exclusive breastfeeding up to six months of age, hand-washing, and serving food immediately after it is prepared. The main benefit from improved water supplies is from increased hand-washing, which reduces the faecal-oral spread of pathogens. The ready availability of water (a tap in every house) is more important than the purity of the water.

Diarrhoea can be treated with oral rehydration. This technique has been called (*Lancet* 1978;2:300-301) 'potentially the most important medical advance this century'. In severe diarrhoea, death occurs from dehydration, or lack of water. Drinking extra water does not help in severe diarrhoea, because it is not absorbed. However, there are active transport mechanisms for sugars and amino acids that continue to function even in very severe diarrhoea – and, for each molecule of sugar and amino acid that they transport, they also transport a molecule of water from the bowel into the body. So a clever trick can be used to prevent dehydration – drink a weak solution of sugar in water and continue to consume breast milk and food, which supply amino acids and salt (*Lancet* 1995;345:709-711).

REDUCING MORTALITY – PNEUMONIA

In a famous article (*N Engl J Med* 1979;301:967-974), Julia Walsh and Ken Warren wrote that, 'A wide variety of viruses and bacteria are associated with pulmonary infections, and no specific causative agent has been found in most patients'. They therefore did not assign a high priority to treating or preventing pneumonia, because they felt that the available interventions would not be very effective.

However, Walsh and Warren's opinion that no specific causative agent causes fatal pneumonia in children was based on a study that looked for evidence of viral but not bacterial infection. In fact, about sixty per cent of children with severe pneumonia have bacterial infection, and about ninety per cent of fatal cases are caused by bacteria (*Ped Infect Dis* 1986;5:247-252). Most fatal cases are caused by *Haemophilus influenzae* or *Streptococcus pneumoniae*, two bacteria that can be killed by inexpensive antibiotics such as benzyl penicillin or cotrimoxazole.

To improve the management of pneumonia in children, the World Health Organisation has developed standard management protocols (*Clin Infect Dis* 1995;21(Suppl3):S218-S225). Standard treatments take the presenting symptom, use the minimum number of criteria needed to decide management, and then give the minimum treatment needed to reduce mortality (Table 6).

Table 6. Standard treatment of pneumonia

Most children with cough do not need antibiotics
Cough and tachypnoea: give cotrimoxazole at home
Cough and chest in-drawing: admit, give IM penicillin
Cough and cyanosis or not feeding: admit, give IM chloramphenicol

Pneumonia usually presents with cough (or difficult breathing), but most children with cough do not have pneumonia, they just have a cold. So the first standard treatment rule is that most children with cough do *not* need an antibiotic. It has been found that an infant with cough and tachypnoea (more than 50 breaths/min) has a high risk of pneumonia, and so should be treated with oral cotrimoxazole (or intramuscular procaine penicillin). Children with chest in-drawing have more severe pneumonia, and they should be admitted to hospital so that they can be treated with six hourly injections of benzyl penicillin. Children who are cyanosed or unable to feed have a very high risk of dying, and they should be treated with chloramphenicol.

The standard treatment rules in Table 6 can be taught to community health workers in developing countries, and their use has already led to substantial reductions in mortality (*Lancet* 1992;340:528-533).

Unfortunately, it is very difficult to deliver any treatment properly to the poorest rural areas, where treatment is most needed. Pneumonia kills young children very quickly, so treatment has to be available to every child all the time, just in case he or she gets sick. With immunisation, on the other hand, *we* can choose the time and place it is given to the child, which greatly simplifies the task (although it is still difficult, as shown by the fact that many children are still not protected against measles, tetanus, and whooping cough). We urgently need vaccines that will prevent severe pneumonia in children in the first year of life.

An *Haemophilus influenzae* type b conjugate vaccine is being tested in The Gambia at the moment, and it is likely to have a substantial impact on mortality from pneumonia and meningitis. However, type b strains cause only 20 per cent of severe haemophilus pneumonia in Papua New Guinea, where nonserotypable strains cause 50 per cent of haemophilus pneumonia. We urgently need vaccines against nonserotypable *H.influenzae*, as well as serotypes other than type b. In addition, the development of protein-conjugate *S.pneumoniae* vaccines is well advanced, and several field trials are about to begin. These new vaccines could have a very substantial impact on child mortality.

REDUCING MORTALITY – ECONOMIC DEVELOPMENT

On average, richer countries have healthier children, but there are many exceptions to this rule. For example, in 1993-94, the United Arab Emirates had a GNP of US$21,430 per capita with an under five mortality rate of 20 per 1000 live births, whereas South Korea had a GNP of only US$7660 per capita with an under five mortality rate of only nine per 1000 live births. A few very rich people inflated the average wealth of the United Arab Emirates, but a few very healthy children have little effect on the child mortality rate. It is for this reason that the United Nations uses the under five mortality rate, rather than GNP, as a measure of the well-being of communities - note that Victoria has one of the lowest child mortality rates in the world.

Unfortunately, there is a crisis in international aid at present. Many poor countries are getting poorer, especially in Africa, and the rich countries are getting richer – and more selfish. The United States gave only 0.21 per cent of its GNP as aid in 1990, Australia gave only 0.34 per cent, and both countries have substantially reduced their international aid since 1990. On the other hand, Norway gives 1.2 per cent of its GNP as aid, and Holland, Denmark and Sweden all give 0.9 per cent.

The terms of trade offered to developing countries are even more important than aid, and Australia has at least argued for improved terms of trade for primary producers, although we have done this for selfish rather than altruistic reasons.

REDUCING MORTALITY – EDUCATION

Maternal education has a major impact on child health and population control. A ten per cent increase in female literacy reduces child mortality by about ten per cent (World Development Report. Oxford: OUP, 1993), but a ten per cent increase in male literacy reduces child mortality by only about four per cent. Educated women marry later and have fewer children (*Studies Family Planning* 1995;26:187-202).

WORKING IN A DEVELOPING COUNTRY

Working in a developing country can be great fun, and it can be very useful if you are prepared to go for a minimum of two years. Your main role in a developing country is to teach – but take care that what you teach is appropriate and relevant. It is difficult to strike a balance between trying to get everything perfect (you'll rapidly become very frustrated), and being so laid back that you don't improve anything.

Of course, many things are disorganised and inefficient in developing countries. In fact, if things did work efficiently, it would not be a developing country – the problem is rarely an absolute lack of resources but, rather, an inability to use the available resources efficiently. Bear in mind that we are pretty inefficient in Australia too, but we have such an excess of resources that it does not matter as much.

Useful sources of information about health in developing countries, and agencies that assist people wanting to work there, are shown in Table 7.

CONCLUSION

Of the 140 million children born every year, more than twelve million will die within five years. By far the common causes of death are pneumonia and diarrhoea, often exacerbated by malnutrition.

Full immunisation with the vaccines that we have now would reduce mortality by 20 to 40 per cent, and effective vaccines against pneumonia and meningitis may soon be available that would achieve a further 20 to 25 per cent reduction.

Diarrhoea would be much less common if every child were breast fed, and it can be treated very effectively by giving oral rehydration with breast milk and food.

Deaths from pneumonia could be further reduced by judicious use of antibiotics, but far greater reductions could be achieved by vaccines against *H.influenzae* and *S.pneumoniae* that protect children in the first year of life. However, vaccine development and delivery will not improve quickly without enthusiastic support from wealthy countries, and less aid has been given in recent years.

It is crucially important that we limit the population of the world, and that economic development and education be increased in developing countries.

Child health has improved substantially during the last ten years in most of the world. The exception is central Africa, where overpopulation, environmental damage, falling living standards, reduced literacy rates, the effects of AIDS, and rising child mortality are a disgrace to humanity.

Table 7. Useful sources of information

Community Aid Abroad (CAA), 156 George Street, Fitzroy, VIC 3065 Ph: 03 9328 9444
Community Education Development and Health (CEDAH), PO Box 2482 Fitzroy MDC, VIC 3065 Ph: 03 9280 2735
Overseas Service Bureau (OSB), 71 Argyle Street, Fitzroy, VIC 3065 Ph: 03 9419 1788
Teaching Aids at Low Cost (TALC), PO Box 49, St Albans AL1 4AX, UK
International Health Exchange (IHE), 38 Kings Street, London WC2E 8ST, UK

SCHOOL OF MEDICINE

FROM THE DEAN
1996 – A BRIEF REPORT

PROF GORDON CLUNIE

Education and Teaching

In 1996, the School of Medicine made a commitment to totally revise its curriculum with the aim of introducing a new program at the beginning of 1999. The basis for the program is outlined in the Editorial of this issue of *Chiron* and will include a greater emphasis on the use of information technology and self-directed learning and the earlier introduction of clinical teaching.

Academic Programs

New programs introduced in 1996 were: Master of Audiology, Graduate Diploma in Genetic Counselling, Graduate Diploma in Mental Health Sciences (specialty streams in transcultural mental health, infant and parent mental health), and Graduate Diploma in Adolescent Health (additional specialty streams in early psychosis and in youth drug schemes).

New programs approved for 1997 are: Doctor of Public Health (by coursework), Master of Health Sciences (specialty streams in adolescent health, infant and parent mental health), Postgraduate Diploma in Palliative Medicine (distance education), and Graduate Diploma in Mental Health Sciences (additional specialty stream in clinical hypnosis).

People

Key appointments taken up in 1996

- Professor Peter Choong - Professor/Director of Orthopaedic Surgery (St Vincent's Hosptial and Peter MacCallum Cancer Institute)
- Professor Suzanne Cory – Research Professor of Medical Biology, Walter and Eliza Hall Institute of Medical Research
- Professor David Kissane – Professor/Director of Palliative Medicine (St Vincent's Hospital/Caritas Christi Hospice/Peter MacCallum Cancer Institute/Mercy Hospice Care
- Professor James McCluskey – Professor of Microbiology
- Professor Patrick McGorry – Professor/Director, Young People's Mental Health, Western Health Care Network
- Professor Nick Nicola – Research Professor of Molecular Haematology, Walter and Eliza Hall Institute of Medical Research
- Professor Roy Robins-Browne – Professor/Director of Microbiological Research, Royal Children's Hospital, Women's and Children's Health Care Network
- Professor Arthur Shulkes – Professorial Fellow, Department of Surgery, Austin and Repatriation Medical Centre
- Associate Professor Harry Minas – Director, Centre for Cultural Studies in Health, Department of Psychiatry, St Vincent's Hospital
- Professorial Associates with the title of Professor: Tony d'Apice, Robert Burton, Richard Cotton, Ashley Dunn, Bob Jones, Ian Taylor.

Key appointments taken up in 1997

- Professor John Coghlan – Honorary Professor, Department of Anatomy and Cell Biology
- Professor Andrew Kaye – James Stewart Professor of Surgery, Royal Melbourne Hospital
- Professor Fred Mendelsohn - RD Wright Research Professor of Experimental Physiology and Medicine, Howard Florey Institute of Experimental Physiology and Medicine
- Professor Jeffery Zalcberg, Professor/Director of Medical Oncology & Haematology, Peter MacCallum Cancer Institute

New Faculty positions

- Professor Richard Larkins, Deputy Dean and Associate Dean (Academic Programs)
- Professor Bruce Singh, Associate Dean (International)
- Professor Richard Wettenhall, Associate Dean (Research)
- Professor Colin Johnston, Assistant Dean (North Eastern Network)
- Professor Richard Larkins, Assistant Dean (Western Network)
- Professor Peter Phelan, Assistant Dean (Women's and Children's Health Care Network)

Retirements

- Professor John Coghlan (from R D Wright Research Professorship of Experimental Physiology and Medicine)
- Professor Sir Gustav Nossal
- Professor Jacques Miller
- Professor Donald Metcalf

Other Academic Initiatives

- Creation of Professor/Director positions in the following areas: Aged Care (North Eastern Health Care Network), Alcohol and Drug Studies (Turning Point Alcohol and Drug Centre) and Respiratory Medicine (North Eastern Health Care Network).
- Establishment of the Centre for Cultural Studies in Health
- Approval to establish the Centre for the Study of Health and Society (in 1997 as a joint initiative with the Faculty of Arts)
- Approval to establish a Faculty Education Unit under the leadership of a Professor of Educational Development and Research
- Creation of a Chair of General Practice
- Approval of the award of MB BS as a degree with honours (from 1997)
- Re-naming of the Department of Microbiology to the Department of Microbiology and Immunology
- Establishment of an external Centre for Eye Research with the University of Melbourne as a participating partner

Public Programs

In 1996 there were nine Dean's Lectures and a medical ethics seminar entitled *The New Genetics – For Good or Ill?* The lectures were well attended and attracted audiences from a wide variety of groups.

Professor Emeritus David Penington gave the 1996 UMMS Lecture entitled *The Opium Poppy: Friend or Foe?* to a large and appreciative audience. Members of UMMS enjoyed light refreshments together in the Pathology Museum prior to the lecture. An edited version of his lecture is published in this issue of *Chiron*.

Alumni

The inaugural AlumniFest attracted graduates back to the University in October for a program of seminars and activities. We were pleased to welcome medical graduates back to the School of Medicine and show them over the School.

Research

The recent allocation of NHMRC funds for 1997 has confirmed the Faculty and the Medical School as the leading research medical/health sciences faculty in Australia. $14m of NHMRC funds were obtained (compared with $12.2m for 1996 and $11m for 1995) to support 151 project grants (including 59 new projects), five equipment grants and three program grants. In addition, productivity with respect to publications in leading international research journals testifies to its success and international standing.

Internationalisation

A twinning agreement has been established with the International Medical College in Kuala Lumpur. Five students selected in 1996 will transfer from the College in July 1997 to undertake the final three and a half years of the MB BS course at Melbourne.

A two year agreement with the Kuwait Government will see eight nominated students undertake the Trinity Foundation Program commencing in 1997 and, subject to a specified level of performance, be enrolled in the medical course from 1998.

Gordon J A Clunie
Dean, Faculty of Medicine, Dentistry and Health Sciences
Head, School of Medicine

RETIREMENTS

JOHN P COGHLAN
AO, PhD, DSc, HonMD(NSW)

JOHN COGHLAN was born in Melbourne in 1934. He started his scientific career as a technician in the Department of Physiology at this University in 1958 and obtained his Bachelor of Science degree part-time, going on to graduate as Doctor of Philosophy and later Doctor of Science in Physiology.

He became Deputy Director of the Howard Florey Institute in 1976 and Director and the RD Wright Professor of Experimental Physiology and Medicine in 1990. Over his thirty-five year association with the Institute he has been a major intellectual contributor to its scientific programs, especially through the development of novel technologies which permitted groundbreaking advances. He was a pioneer in the development of double isotope derivative assays to measure adrenal steroid hormones. This technology, together with the adrenal transplant, was essential for the work on control of aldosterone secretion which made the Institute famous. Later he developed one of the first radioimmunoassays for a small peptide, angiotensin, a crucial hormone in regulation of blood pressure. More recently, he developed the technique of hybridisation histochemistry which allows the pinpointing of which cells are expressing a specific gene. This is now an indispensable, and routine, tool adopted in all molecular biology laboratories. He was a driving force behind the early development of molecular biology at the Institute, amongst the first in Australia.

Author of more than four hundred scientific papers, in 1987 he was the first Australian awarded the prestigious Dale Medal by the British Endocrine Society for contributions to endocrinology. He received the Inaugural Clive and Vera Ramaciotti Medal and Prize for excellence in Biomedical Research in 1995 and was awarded an MD by the University of New South Wales in recognition of his major contributions to biomedical research.

With a distinguished record of explaining science to the community and to Government he also has an excellent record in science administration as Deputy Vice Chancellor (Research) and as Chairman of the Medical Research Committee of the National Health and Medical Research Council. In these roles he was instrumental, with others, in increasing the University's share of infrastructure funding for research.

John Coghlan has an outstanding record of community service, including involvement with the Australian Ballet Development Trust, and the Board of the Australian Ballet School. He was instrumental in the introduction of child minding facilities at this University. Currently he serves on the Council of the Museum of Victoria.

He played a major role in securing funding for the new wing of the Howard Florey Institute and took a keen interest in its design and aesthetics.

John Coghlan has made remarkable contributions to the Australian community in general, to the advancement of biomedical research in particular and to the international standing and life of the University of Melbourne.

DONALD METCALF
AC, AO, MD, BS, BSc(Med), FRCPA FRACP, Hon DSc(Syd), FAA, FRS

DONALD METCALF graduated from the University of Sydney School of Medicine in 1952 and undertook his intern year at the Royal Prince Alfred Hospital before joining the scientific staff of the Walter and Eliza Hall Institute of Medical Research in 1954. He became an Associate Professor of Pathology at the Harvard Medical School from 1956 to 1958 before returning to the Hall Institute, where he became Head of the Cancer Research Unit and Assistant Director in 1965. He has spent periods as Visiting Scientist or Visiting Professor at The Rosswell Park Memorial Institute in Buffalo, the Swiss Institute for Cancer Research in Lausanne, the Radiobiological Research Institute, Rijswijk and at Cambridge University.

He is regarded internationally as the father of modern experimental haematology and is the author of seven books and 552 scientific papers on his work on normal and leukaemic blood cell formation.

Outstanding amongst his many achievements have been the development of culture systems for the study of blood cell formation in vitro and the discovery and development of the blood cell regulators, the colony stimulating factors, that have now been used throughout the world in the treatment of more than a million patients with cancer or severe infections.

He has received international recognition of his achievements by a wide range of awards, including the joint Britannica Award in 1966; the Wellcome Prize of the Royal Society of London in 1986; the Bristol-Myer Award in 1987; the Robert Koch Prize in 1988; the Armand Hammer Prize in 1988; the Sloan Prize for Cancer Research in 1989; the Clunies Ross National Science and Technology Award in 1991; the Albert Lasker Clinical Medical Research Award in 1993; the Kovalenko Medal of the US National Academy of Sciences in 1994; the Gairdner Award in 1994. He is a Fellow of the Royal Society of London and of the Australian Academy of Science and was elected to the US National Academy of Sciences. He is a past President of the International Society for Experimental Haematology (1977), past Chairman of the Experimental Oncology Program of the International Union Against Cancer (1972-1982) and serves on the Cancer Advisory Panel of the World Health Organization. He has received Honorary Doctorates from the Universities of Sydney and Oslo. He was made an Officer of the Order of Australia in 1976 and Companion in the Order of Australia in 1993.

Donald Metcalf has made an extraordinary contribution to the field of experimental haematology over a lifetime of scientific work, with a great flowering of his work in the most recent phase of his career and the University of Melbourne has been enhanced by his achievements.

Jaques FAP Miller

AO, BA, MB, BS, BSc
PhD, DSc, FRS, FAA

JAQUES MILLER graduated in medicine from the University of Sydney in 1955 and after initial clinical training at the Royal Prince Alfred Hospital was awarded a Fellowship for Cancer Research which he took up at the Chester Beatty Research Institute in London. He graduated PhD from London University in 1960. It was during this period that he discovered the immunological functions of the thymus, a scientific field which was to be the consuming interest of his professional life and which led to the award of DSc from London University in 1965.

In 1963 he took up the Eleanor Roosevelt Fellowship at the National Institutes of Health in Bethesda before returning to Australia to head the Experimental Pathology Unit (later renamed the Thymus Biology Unit) at the Walter and Eliza Hall Institute of Medical Research. In 1967, his work with his then PhD student, Graham Mitchell, led to the unequivocal demonstration that two major types of lymphocytes (later known as T and B cells) existed in mammals and interacted in antibody production, the T cells acting as helpers and the B cells secreting the antibody. His work in the field of basic immunology has been outstanding and he has published more than 370 articles in scientific journals.

He has received numerous honours and awards for his fundamental discoveries. These include the Esther Langer-Bertha Teplitz Memorial Prize for Cancer Research, Chicago, in 1965; the Gairdner Foundation Annual International Award, Toronto, and the Encyclopaedia Britannica (Australia) Award, Canberra, both in 1966; the Scientific Medal of the Zoological Society of London in 1967; the Burnet Medal of the Australian Academy of Science in 1971; the Paul Ehrlich-Ludwig Darmstaedter Prize, Frankfurt, in 1974; the Sir William Upjohn Medal of the University of Melbourne in 1978; the Rabbi Shai Shacknai Memorial Prize, Hebrew University, Jerusalem, in 1978; the International Saint-Vincent Prize for Medical Science of the World Health Organization and UNESCO, in 1983; the inaugural Sandoz Prize for Immunology; and the inaugural Sir Peter Medawar Prize of the Transplantation Society, both in 1990; the Croonian Prize Lecture of the Royal Society, London, in 1992; and the J Alwyn Taylor International Prize for Medicine in 1995.

He was elected a Fellow of the Royal Society in 1970; a Fellow of the Australian Academy of Science in 1970, a Foreign Associate of the US National Academy of Sciences in 1982, an Honorary Member of the American Association of Immunologists in 1977, a Foreign and then a Corresponding Member of the Academie Royale de Medecine de Belgique in 1969 and 1991 and an Honorary Fellow of the Royal College of Pathologists of Australasia in 1983. He received an Honorary Doctorate of Medicine at the University of Sydney in 1986, was made an Officer of the Order of Australia in 1981 and was appointed to the Chair of Experimental Immunology at the University of Melbourne in 1990. He holds or has held membership of numerous local and overseas societies including the International Agency for Research on Cancer and the World Health Organization Expert Advisory Panel on Immunology.

Jaques Miller has made an extraordinary contribution to the science of immunology over a lifetime of achievement. He leaves the University of Melbourne the richer for his contributions.

Sir Gustav J V Nossal

AC, CBE, MB, BS, BSc(Syd), PhD(Melb),
Hon MD (Mainz, Newc, Leeds), Hon DSc(Syd, Qld),
Hon LLD(Monash), FRCP, FRACP, FRCPA, FRACMA,
Hon FRACOG, FRSE, FTS, PresAA, FRS

GUSTAV NOSSAL was born in Bad Ischl, Austria, in 1931, and came to Australia with his family in 1939. He studied medicine at the University of Sydney and, after two years' residency at Royal Prince Alfred Hospital, moved to Melbourne to work as a research fellow at the Walter and Eliza Hall Institute of Medical Research, leading to a Doctor of Philosophy degree. Apart from two years as Assistant Professor of Genetics at Stanford University, one year at the Pasteur Institute in Paris, and one year as a Special Consultant to the World Health Organization, all his research career has been at the Walter and Eliza Hall Institute of Medical Research, of which he became Director in 1965. At that time he was also appointed Professor of Medical Biology at the University of Melbourne.

Gustav Nossal's research is in fundamental immunology, and he has written five books and 470 scientific articles in this and related fields. His eminence in immunology has been recognised by his election as President (1986-1989) of the 25 000 member world body of immunology, the International Union of Immunological Societies. He is also interested in the interface between science and society, well illustrated by his Presidency of the Australian Academy of Science, his last two books *Medical Science and Human Goals* and *Reshaping Life: Key Issues in Genetic Engineering*, and his membership of the Prime Minister's Science and Engineering Council. He was a member of the Board of CSIRO from 1987 to 1994. A sign of his commitment to public health and preventive medicine is his Chairmanship of the Victorian Health Promotion Foundation. His work in the field of international health is carried out in collaboration with the World Health Organization, where he chairs the committee overseeing the Global Program on Vaccines.

Within the University of Melbourne, his major commitment has been to postgraduate students, with the Department of Medical Biology being second only to the Department of Physics in the number of PhD students being supervised and completing their degrees.

Knighted in 1977, and made a Companion of the Order of Australia in 1989, he has received numerous other honours from Australia, the United Kingdom, the United States, the Federal Republic of Germany, France, India, Austria, Israel, Mexico and Poland. Amongst the most significant are Fellow of The Royal Society of London, Foreign Associate of the US National Academy of Sciences, Member of the Academie des Sciences, France, the Albert Einstein World Award of Science, the Emil von Behring Prize, the Rabbi Shai Shacknai Prize and 75 named lectureships in nine countries.

He is involved in charitable work as Chairman of the Felton Bequests' Committee, and in the business community as a Director of CRA Limited.

Gustav Nossal has made an extraordinary contribution to the Australian community in general, to the field of biomedical research in particular and to the overall life and international standing of the University of Melbourne.

School of Medicine Higher Degrees and Diplomas Conferred 1996

Unless otherwise stated, degrees awarded by The University of Melbourne

DOCTOR OF PHILOSOPHY

Elizabeth Helen Allan BSc *Otago* – Medicine
Terri Jean Allen BSc – Medicine
Karen Elizabeth Anderson BSc – Pharmacology
Maria Apostolopoulos BPharm *VicCollPharm* – Psychiatry
Jane Frances Arthur BSc – Physiology
Alison Elizabeth Baird MB BS – Medicine
Julie Blasioli BSc – Medicine
Yardenah Gail Brickman BSc *York, Can* – Anatomy and Cell Biology
Peter John Chilco BSc *LaT* – Medicine
David James Cran BA *Monash*, GDipAppSocPsych *Swinburne* – Medicine
Daniel Martin Crowe BSc *LaT* – Anatomy and Cell Biology
Amanda Jane Davis BAgSc – Biochemistry and Molecular Biology
Sebastian Dinatale BSc – Microbiology
Rowan Grant Doig MB BS – Pathology
Simon Paul Fenton BSc *LaT* – Medicine
Leon Flicker MB BS *NSW*, GDipEpid – Medicine
Carmelo Anthony Formica DipAppSc *RMIT* – Medicine
Richard Ernest Gilbert BM BS *Flin* – Medicine
David Josef Goodman MB BS – Medicine
Virginia Lucia Gorssman BSc(Hons), MB BS – Medicine
Elizabeth Vera Ludmilla Grgacic BSc *LaT* – Microbiology
Thomas Peter Gumley BSc – Surgery
Daniel Harari BSc *Monash*, MSc *Israel* – Medical Biology
Charles Linton Hardy BSc – Pathology
Elizabeth Louise Hartland BSc – Microbiology
Carol Anne Hartley BSc – Microbiology
Kristy Ann Howard BAgSc – Biochemistry and Molecular Biology
Steven Christopher Ilgoutz BAgSc – Biochemistry and Molecular Biology
Jonathan Myer Kalman MB BS – Medicine
Catherine Kamphuis BSc – Medicine
Robert Michail Ivan Kapsa BSc *Monash* – Medicine
Andrew Richard Kompa BSc – Pharmacology
Tania Frances De Koning-Ward BSc – Microbiology
Nihay Laham BSc *Monash* – Medicine
Amanda Sook Yuen Lim BSc – Medical Biology
Janine Maree Matthews BSc – Medicine
Karen McConalogue BSc – Anatomy and Cell Biology
Airlie Janet McCoy BSc *Adel* – Surgery
Alan Robert McNeil MB BS *Syd* – Medicine
Michael Vivian Morgan BDSc *Otago*, MDSc, GDipEpidem – Medicine
Sharon Lea Olsen BSc – Medicine
Lisa Michelle Ooms BSc – Medicine
Nigel John Parker BSc – Medicine
Gabriel Mario Francesco Pasquini BSc, MSc – Medicine
Mary Polihronis BSc *LaT* – Medicine
Ann Majella Quinn BAppSc *RMIT*, MSc *Ill*, DN *CNM*, DipEd – Medicine
Maryann Rakopoulos BSc – Medicine
John Edward Joshua Rasko – Medical Biology
Susan Jane Roberts BSc – Pharmacology
Stephen John Rogerson DTMH *Liv*, MB BS – Medicine
Gennaro Rosella BSc *LaT* – Medicine
Sonya Dorothy Rutherfurd MB BS – Medicine
Hasidah Mohd Sidek BSc, MSc *N.Ill* – Biochemistry and Molecular Biology
David Keith Smith BSc, DipCompSci *Qld*, DGInfoSci, MA CCAE – Biochemistry and Molecular Biology
Kenneth George Campbell Smith MB BS – Medical Biology
Justine Southby BSc – Medicine
Paul Stuart Talman – Medical Biology
David Paul Tognarini BSc – Medicine
Paul Rogers Tomlinson BSc – Physiology
Ross Vlahos BSc – Medicine
Kerrie Jane Way BSc – Pharmacology
Heather Elizabeth Wheat BSc *Monash* – Anatomy and Cell Biology
James Howard Williams – Medicine
Anthony Christopher Wohlers BSc, MSc *LaT* – Paediatrics
Joanna Lia Wreidt BSc, MSc – Public Health and Community Medicine
Neale Andrew Yates – Physiology
Permeen Akhtar Mohamed Yusoff BSc *Nat Uni of Malaysia* – Medicine
Qun-Xing Zhang BMed *Wenzhou Med Col, China* – Surgery
Yamei Zhang MD *Nanjing* – Microbiology

DOCTOR OF MEDICINE

Damien Michael Bolton MB BS, BA
Graham Buirski MB BS *Lond*
Joan Rong Chen MB BS *Shanghai Med Uni, PR China*
William Raymond Connell MB BS
Peter Anthony Foley MB BS, MBedSc *Monash*
Lye Pheng Fong MB BS
Andrew John Hughes MB BS
Bengt Korman BSc, MB BS
Ming Li BMed, MMed *China*
Danielle Mazza MB BS *Monash*, GDipWomHlth
Edward Kim Mulholland DipTropMed&Hyg *Liv*, MB BS
David William Marshall Muller MB BS
Kenneth Robert Thomson MB ChB *Otago*
Guy Campbell Toner MB BS
Yisha Tong BMed *Shanghai*
Rosemary Wong MB BS
Baiyun Zhou BMed *China*

MASTER OF MEDICINE

Deepak Kumar Aryal MB BS *Ukrain*
Richard John Bonwick MB BS
Ross Stephen Breadmore MB BS
Veda Margaret Chang MB BS
Steven Reginald Ellen MB BS
Catherine Finocchiaro BHAd *NSW*, MPubH *Monash*, MB BS
Kevin Pok-Yu Foo MB BS
Eric Gultom BMed *Indon*
Sonia Haridas MB BS *Kerala*
Partini Pudjiastuti MMBBS *Indon*
Purnamawati Pujiarto MD *Indonesia*
Suthep Sachthep MB BS *Thai*, DipImm *Monash*
Darryl Shnier MB BS

MASTER OF SURGERY

Rosario Robert Donato MB BS *Monash*
Ian Paul Hayes MB BS *Monash*
Mark Paul Kohout MB BS *Syd*
David Neale McClure MB BS
Mark Threlkeld Baker Siddins MB BS, BMedSc *Monash*
Anthony James Maxwell Stubbs MB BS, BMedSc *Tas*, BSc, MSc

MASTER OF WOMEN'S HEALTH

Ruo Pei Chen BMed *China*
Janet Costin BEd, MEd *Monash*, BA, DipPsych
Xenia Sancho-Mora MB BS *Costa Rica*

GRADUATE DIPLOMA IN AUDIOLOGY

Joanne Enticott
Lauren Fraser
Rachael Kathleen Hyder
Quar Tian Kar
Anne Kozaris
Christopher Logan
Philippa May Louise Long
Cameron Phillip Martland
Anstee Menuhin Maree Nicholas
Anna Jane O'Brien
Mazwin Omar
Angelique Nadine Pisciotta
Stuart Rankin
Annabel Rees
Jennifer Louise Rogers
Dahlia Eva Sartika
Tania Anne Sultana
Danielle Williamson

Unless otherwise stated, degrees awarded by The University of Melbourne

GRADUATE DIPLOMA IN BIOTECHNOLOGY

Janine Jones
Anthony Rosler
Shobhana Sirdesai
Dale Bruce Stephenson

GRADUATE DIPLOMA IN EPIDEMIOLOGY AND BIOSTATISTICS

Jane Elizabeth Bascombe
Nicole Elizabeth Bath
Robert Gordon Birks
Roslyn Margaret Bish
Karen Louise Bulley
Shun Chi Chan
Panagiota Chondros
Marion Cincotta
Carolyn Mary Coffey
Tina Janice Coglan
Emma Catherine Dudley
Barry Austin Field
Carol Patricia George
Russell Lindsay Gruen
Rebecca Ruth Hankinson
Graeme Hawthorn
Mary Patricia Hemming
Mark Edward Hennessy
Jennifer Frances Hoy
Monique Femia Kilkenny
Daniel Joshua Libson
Alexandra Helen Marceglia
Rosemary Anna McGinnes
Helen Buchanan McNeil
Anne Margaret Mijch
Gabriella Nadalin
Mahshid Nasseri
Deborah Nicola Osborne
Margaret Anne Pascoe
Catherine Jane Price
Susan Jane Quirk
John Joseph Reilly
Gemma Luciana Rigutto
Merilyn Maree Riley
Donna Mariee Rogers
Kevin Gerard Rowley
Carolyn Rutherford
Rhonda Elizabeth Small
Zographo Stathakis
Elizabeth Lorraine Stevenson
Alexander Stockman
Diana Maria Stockman
Zlatko Stojcevski
Christine Anne Stone
Jennifer Anne Thomson
Teresita Marie Thorn
Giulietta Maria Valuri
Melissa Anne Wake
Josephine Margaret Yeatman

GRADUATE DIPLOMA IN WOMEN'S HEALTH

Alison Jill Bean-Hodges
Ruth Riviere Bray
Ruo Pei Chen BMed *China*
Beth Maree Dyer
Christine Frances Ferlazzo
Karin Hammarberg
Sharon Maree Johnson
Tina Kalanon
Valerie Ann Lawler
Kathleen Ann Lhuede
Carolyn Jane Looney
Carolyn Lunt
Anne Marie McVeigh-Dowd
Susan Irene Morrell
Sally-Anne Northfield
Christine O'Brien
Britt Inger Olsen
Lynne Maree Richards
Karen Christine Riley
Jennifer Anne Ryan
Susan Sdrinis
Maruyama Tomoko
Adaobi Ogenna Udechuku
Teresa Mary Wright
Yu Hong Wu

CLINICAL SCHOOLS

AUSTIN & REPATRIATION MEDICAL CENTRE

AT THE TIME of writing this report results from the final year examinations are just out with Guy Bylsma from the Austin and Repatriation Medical Centre Clinical School top student of the Medical School. There were three other students in the Dean's Honours list of eleven students, Trudy Clark, Megan de Quinzio and Catherine Scarff. As well the students from the Clinical School obtained a number of prizes and achieved great results. We congratulate our 1996 graduates and wish them every success for their future.

The programs in 1996 were very much influenced by the changes occurring at the Medical Centre with bed closures and downsizing of the Medical Units. The third year students attended for nine sessions. The Wednesday afternoon Introduction to Clinical Medicine – a clinico-pathological correlation session – was followed by a clinical demonstration in the wards of the Medical Centre. The aim was to introduce the students to the techniques used in clinical diagnosis.

The fourth year program continued as in 1995 with an introductory two week program in which history taking and clinical examination techniques were demonstrated and practised. Again the Clinical School provided each student group with a counsellor to whom individuals or groups could turn for advice. An assessment of the scheme indicated that the students found it most useful although their use of it was variable. To better understand the working of the hospital, each student followed an intern and a nurse for a day.

Areas covered during the introduction and first term included communication skills training, ethics, clinical thinking and presentation as well as ward work and a series of lectures and demonstrations to cover major topics. In the last week of first term a revision week was held to reinforce and check the students' clinical skills and understanding. The week was also used to pick up any difficulties the students might have had.

The students were in groups of five or six for their clinical teaching and each group had two terms in the medical wards and two in the surgical wards with one of those terms in a country base hospital at Bendigo, Wangaratta or Albury. The country hospital rotations allow the students to get involved with patients and their management more so than those at the Medical Centre which tend to provide a lot of the more formal structured learning.

Pathology was taught by a series of lectures in the first term. In addition, during most of the year, the students had three clinco-pathology correlation sessions a week with a clinician and pathologist in attendance as well as a radiologist as needed.

During fourth year, the students had teaching in radiology via lectures and small group tutorials. Geriatrics was taught within the Network using the facilities of the Austin & Repatriation Medical Centre and Bundoora Extended Care. All students undertook an Advanced Study Unit, mainly in the first half of the year, and all spent some time in the Emergency Department of the Medical Centre.

Fifth year remained essentially unchanged with students spending much of their time away from the Medical Centre.

Final year commenced formally in March with the students returning from electives. Two semesters in medicine and surgery took place with each semester further subdivided in a general and a special term. The teaching was all undertaken at the Medical Centre except for emergency medicine and anaesthetics which were also taught at PANCH.

Because of the size of the year and the reduction in the number of General Medical and Surgical Units, the students were attached to each unit during the general terms in groups of three or four. A more structured program was developed during the year to make sure that all topics were covered. Wherever possible day surgery and outpatients clinic facilities were used for teaching.

During general terms the teaching was aimed at bedside teaching and presentation while during special terms the teaching tended to be more outpatient and tutorial based.

The numbers of students at the Clinical School were 213 medical students and ninety-nine physiotherapy students in the last three years.

The program of teaching in Physiotherapy was arranged in blocks with assessments occurring at the end of each block. The teaching occurred across the two campuses and as well the Royal Talbot Rehabilitation Centre was used. Students rotated through the various blocks with hands-on experience an important part of the program.

The Austin & Repatriation Medical Centre is undergoing a great deal of change. The Clinical School needs to live with these changes. The Faculty is looking at changes to the medical curriculum and especially at alternate forms of learning. Problem solving and interactive computer learning will all be useful techniques. However, nothing replaces clinical bedside learning, and for this the Clinical School is grateful for the contribution made by the clinical staff of the Hospitals.

Associate Professor Bernard Sweet
Clinical Dean

Austin and Repatriation Medical Centre – Clinical School Final Year 1996

Back row L-R: Michael Shiu, Caominh Phan, Mark Zammit, Trudy Clark, Nicole Tan, Kylie Mason, Mona Tse, Siew Tan, Sanjiv Karunajeewa, Nelson Nheu. **Fourth row L-R:** Jamie Taylor, Peter Vuillermin, Felicity Dent, Joshua Hargrove, Grant MacKenzie, Brendan Soo, Dennis Gyomber, Vyt Antanaitis, Guy Bylsma, Stephen Barnett, Pramit Phal, Stephen Warrillow, Peter Neil. **Third row L-R:** Christopher Ting, Sunil Jassal, Adam Deacon, Forbes McGain, Tamsin Rhodes, Dana Teo, Julie Wakeling, Andrew Casamento, Daryl Jones, Erwin Loh, Stephen Gust, Arieh Keren, Bill Petrellis, Fleur Cattrall, Conway Leung, Julie Jambon. **Second row L-R:** Adam Skidmore, Jason Thomas, Nicola Doyle, Melanie Tan, Alicia Sanders, Danielle Stewart, John-Paul Darby, Alexandra Clinch, Andrew Gong, Catherine Scarff, Debra Kesper, Thao Tran, Toai Phan, Ramesh Arunachalam, Thuy Nguyen, Thang Nguyen, Megan DiQuinzio. **Front row L-R:** Julian Gooi, Stephanie Sarantopoulos, Johanna Elliott, Anna Niewiadomski, Mrs Margaret Neale, Mrs Rosa Poon, A/Prof Bernard Sweet, Prof Ken Hardy, Prof Colin Johnston, Tania Poon, Matthew Penn, Kirily Adam. **Absent:** Adam Broad, VuVu Dang, Tom Eimany, George Koulouris, Andrew Mitchell, Farnoosh Moushi, Peter Sargeant. **Clinical supervisors:** Dr Barbara Goss, Dr Helen Kouzmin and Dr Adrian Thomas.

The Royal Melbourne Hospital & Western Hospital

THE INTRODUCTORY COURSE in Clinical Medicine for third year students was conducted over nine weeks on Wednesday afternoons in the same manner as previous years. An hour-long pathology demonstration was followed by a ward tutorial, and most tutors chose to demonstrate the taking of a history and the performance of a physical examination of a patient. All students attended one session at the Western Hospital which was very successful. However student attendance again tended to fall towards the end of the course.

As in previous years, fourth year was divided into two surgical and two medical terms, each of eight or nine weeks duration, and the core of clinical instruction occurred within general medical and general surgical units.

All fourth year students were either at The Royal Melbourne Hospital or Western Hospital during first term. During the other three terms all students spent one term at either Ballarat Base Hospital, Wangaratta District Base Hospital or Wimmera Base Hospital. Each student group also spent two of the four terms at The Royal Melbourne Hospital and one of the four terms at Western Hospital.

The introductory period at the commencement of first term again proceeded for three weeks, and consisted of a broad range of introductory lectures, and 'examination days' in which the students initially saw a video tape or a demonstration of the examination of a particular system, then undertook self-examination under the supervision of tutors, and finally had a ward tutorial demonstrating the examination on a patient. These included the examination of the cardiovascular system, the central nervous system, the abdomen, the respiratory system and the musculoskeletal system. An innovation in 1996 was the incorporation of a large new series of videotapes into these days.

A familiarisation day – successfully introduced in 1995 – was again held in 1996. Each student was allocated to a senior member of the medical staff of either The Royal Melbourne Hospital or Western Hospital and followed that staff member during all their daily activities.

As in past years, a core of daily lectures was presented in first term, and the pathology teaching in first term also covered all the major areas. Lectures during the second and third terms, and pathology teaching during those terms, fleshed out the core teaching which occurred in first term. The new microwave link between the lecture theatres at The Royal Melbourne Hospital and Western Hospital was used for both the general and the pathology lectures. This provides an audiovisual link so that students at Western

Hospital (or The Royal Melbourne Hospital) do not need to travel between hospitals in order to attend the daily 4.30 pm lecture. This again proved to be successful, although technical problems continue to be disturbingly frequent. A videotape of each lecture is also now automatically generated which can be viewed by students who unavoidably missed the lecture.

This year the lecture program was condensed to finish at the end of third term. In fourth term, two case discussions (by the Departments of Medicine and Surgery), and a clinico-pathology demonstration, were given each week instead of the lectures.

The medical rotations to Ballarat Base Hospital and Wangaratta Base Hospital, and the surgical rotations to Ballarat Base Hospital and the Wimmera Base Hospital (which commenced in 1991), continue to be very successful. Unfortunately an industrial dispute at Wangaratta Hospital precluded that rotation in third term.

Sixth year again consisted of an eight week elective period, finishing in early March, followed by blocks in each of general medicine, special medicine, general surgery and special surgery.

Overseas options were undertaken by students in the following countries: United Kingdom/Ireland (15), United States of America/Canada (10), New Zealand (4), France (4), Germany (1), Africa (6), India/Nepal/Sri Lanka (6), South East Asia (28), Pacific/Indian Oceans (8), and fifty-five were undertaken within Australia.

General surgery and general medicine consisted of five and seven week blocks respectively and in each case comprised a 'student internship' in a general medical or surgical wardat The Royal Melbourne Hospital or Western Hospital. In addition, student internships also occurred in general medicine at Ballarat Base Hospital, consisting of three or four weeks at Ballarat Base Hospital coupled to three or four weeks at The Royal Melbourne Hospital.

Special medicine and special surgery consisted of blocks of seven and six weeks respectively, and in addition each student attended three weeks of anaesthetics and emergency as part of the surgical rotation at either The Royal Melbourne Hospital, Western Hospital or Ballarat Base Hospital. During the special medicine and surgical terms, students rotated through a wide variety of specialties, and were taught in outpatient clinics, at the bedside or in a seminar format depending on the requirements of the particular specialty involved.

Daily case discussions were presented through the year by the senior medical and surgical staff. These consisted of interactive discussions of cases selected by the staff to illustrate points of diagnosis or management. Throughout the year each case discussion was also preceded by a trial short answer question.

As in previous years each student group had a medical and a surgical 'mentor', with whom they met regularly during the year.

During 1995, 471 applications for elective placements were received, and seventy-eight elective students were placed in various general and specialist departments and units at The Royal Melbourne Hospital and Western Hospital. These students came from the United Kingdom (31), United States of America/Canada (16), Fiji/Papua New Guinea (9), Germany (3), New Zealand (8), Australia (7), and other countries (4).

Associate Professor Robert F W Moulds
Clinical Dean

Royal Melbourne Hospital and Western Hospital - Clinical School Final Year 1996

Front row L-R: Jason Chuen, A/Prof Robert Moulds, Alf Nastri, Nathan Lawrentschuk, Wui Kin Chin, Thanaportn Lorchirachoonkul, Alberta Hoi, Ben Di Luca, Lia Laios, Cindy Lambart, Lie Teng Lim, Dr Christine Penfold, Zofia Bucek. **Second row L-R:** Andrew Bridgeman, Chun Keng Khoo, Justin Tse (behind), Nellie Cheah, Thi Tam Chan Ngo, Susan Shedda, Khai Oon Ng, Swee Ean Tan, Janet Hong, Sean Fabri, Pieta Collins, Quoc Phy Duong, John Ly, San-Won Jin, Boon Tiong Tan, Mi-Jin Kim, Matt Long, Neda Taghizadeh, Tracie Box, Suzanne Koh, Tao-Chern Lee. **Third row L-R:** Jean Wong, Hai Thanh Bui, Cyril Tsan, Gareth Grainger, Josephine Chitty, Jackie Griffith, Sue Quach, Su-Li Lim, Christopher Allada, Steve Guastalegname, Kelly Davis, Eloise Gawler, Pauline Chapman (top of head), Emmy Pai, Ura Frenklah, David Bowyer, Malachy Tarpey, Anu Premaratne, Swee Keong Kang, Yee Ping Teoh, Keh Oon Ong, Giun Hua Oon, Tim Nottle, Esmond Yeoh. **Back row L-R:** Anh Chuong Le, Chris Chew, Num Tanthuwanit, Quan Vu Quoc Dinh, Matt Skinner, Jennifer Ng, Martin Preston, Chris Holden, Jeremy Grummet, Cecilia Etulain, Justin Watts. **Absent:** Anuradha Jayathillake, Philip Leong, Eng Eng Ong, Joseph Ragg, Chin Sing Sim, Hugh Spalding, Inessa Stinerman, Tony White.

St Vincent's Hospital & The Geelong Hospital

THE NEW HOSPITAL inpatient facility at the St Vincent's Hospital campus is now fully operational and has provided our students with an ideal learning ambience and easy access to clinical services. A video link between St Vincent's Hospital and the Geelong Hospital has been installed which will facilitate interaction between the two campuses at both undergraduate and graduate levels.

During 1996, there were 216 students in the Clinical School with 69 in final year, 75 in the fifth year and 72 in the fourth year.

As usual, final year students enjoyed their elective term – particularly those who took the opportunity to work in third world countries. Options in the United Kingdom remain popular, while several students ventured to work in Chile, Egypt, South and Central America as well as Africa and Asia. Medical rotations were similar to previous years with students spending four weeks attached to a general medical unit at St Vincent's Hospital or Geelong Hospital and ten weeks rotating through the various sub-specialties.

Students undertook general surgical rotations at Geelong Hospital or at PANCH and surgical speciality teaching was done in the units at St Vincent's Hospital. The closure of Fairfield Infectious Diseases Hospital in the middle of the year required a rearrangement of the infectious diseases teaching program for the second semester. This was undertaken by St Vincent's Hospital clinicians with the assistance of several members of the former Fairfield Hospital staff.

The 1996 final year students achieved outstanding success in their examinations with a high proportion achieving honours in medicine and/or surgery. Graeme Maclaren and Gareth Weston were awarded equal first place in medicine and Kirsten Herbert gained first place in surgery. Graeme and Kirsten together with James Thomas and Lyndell Lim distinguished themselves by being the only four students in final year to obtain first class honours in both medicine and surgery. Heidi Baker, Kirsten Herbert, Christopher Fraser, Chien Boon Lye, Sujith Seneviratne and Gareth Weston were rewarded for excellence over the course by receiving a Dean's Honour. Our congratulations go to all the 1996 graduates, and we wish them well in their future careers.

There has been considerable re-organisation of the psychiatry teaching program during the year, with the scaling down of the North Eastern Metropolitan Psychiatric Services (NEMPS) and the development of a new integrated service based at St Vincent's Hospital. Students now spend their time at a number of locations including community based services throughout the region, the new facility at St Vincent's, St George's Hospital in Kew and the Melbourne Clinic.

either the Goulburn Valley Base Hospital or the Warrnambool and District Base Hospital. These rotations are very valuable and most popular with students because of excellent patient access and enthusiastic teaching staff.

Rotations to PANCH formed an essential part of our teaching program in 1996. Our affiliation with PANCH has developed over many years and is highly valued. We shall miss this association greatly when its inpatient facilities are transferred to the Northern Hospital within the North Eastern Network in 1998.

Third year students attended the St Vincent's Hospital campus for The Introductory Course in Clinical Medicine, conducted over an eight week period in the second semester. As usual, students enjoyed their time at the hospital and were enthusiastic about commencing full-time clinical studies in 1997.

The Clinical School continues to provide physiotherapy clinical education through the departments at St Vincent's Hospital and Geelong Hospital.

For the first time, in 1996, there was a full complement of undergraduate students in each of the four year levels, giving a total of eighty students in all. With the increase in undergraduate numbers in 1996, neurological clinical placements have also been provided through the Grace McKellar Rehabilitation Centre. The provision of a high quality clinical education program for physiotherapy students has been achieved through the hard work and dedication of the many individuals associated with the Clinical School.

Dr Doug Hocking retired at the end of November from the position of Sub-Dean at the Geelong Hospital which he has held for

St Vincent's Hospital and The Geelong Hospital – Clinical School Final Year 1996

Back row L-R: Karen Roberts, Chi Le, Catherine Mariadason, Barbara Sabangan, Jennifer Ellis, Annabel Wyburn, Leesa Huguenin Maryza Kahlil, Graeme MacLaren, Myles Conroy, Karen Crozier. **Fifth row L-R:** Agnes Le-Kim, Sally Mapp, Gareth Weston, Anita Liu, James Thomas, Jack Richards, Megan Cooney, Samuel Morley, Paul Einoder, Jason Smitheringale, Paul Smith, Voon Hong Ong, See Meng Khoo. **Fourth row L-R:** Tony Chan, Natalie Ong, Gerard McCaffrey, Su Wei Hii, Sujith Seneviratne, Dan Polya, Fiona Strahan, Richard Rahdon, Chris Hoy, Dayan Chandrasekara, Pallav Garg, Adam Hedley, Eu Ling Neo. **Third row L-R:** David Wu, Teck Wee Wong, Simon Slota-Kan, Philip Wicks, Chris Merry, Dean White, Chris Fraser, Michael Makdissi, Paul Johanson, Keng Huat Low, Michael Lian, Lyndell Lim, Thao Nguyen, Gavin Lim. **Second row L-R:** Mathew Piercy, Filomena Lucente, Heidi Baker, Dr Jacqueline Walters, Thomas Rechnitzer, Lina Nido, Sandra Crikis, A/Prof Wilma Beswick, Cameron Osborne, Kirsten Herbert, Chien Boon Lye, Andrew Wettenhall, Angela Webb. **Front row L-R:** David Loke, Andria Economidis, Oui Ju, Anand Ramakrishnan, Wui Chun Choon, Chaminda Saranasuriya, Shyi Peng Yuen.

The fourth year program emphasised the essential elements of history taking and clinical examination technique. An important part of the program centres upon gaining an appreciation of the doctor-patient relationship and acquiring communication skills. The ethics program of group tutorials and class presentations was once again a highlight of the fourth year. Ethics teaching was undertaken at either St Vincent's Hospital or Geelong Hospital under the supervision of a dedicated tutor. Students greatly appreciated the opportunity to discuss ethical issues which they encounter at an early stage of their training.

All fourth year students rotated to Geelong Hospital for one term and also had the opportunity to undertake a rural rotation at

six years. He has given immeasurable help and support during his association with the Clinical School. He has been a dedicated, enthusiastic and highly effective teacher and mentor to the students by whom he is held in the highest regard. We shall miss him and wish him well in his retirement.

Dr Jim Rossiter has been appointed as clinical Sub-Dean at the Geelong Hospital in 1997.

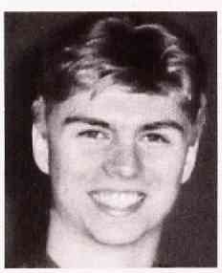
We are most grateful to the hard working and dedicated teachers associated with our clinical school during 1996. Their willingness to teach and commitment to our students is most highly valued.

Associate Professor Wilma M Beswick
Clinical Dean

MB BS Graduates 1996

Michael Acton, Kirily Adam,
Christopher Allada, Wesley Ang,
Vytautas Antanaitis, Ramesh Arunachalam,
Heidi Baker, Stephen Barnett,
David Bowyer, Tracie E Box,
Andrew Bridgeman, Adam Broad,
Zofia Bucek, Hai Thanh Bui,
Guy Bylsma, Andrew Casamento,
Fleur Cattrall, Tony Kam Tong Chan,
Malinga Chandrasekara,
Pauline Chapman, Nellie Lay Chin Cheah,
Christopher Chew, Wui Kin Chin,
Josephine Chitty, Wui Chun Choong,
Jason Chuen, Trudy Clark,
Alexandra Clinch, Pieta Collins,
Myles Conroy, Megan Cooney,
Sandra Crikis, Karen Crozier,
John-Paul Darby, Kelly Davis,
Adam Deacon, Felicity Dent,
Ben Di Luca, Megan Di Quinzio,
Quan Vu Quoc Dinh, Nicola Doyle,
Quoc Phu Duong, Andria Economidis,
Tom (Arash) Eimany, Paul Einoder,
Johanna Elliott, Jennifer Ellis,
Cecilia Etulain, Sean Fabri,
Christopher Fraser, Yuri Frenklah,
Pallav Garg, Eloise Gawler,
Andrew Wee On Gong,
Julian Hsien-Feng Gooi, Gareth Grainger,
Jacqueline Griffith, Jeremy Grummet,
Steve Guastalegname, Stephen Gust,
Dennis Gyomber, Joshua Hargrove,
Adam Hedley, Kirsten Herbert,
Su Wei Hii, Alberta Hoi,
Christopher Holden, Janet Myman Hong,
Christopher Hoy, Leesa Huguenin,
Julie Jambon, Sunil Jassal,
Anuradha Jayathillake, Sang-Won Jin,
Robert Johanson, Daryl Jones, Oui Ju,
Swee Keong Kang, Sanjiv Karunajeewa,
Arieh Keren, Debra Kesper,
Maryza Khalil, Chun Kheng Khoo,
See Meng Khoo, Mi-Jin Kim, Suzanne Koh,
George Koulouris, Evangelia Laios,
Cindy Lambart, Nathan Lawrentschuk,
Anhchuong Le, Chi Le, Philip Lee,
Agnes Le-Kim, Tao Chern Lee,
Conway Leung, Michael Wai Ming Lian,
Gavin Tze Tung Lim, Lie Teng Lim,
Lyndell Lee Ping Lim, Su-Li Lim,
Anita Ling Yung Liu, Erwin Chun Kong Loh,
David Seng Chi Loke, Matthew Long,
Thanaporn Lorchirachoonkul,
Keng Huat Low, Filomena Lucente,
John Van Ly, Chien Boon Lye,
Grant A MacKenzie, Graeme MacLaren,
Michael Makdissi, Sally Mapp,
Catherine Mariadason, Kylie Mason,
Gerard McCaffrey, Forbes McGain,
Christopher Merry, Andrew J Mitchell,
Sam Morley, Alf Nastri, Peter Neil,
Eu Ling Neo, Derek Ein Won Neoh,
Jennifer Ng, Khai Oon Ng,
Thi Tam Chan Ngo, Thang Chien Nguyen,
Thi Thao Nguyen, Thuy B Nguyen,
Nelson Nheu, Lina M Nido,
Anna Niewiadomski, Timothy Nottle,
Farnoosh Noushi, Eng Eng Ong,
Keh Oon Ong, Natalie Bee Hwa Ong,
Voon Hong Ong, Giun Hua Oon,
Cameron Osborne, Yu-Ching Emmy Pai,
Matthew Penn, Vasilios Petrellis,
Pramit Phal, Caominh Long Phan,
Toai Thanh Phan, Mathew Piercy,
Daniel Polya, Tania Wai-Ling Poon,
Erosha Anupama Premaratne,
Martin Preston, Susy Xuan-Y Quach,
Joseph Ragg, Richard A Rahdon,
Anand Ramakrishnan, Thomas Rechnitzer,
Tamsin Rhodes, Jonathan Richards,
Karen Roberts, Barbara Sabangan,
Alicia Sanders, Chaminda Saranasuriya,
Stephanie Sarantopoulos,
Peter Sargeant, Catherine Scarff,
Sujith Kaushalya Seneviratne,
Susan Shedda, Tin Ming Shiu,
Chin Sing Sim, Adam Skidmore,
Matthew Skinner, Simon Slota-Kan,
Paul Smith, Jason Smitheringale,
Brendan Soo, Hugh Spalding,
Danielle Stewart, Inessa Stinerman,
Fiona L Strahan, Neda Taghizadeh,
Boon Tiong Tan, Melanie Wai Ling Tan,
Nicole Lay Tin Tan, Siew Li Tan,
Swee Ean Michelle S Tan,
Num Tanthuwanit, Jamie Taylor,
Dana Kah Yeen Teo, Yee Ping Teoh,
James Thomas, Jason Thomas,
Christopher Ting, Thao Dong Tran,
Cyril Jui Lim Tsan, Justin Chi-Sine Tse,
Mona Man Yu Tse, Peter J Vuillermin,
Julia Wakeling, Stephen Warrillow,
Justin Watts, Angela Webb, Gareth Weston,
Andrew Wettenhall, Dean C White,
Tony White, Philip Wicks, Teck Wee Wong,
Voon-Jean Wong, David Wu,
Annabel Wyburn, Esmond Soon Hui Yeoh,
Shyi Peng Yuen, Mark Zammit.

Final Year Top Student 1996



GUY BYLSMA

Guy Bylsma was the top student in 1996, having completed his clinical years at the Austin and Repatriation Medical Centre clinical school. In the final results he was awarded the Australian Medical Association Prize, the CIBA-GEIGY Prize and the Rowden White Prize as well as the Howard E Williams Prize in Paediatrics and the RACGP Prize in Community Medicine. In fourth year he was the top student of the year.

Guy was born in Ballarat and spent his school years there. His parents came out from Holland after the Second World War, and Guy is one of a large family. During his school holidays Guy worked in the family business and considers himself as one of the few medically qualified concrete cutters.

At the University, Guy was resident at St Mary's College and it was there that he met fellow medical student Bronwyn Fitzgerald who was to become his wife. Guy and Bronwyn were married on 8 December 1996, the day after graduation, the day before medical registration and the afternoon of the final year graduation dinner for the clinical school. Needless to say that with such a busy weekend, Guy and Bronwyn were sadly missed at the graduation dinner.

For someone who has achieved so much, Guy is extremely modest. He does not talk easily about himself or about what he has done. He felt that he had 'done okay' in the course. His final elective was spent in Kenya with some of his mates and there he met up with the final year Monash student who topped the year for 1996. Besides seeing many interesting and different medical conditions in Kenya, Guy was able to get around and indulge in one of his hobbies: camping. His interests are mainly outdoors and include kite flying and skiing. His musical talents extend to playing the saxophone.

When asked about his future, Guy does not see himself as a high-flyer. He would like to be a general surgeon, possibly practising in a large country base hospital. Currently he is an intern at the Austin and Repatriation Medical Centre, where Bronwyn is a resident. It is with great interest that we will watch Guy's future. He has demonstrated that he will be a great success in whatever area of medicine he decides to practice.

Prizes & Awards 1996

Final Year

Australian Medical Association Prize
Guy Bylsma, ARMC

The CIBA-GEIGY Prize
Guy Bylsma, ARMC

Rowden White Prize
Guy Bylsma, ARMC

General Practice & Community Medicine

RACGP Prize in Community Medicine
Guy Bylsma, ARMC

Medicine

Jamieson Prize in Clinical Medicine
Kirsten Herbert, SVH/GH

Keith Levi Memorial Scholarship in Medicine
Ting Ming Shui, ARMC

Robert Gartly Healy Prize in Medicine
Graeme Maclaren, SVH/GH
Gareth Weston, SVH/GH

Sir Albert Coates Prize in Infectious Diseases
Ting Ming Shui, ARMC

Upjohn Award in Clinical Pharmacology and Therapeutics
Adam Hedley, SVH/GH

Obstetrics & Gynaecology

Alfred Edward Rowden White Prize in Clinical Obstetrics
Pramit Phal, ARMC

Edgar & Mabel Coles Prize in Obstetrics (RMH/WH, SVH/GH)
Christopher Fraser, SVH/GH

Prize in Clinical Gynaecology
Dean White, SVH/GH

Robert Gartly Healy Prize in Obstetrics
Pramit Phal, ARMC

Paediatrics

Child Growth & Development Study in Paediatrics
Peter Vuillermin, ARMC

Clara Myers Prize in Surgical Paediatrics
Anna Niewiadomski, ARMC

Howard E Williams Prize in Paediatrics
Guy Bylsma, ARMC

Psychiatry

John Cade Memorial Medal in Clinical Psychiatry
Pallav Garg, SVH/GH

Surgery

AOA (Vic) Orthopaedic Prize
Adam Broad, ARMC

Beaney Scholarship in Surgery
Kirsten Herbert, SVH/GH

EH Embley Prize in Anaesethetics
Paul Smith, SVH/GH

Proxime Accessit Prize in Surgery
Lyndell Lee Ping Lim, SVH/GH
Graeme Maclaren SVH/GH

Robert Gartly Healy Prize in Surgery
Kirsten Herbert, SVH/GH

General Clinical

Edgar Rouse Prize in Occupational Medicine
Anthony White, RMH/WH
Boon Tiong Tan, RMH/WH

Hedley F Summons Prize in Otolaryngology
Farnoosh Noushi, ARMC

Herman Lawrence Prize in Clinical Dermatology
Boon Tiong Tan, RMH/WH

Fourth & Fifth Years

Fifth Year

Crawford Mollison Prize in Forensic Medicine
Alexander Thompson

The Fulton Scholarship
Katrina Dowey

General Medicine and Community Medicine Prize
Katrina Dowey

Ian Johnston Prize in Reproductive Medicine/Biology
Lean Peng Cheah

The John Adey Prize
Melanie Bennett

The Kate Campbell Prize in Neo-Natal Paediatrics
Nicola Bryan

The Max Kohane Prize
Katrina Dowey

The Vernon Collins Prize
Anthea Greenway

Fourth Year

Geriatric Medicine Prize
Carolyn O'Shea

The Harold Attwood Prize in Pathology
Travers Anderson

Manu Thomas Prize
Dominic Wilkinson

Pre-Clinical

Third Year

Microbiology
Glaxo Prize
Jason Galanos

Pathology
Walter and Eliza Hall Exhibition
Kathryn Field

Pharmacology
Boots Prize
Kathryn Field

Public Health & Community Medicine
Medical Officers of Health AMA Prize
Karen Donaldson

Second Year

Anatomy
Dwight Prize
Alicia Au

Exhibition Prize
Alicia Au

TF Ryan Prize
Alicia Au

Behavioural Science
CIBA-GEIGY Prize
Yun Fan Lu

Functional Biochemistry
Exhibition
Eric Kang Yuen Chung

General Biochemistry
Exhibition
Yvonne Tan

Neuroscience
Sunderland Prize
Sam Hume

Physiology
Glaxo Wellcome Prize
Angela Peng-Yun Huang

Physiology\Integrated Body Function
RD Wright Prize
Eseta Akers

First Year

Anatomy
Mathew W McKenzie Award
Benjamin Pak Kwong Wong

Chemistry
Exhibition
James Bartlett

Health and Illness in Society
The Australasian College for Emergency Medicine, Victorian Region, Prize
Ronil Chandra

Medical Biology
WH Swanton Exhibition
Kristine Wardle

Baldwin Spencer Prize
(for Zoology Practical Work)
Richard La Nauze

Medical Physics
GA Syme Exhibition
James Bartlett

TF Ryan Roentgen Prize
No entries received

THE RADIOLOGICAL REVOLUTION

by Brian M Tress
Professor and Head of Department

RADIOLOGY IS ONE of the youngest specialties in medicine. In the 1996 issue of *Chiron* Professor Emeritus WSC Hare reflected upon the sequelae to the discovery of x-rays by Röntgen only 102 years ago.[1] Many of the more mature readers will recall the Radiology Department as a small dark area or diverticulum in the bowels of the teaching hospitals into which patients disappeared and (usually) returned after undergoing entirely x-ray based examinations. Many of these examinations, such as pneumoencephalograms, presacral air insufflations and direct puncture carotid angiograms, were both uncomfortable and dangerous. The occasional emergence of the radiologist clad in bulky, red goggles used for dark adaptation added to the impression that the radiologist was part of a subterranean life form only vaguely related to medicine and patient management.

The contrast with a modern radiology department could not be more stark. All of the above mentioned procedures are obsolete. Techniques with evocative names, such as Computed Tomography (CT), Digital Subtraction Angiography (DSA), Magnetic Resonance Imaging (MRI) and Duplex Doppler Ultrasound, have supplanted most invasive techniques and complemented others. Techniques which were developed exclusively for diagnosis have been adapted to effect treatment. The term applied to this very important aspect of modern radiology is 'interventional radiology'. It is because of the development of this relatively new element of radiology that names such as 'Department of Medical Imaging' are particularly inappropriate for modern radiology departments.

Even the architectural concepts have changed. If the reader were to walk into the University of Melbourne Department of Radiology at The Royal Melbourne Hospital, he/she would be struck by the light which dominates the Department. Outpatients wait in a room with floor to ceiling windows. The peripheral corridor has light at every end. Even the MRI scanner room is flooded with natural light through ample windows. The Department is on the first floor, immediately above the Emergency Department and below Cardiology and the Operating Theatres; 'right in the middle of the action'. Near the entrance to the Department are two comfortable clinico-radiological conference rooms, where more than twenty-five conferences involving nearly every medical and surgical unit in the hospital are held each week. Interns, residents and consultants stream through the Department as a regular element of their working day.

BRIAN TRESS

How can such radical changes have taken place in less than twenty-five years?

The first and major reason is the utilisation of energy sources other than x-rays for diagnostic purposes. Ultrasound, strong magnetic fields and radiofrequency pulses of energy are now utilised in completely non-invasive tests, which produce exquisite cross-sectional images of body and brain in any plane.

The second and complementary reason is the extraordinary development of computers. Their ability to perform millions of mathematical calculations in fractions of seconds, to amplify and to electronically subtract out confusing background information has enabled minute signals to be detected and converted into vital anatomical and pathological information, which can be presented in two and three dimensional form.

Computed Tomography (CT)

The revolution began in the early 1970s, when Godfrey Hounsfield, an unassuming scientist working for the EMI company (better known for fostering such iconic pop groups as the 'Sex Pistols'), used ionisation chambers instead of photographic film, and back projection reconstructive techniques borrowed from astronomy to produce the first transverse axial images of the human brain. Hounsfield was subsequently awarded a Nobel Prize for his revolutionary discovery. It is worth noting that it took two days to perform the necessary calculations to reconstruct one image and even the first commercial version of a CT scanner took five minutes to complete one complete mechanical rotation around the patient's head and a further couple of minutes for the computer to reconstruct one image. A modern CT scanner completes a whole examination of an abdomen and chest within twenty seconds with virtually instantaneous display of the thirty or so reconstructed images. Because the image data is acquired as a three dimensional block, it can be reformatted (post-processed) in any two dimensional plane, or, by using a variety of surface rendering techniques, a three dimensional image of structures such as the abdominal aorta can be created and rotated on a video loop to aid a more complete appreciation of the anatomy.

Magnetic Resonance Imaging

The physical phenomenon of nuclear magnetic resonance (NMR) was recognised independently by Bloch and Purcell in the mid 1950s and almost immediately exploited in the biochemical technique of NMR spectroscopy, which remains a vital tool in the non-invasive determination of the molecular composition of substances in vitro. During the 1970s, methods of localising the signals and converting them into spatial information was perfected. The basic data is obtained by exploiting the electromagnetic properties of the hydrogen nuclei in the body. The body is placed in a strong magnetic field, the frequency of the hydrogen nuclear spins is determined and their distribution mapped. Exquisite images of the body in any plane are obtained. Blood vessels can be depicted by subtracting static background hydrogen signals from the moving protons in blood.

At the time of the introduction of MRI into Australia in 1986, images were acquired in eight to sixteen minutes. Ultrafast imaging is now possible in as little as 30 msec per image. As a result diffusion abnormalities at the micromolecular level can now be detected, allowing detection of infarction within minutes of blood vessel occlusion. Because deoxyhaemoglobin has an effect on local magnetic fields, as opposed to the minimal effect of oxyhaemoglobin, even brain function can now be depicted. The motor cortex can be localised simply by having the subject repetitively clench the fists, which induces increased blood flow to the precentral gyrus.

Digital Subtraction Angiography (DSA)

The name gives this one away. 'Digital' indicates that a computer is involved. 'Subtraction' refers to the fact that unwanted background soft tissue and bone

is electronically subtracted, leaving only contrast medium filled vessels to be recorded. 'Angiography' indicates that the technique depicts blood vessels. Less iodinated contrast medium need be used, resulting in marked reduction in patient discomfort and adverse reactions.

Duplex Doppler Ultrasound

Older readers will recall the development of sonar for the detection of submarines. The technique relied upon the unimpeded transmission of sound waves through water and reflection from solid materials. During the 1950s and 1960s diagnostic ultrasound in patients was limited to detecting the midline structures of the brain. Subsequent developments have facilitated detection of such subtle reflections from tissues of differing acoustic impedance that highly detailed anatomy of the foetus in utero are obtainable very early in pregnancy, gallstones are easily detected in minutes and even some liver lesions beyond the sensitivity of CT and MRI are detected by straight ultrasound imaging.

The second (duplex) part of the ultrasound armamentarium relies upon the Doppler effect. Sound waves moving towards a static observer are compressed, producing a higher frequency. Conversely, sound waves leaving the observer are of lower frequency, a phenomenon with which any observer of moving trains is very familiar. Ultrasound reflected by moving blood cells acts in exactly the same way, permitting detection, quantitation and the direction of flow in blood vessels. The direction of flow can be colour coded.

Interventional Radiology

Developments in catheter technology, devices and angiographic techniques are the basis of this new sub-specialty within radiology, which was the prelude to and inspiration for much of the minimally interventional surgery now practised. The most commonly practised techniques are angioplasty, therapeutic embolisation and biopsies under CT, ultrasound or fluoroscopic control.

Angioplasty involves the endovascular placement of specially adapted balloon catheters into stenosed vessels and dilatation by balloon inflation. Dilatation can be made more effective by the subsequent insertion of a 'stent', a stainless steel meshwork device not unlike delicate chicken-wire, which struts the dilated artery. Stenoses of all major leg arteries, the iliac arteries, the renal arteries, the aorta itself and, of late, even internal carotid and intracranial branch arteries, can be treated in this fashion. Coronary artery stenoses are the province of the cardiologist. The procedures are performed under local anaesthetic and the patient is frequently discharged within twenty-four hours.

The deliberate occlusion of blood vessels, fistulae and aneurysms is what is meant by therapeutic embolisation. The method depends upon the site, the rapidity of flow and the indication for the procedure. Pre-operative embolisation of vascular tumours such as glomus tumours to reduce per-operative blood loss may require only particulate gelfoam. Rapid high flow fistulae such as carotico-cavernous fistulae can be obliterated by ingenious detachable balloons. Cyanoacrylate type glues ('Superglue'), which polymerise on contact with ions in the blood, may be necessary to obliterate intracerebral arteriovenous malformations via microcatheters superselectively guided into peripheral branches of the major intracerebral vessels. Soft platinum coils inserted directly into aneurysms after catheterisation of the aneurysm neck are increasingly used to treat aneurysms from the inside.

Laparotomies have almost been eliminated by the superb anatomical cross-sectional information so readily available and accurate CT and ultrasound guided percutaneous biopsies under local anaesthetic alone. Drain tubes are similarly placed under imaging guidance, markedly reducing the need for pus or haematoma drainage operations.

The Totally Digital Department

Because all the techniques described above are digitally based, the concept of a filmless department in which all radiological examinations are digitally recorded and transmitted throughout the hospital as high quality television images is no pipedream. The Children's Hospital at Westmead in Sydney went filmless during 1996. Even plain x-rays are recorded on charged plates, which are converted into digital images. All images are stored on compact disc in a two terrabyte jukebox, from which they can be directly accessed virtually as soon as the examination has been completed. Because access is only available via computer workstations, older radiologists and referring clinicians face the challenge of developing skills in workstation manipulation. Newer generations, raised on a diet of computer games and formally taught computer skills at school, will take it in their stride.

The other advantage of images in digital form is the ability to transmit them via telephone lines, a process known as 'teleradiology'. Images acquired in Western Victoria are currently transmitted in minutes to Ballarat for routine reporting and to the Royal Melbourne and Royal Children's Hospitals for specialist consultation.

Undoubtedly, there have been more changes in radiology in the last twenty-five years than took place in the first seventy-five years after Röntgen's momentous discovery. Many more patients are diagnosed and treated more definitively with less morbidity and mortality as a direct result of these advances. Such has been the rate of progress in radiology that a similar article written in ten years time will be covering completely new or extensively revised techniques, with the possible exception of the chest x-ray, which remains one of today's most cost effective diagnostic techniques.

1 *Chiron* Vol 3 No 4 p 56-58

Dean's Honours List 1996

FINAL YEAR

Heidi Baker, Guy Bylsma, Trudy Clark, Megan Di Quinzio, Christopher Fraser, Jacqueline Griffith, Kirsten Herbert, Chien Boon Lye, Catherine Scarff, Sujith Seneviratne, Gareth Weston.

FIFTH YEAR

Janelle Brennan, Nicola Bryan, Andrew Burns, Lean Peng Cheah, Katrina Dowey, Anthea Greenway, Sarah-Jane Morck, Alexander Thompson.

FOURTH YEAR

Natalie Pam Barton, Liam Joel Broad, Melinda Joy Dalman, Mark Agnel Dawson, Natalie Harrison, Anna Jane Lee, Ashley Peng Chee Ng, Constantine Silun Tam, Dominic James Wilkinson.

THIRD YEAR

Luke Chen, Kyra Yu Lin Chua, Michael Dodson, Kathryn Field, Jason Galanos, Robert Garbutt, Saar Gill, Sue Yen Michelle Goh, Cameron Shaw.

SECOND YEAR

Wai Pheng Alicia Au, Richard Bignell, Carol Pei-Wei Chong, Peng-Yun Angela Huang, Beng Liam Lim, Shiin-Yun Yvonne Tan, Sze Chih Tan, Limin Wijaya, Eppie Yiu.

FIRST YEAR

James Edward Bartlett, Noel Chi Fen Chan Wan Kai, Ronil Vikesh Chandra, Smathi Kuoh K'yet Chong, Jwu Jin Khong, Cameron Ian Knott, Michael Terk-Chuen Mok, Kristine Yvonne Wardle, Andrew James Weickhardt, Benjamin Pak Kwong Wong.

OH, THE PLACES YOU'LL GO!

Romania & Zimbabwe, 1995

Felicity Dent, MB BS 1996

You have brains in your head.
You have feet in your shoes.
You can steer yourself
any direction you choose.
You're on your own. And you know what you know.
And YOU *are the guy who'll decide where to go.*

Dr Seuss[1]

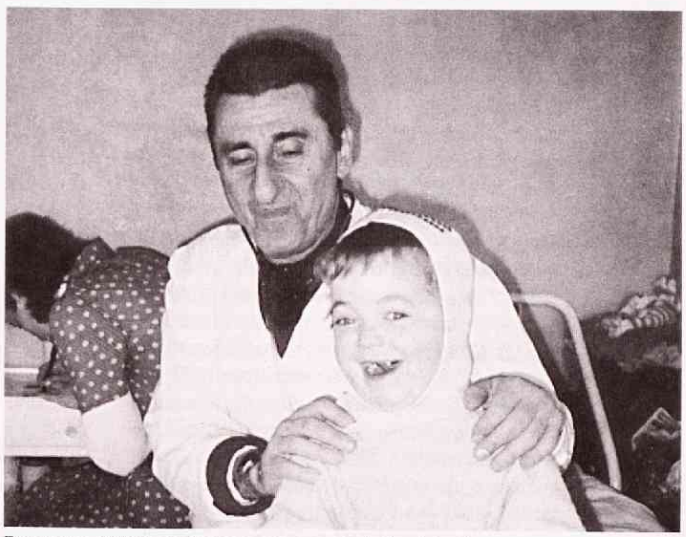
IT IS ODD, if only in retrospect, where unwitting choices take us. Funnily enough it is only now, sitting in a sunny suburban front room looking out onto a lucky land, that I realise my choice of elective placements could not have been more different nor more similar had I planned it that way.

I spent January of 1995 in the Romanian capital Bucharest, and the following September and October in Bonda – a mission settlement in the Eastern Highlands of rural Zimbabwe. These two countries, though geographically and climatically dissimilar, are alike in their tumultuous political histories, desperate poverty, and the tremendous spirit of people forced to come together to fight their collective oppression.

•

'Le petit Paris' of the 1920s and 30s, Bucharest now remains a reflection of Nicolae Ceausescu's horrific 'systemisation' or totalitarianism of the 1980s. Row after row of grey apartment buildings choke the city and are evidence of a political agenda which still sells any attempt at an efficient health system extremely short. Not only are hospitals grossly under-funded and visually decrepit, but community health at a base level is almost nonexistent as the singing voices of crippled gipsy children in grotty metro tunnels testify.

The Fundeni Hospital, where I spent a month on the paediatric haematology and oncology wards, is a tertiary referral centre for children with serious blood disorders and 'unresponsive' cancers. Like the rest of Bucharest the hospital was dismal: dank and hollow, littered with debris from a 1991 earthquake, and smoky due to a poorly installed heating furnace.



Romanian girl whose bone marrow aspirate I watched.

My colleague and I were privileged to be the first ever elective students to attend Fundeni where we were hosted by Professor Constantin Arion and Doctor Bogdan Dinu, two of the finest paediatricians in Romania. Together, these characters possessed astounding theoretical knowledge in their field, though sadly they were unable to put much of it to use. Their dedication must also have been immense, as their wages were little better than most of the hospital cleaning staff. They told stories of having to pick potatoes as medical students – a year of 'worthwhile' work amidst their studies.

Our daily itinerary as medical elective students consisted of attending kindly translated ward rounds with the Professor, observing procedural work, having tutorials, and playing with children who were desperate for interaction. Little wonder in a world such as theirs! As the ward round of robed doctors shuffled from their rooms like a procession of ancient monks each day, they delighted me with their rising impish giggles, a language universal to childhood.

Further images of Fundeni . . .

- a locked glass cabinet containing powerful chemotherapeutic drugs donated by overseas aid and providing hopeless ethical dilemmas: for a few children (and which?) or for none?
- a stoical five-year-old stiffening as a wide bore cannula, already used more than two hundred times, is driven into her bony pelvis for the sixth time in a row in search of bone marrow. Her mother looks on and weeps.
- another small spirit crying out constantly for salvation as an unremitting pain hammers through her bones. There are still hours to wait before the current drug supply will allow her relief, so instead, her mother strokes the little one's hair pausing only to shake away the strands that come loose in her hand.

Prospective student visitors would do well to remember that stumbling blocks such as a largely non-English-speaking population, sparsely available accommodation, and people who are suspicious of foreigners will not change soon. As with every dark tunnel however (and particularly so for many eastern European cities which are awakening by the minute), there is a light at the end – accompanying the frustration there is hope, joy and a tremendous challenge.

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Thousands of kilometres and a cultural abyss away is the central African nation of Zimbabwe. Akin to Romania in its gradual recovery from political oppression of the past, it is a country rising to meet its potential. The long awaited instalment of 'democracy' in the former Rhodesia now at least ensures that the majority of the population have a leader of similar skin

Oppa after a good recovery from Kwashiorkor.

colour who is arguably more sympathetic to their plight than those in years past.

Health care in Zimbabwe, although improving slowly and far superior to that provided in some neighbouring nations, continues to be fraught with difficulties. Insufficient funding, too few trained health care workers, and the scant, sporadic availability of medical supplies are just a few of the ongoing problems. For these reasons reliance on missionary and overseas aid organisations is still quite heavy.

The Bonda Mission Hospital, where I spent seven weeks, is a 190 bed district hospital in the beautiful Eastern Highlands region of Zimbabwe, bordering Mozambique. Three feisty doctors run the show, and between them they serve the area's 150 000 inhabitants, most of whom present to the hospital with infectious diseases (HIV – more than fifty per cent of inpatients, TB, chest infections, diarrhoeal disease etc.), malaria, malnutrition and injuries. Facilities are surprisingly advanced in some areas, while shortcomings in others are disastrous. It is quite ironic that a tuberculous pericardial effusion should be diagnosed via ultrasound, and a baby delivered by caesarean section on the same day that two young children die – one because he has a bleeding disorder and there is no full blood (the refrigerator has broken down) or fresh frozen plasma available, and the other because she is dehydrated and given inappropriate IV fluid due to the non availability of urea and electrolyte estimations.

My role as a medical student in Bonda was diverse and rewarding. Solo ward rounds, diagnostic and treatment decisions, minor surgical procedures, delivering babies, and outreach trips to dusty, isolated 'clinics' were all part of a week's work. What a contrast to the lap-dog life of a western medical student!

Along with rewards however, came responsibility in an alien environment and several frightening encounters. A day or two after I arrived I found myself in a situation which I realise now, I had never even considered and for which I was quite unprepared. Only a few moments after a tiny child had taken its tragically premature last breaths of air I was confronted by the mother, utterly desolate and keening like a wolf. She begged me desperately with her eyes as they flitted urgently between my face and the face of her withered, still, little-old-man of a baby. And the worst of it was that I left her (admittedly with a male doctor) when it was a woman's eyes she had yearned. Fleeing from the situation, I ran to a yard where it seemed that all the mothers of the world were bathing their little ones. One of them came to me in my distress, and in halting English, asked the reason for my tears. 'A baby died', I managed, and she inquired to whom the child belonged. My plea of ignorance solved it all – 'do not worry doctor', she said 'it is not your baby'.

Almost two months at Bonda provided experiences that were wonderful, hopeful, hopeless, perplexing and sometimes just plain odd! It certainly opened my eyes to witness a sixteen-year-old primigravida in the second stage of labour being slapped across the face mercilessly by an enthusiastic cleaning woman to encourage effective pushing; to treat an eight-year-old boy gored in his left flank by an irate kudu (big deer); to examine a man in his thirties who presented with splenomegaly visible through his shirt; and to assist in managing a twelve-day-old infant with bilateral breast abscesses the size of golf balls secondary to treatment from a traditional healer for normal neonatal breast swelling!

But the face that will remain foremost in my memory belongs to Oppa, a dangerously cute seven-year-old girl with advanced kwashiorkor. Her three-year-old size, swollen 'kwashi' face, huge black eyes and bald-as-a-badger head were enough to melt a heart anywhere; although it was her fascination with my straight hair and her request that we 'swap heads' that rendered me her useless fan.

Students wishing to do an elective in Zimbabwe can be assured of valuable experience. In its rural areas it is still a country grateful for any willing pair of health working hands, while its infrastructure is advanced enough to provide the materials necessary to really be able to do something to help. (Despite all this, it is wise not to tell customs officials of your intent to study when you enter the country, and by no means under-estimate the amount of money you carry – visas should then be a snap!) Zimbabwe is blessed with an extraordinarily beautiful landscape and a courageous, endearing people – the perfect elective venue!

1 Seuss Dr, *Oh, the Places You'll Go!* Random House, New York, 1990

Donations to the University of Melbourne Medical Society

The Committee of the University of Melbourne Medical Society would like to thank the many members who have made generous donations to support the activities of the Society. These donations support two special student prizes: the UMMS Bachelor of Medical Science Prize and the Peter G Jones Essay Prizes.

The UMMS Bachelor of Medical Science Prize is awarded annually to the student whose BMedSc research project is judged to have made the most important contribution to knowledge. The UMMS BMedSc Prize for 1995 was awarded to Ashley Ng for his study entitled 'NR2, an orphan haemopoietin cytokine receptor: Expression pattern and genomic structure'.

Up to three Peter G Jones Essay Prizes are awarded each year for the best essays from final year students describing their elective experiences. The 1996 prize winner was Felicity Dent for her essay 'Oh, The Places You'll Go!'

Donations to UMMS can be made on your annual renewal form. You can contact Robin Orams at the School of Medicine on (03) 9344 5889 for advice about donations and bequests.

NOTICE OF ANNUAL GENERAL MEETING 1997

The Annual General Meeting of the University of Melbourne Medical Society (UMMS) will be held at 6.30 pm on Tuesday 20 May 1997 in the Sunderland Lecture Theatre, ground floor of the medical building, the University of Melbourne, Parkville. The meeting will be preceded by the Dean's Lecture in which Professor Suzanne Cory, Director of the Walter and Eliza Hall Institute of Medical Research, will deliver a lecture entitled *Regulating the intracellular circuitry of cell death.*

Business

1. Minutes of the 1996 Annual General Meeting
2. Chairperson's Report
3. 1996 Financial Report
4. General Business.

MINUTES OF ANNUAL GENERAL MEETING 1996

The annual general meeting of the University of Melbourne Medical Society (UMMS) was held at 6.30 pm on Tuesday, 21 May 1996 in the Sunderland Lecture Theatre, Medical Building, The University of Melbourne. The meeting was preceded by the Dean's Lecture entitled *Caring for the family in the setting of terminal illness.* This was delivered by Professor David Kissane, Director of Palliative Medicine, St Vincent's Hospital, Caritas Christi Hospice, Peter MacCallum Cancer Institute and Mercy Hospice Care.

1. Minutes of the Annual General Meeting 1995

The minutes of the 1995 Annual General Meeting, previously published in the 1996 issue of Chiron and circulated to UMMS Members, were adopted as a fair record of proceedings.

2. Chairperson's Report

In November 1995 Professor Graeme Ryan resigned from his position as Dean of the Faculty of Medicine, Dentistry and Health Sciences and Head of the School of Medicine and left the University to take up the position of Chief Executive Officer of the Inner Health Care Network in Melbourne. Graeme Ryan was Dean of the Faculty from 1986 to 1995. An appreciation of Graeme Ryan was published in the 1996 issue of *Chiron.*

- The Chairperson noted the sad loss of Dr Diana Sutherland, who died late in 1995. Diana Sutherland was a member of the UMMS Committee from 1989 to 1993 and was Honorary Secretary to UMMS for that period. An obituary for Diana Sutherland was published in the 1996 issue of *Chiron.*
- The 1996 issue of *Chiron* was published in May 1996. The issue was produced under the new editorship of Professor Emeritus Harold Attwood with Managing Editor Ms Liz Brentnall. The Chairperson noted that *Chiron* provides a signal contribution to the life of the University and the Medical School and thanked the Medical Defence Association of Victoria for their continued generous support of the journal.
- Membership of UMMS at the end of 1995 was 2225.
- Two Bachelor of Medical Science Prizes were awarded for 1994: to Kirsten van Haaster for her study *Mammary gland development during pregnancy and lactation in waved 2 mice* and to Simon Williams for his study *Aspects of folate metabolism in families affected by neural tube defects.*
- In 1995 the UMMS Elective Essay Prize was renamed the Peter G Jones Elective Essay Prize in honour of the late Peter Jones, foundation editor of *Chiron.* Two prizes were awarded for essays submitted in 1995: to Elisa Jarvis and Lee Fong. Both essays were published in the 1996 issue of *Chiron.*
- Activities in 1995 included the Annual UMMS Lecture entitled *Röntgen and His 'New Kind of Rays'* given by Professor Emeritus WSC Hare in commemoration of the discovery of x-rays. The lecture was highly entertaining and an edited version was published in the 1996 issue of *Chiron.*
- The Dean's Lecture Series in 1995 was well attended and ended with another medical ethics seminar entitled *Caring for the Severely Disabled or Dying Child,* convened by Professor Richard Smallwood. The seminar attracted a large audience and the excellent speakers contributed to interesting discussion in this difficult area. The seminar also attracted considerable attention from the media.
- Members' attention was drawn to the remainder of the Dean's Lecture Series which will conclude with the medical ethics seminar *The New Genetics – for Good or Ill?* and the UMMS Lecture entitled *The Opium Poppy: for Good or Evil?* which will be given by Professor Emeritus David Penington, on Thursday 24 October 1996.

3. 1995 Financial Report

It was noted that there was a budget balance of $73 172 at the end of 1995 and a motion to accept the financial report was carried.

4. Amendment of Constitution

Motions to accept the following amendments to the constitution were carried:

That where the word 'donation' appears it is changed to 'membership fee' and where the word 'donors' appears it is changed to 'members'.

That item 4.3 of the constitution be changed to read 'Membership fees are payable in January each year in respect of a year running from 1 January to 31 December of that year. A member who does not pay the due membership fee by the end of January of the following year is deemed to be unfinancial and is ineligible to vote at any meeting of the Society or its Committee'.

There being no further business the meeting closed at 6.40 pm.

UMMS BMedSc Prize 1995

Ashley Ng

for his study entitled

NR2, an orphan haemopoietin cytokine receptor: Expression pattern and genomic structure

Cytokines are secreted proteins that regulate cell proliferation, differentiation and function. Cytokines exert their effects by binding to receptors expressed on the surface of responsive cells. This project focused on a novel cytokine receptor, NR2, which was isolated on the basis of its sequence similarity to other cytokine receptors and without knowledge of its cognate liquid.

Analysis of NR2 cDNAs demonstrated that several types of transcript were present. In order to determine the patter of NR2 mRNA expression, Northern blot analyses were performed on mRNA isolated from a range of tissues. Most adult and foetal tissues examined expressed a predominant 6.5 kb species and a minor 3.9 kb species. Hybridisation with probes encoding different parts of the receptor, demonstrated that both mRNA species appeared to encode receptors containing a similar extracellular domain and transmembrane domain, but appeared to differ in terms of their cytoplasmic tails or 3' untranslated region.

In order to determine the genomic basis of mRNA heterogeneity, 6 overlapping genomic clones containing the human NR2 locus were isolated, a restriction map was generated and the locus was mapped to chromosome 1p31.3. These clones spanned more than 60 000 bp of DNA and the boundaries of the 20 exons contained within this region were sequenced. Analysis of the intron/exon structure of the NR2 locus demonstrated that alternative splicing from the exon encoding the first part of the cytoplasmic domain accounted for the observed mRNA heterogeneity and resulted in the generation of mRNA species encoding receptors with different cytoplasmic tails.

During the final stages of this study, NR2 was shown by the Millennium Corporation to be the receptor for the obesity hormone, leptin. The results gleaned from this study suggest several further avenues for further research. First, given the expression of NR2 in many tissues, does leptin play a more general role than simply acting in the hypothalamus to sate hunger? Second, do the different receptor isoforms perform different functions? Finally, are their mutations in the human NR2 that are associated with obesity or diabetes?

UMMS Members as at 31 December 1996

UMMS Ordinary and Honorary members

1914 C Checchi
1922 LE Le Souef
1923 AD Mune
1924 FE Browne
1925 BP Cass, JC Eccles, P Goodman, GC Jago, FH Uther Baker
1926 V Baron-Hay, EL Davey, T Giblin, RJ Long, FC Middleton, HE Robinson, TA Travers
1927 JS Bothroyd, EJ Grieve, M Mushin
1928 HK Bailey, E Sandner, DL Thomas, WE Williams
1929 TW Carroll, TJ Lee, RH Nattrass, LA Osborn
1931 P Bartak, RB Charlton, FJ Hayden, PC Thomas
1932 PG Dowling
1933 KM Bowden, HD Drury, JI Hayward, WG Holdsworth, J Jackson-Richmond, L Lloyd-Green, RA Macdougall, AH McGregor, DM Sinclair, HJ Sinn, M Starke, RJ Turnbull
1934 EL Abrahams, WT Agar, BJ Butcher, IW Charles, MG Cormack, HH Eddey, M Goldenberg, MM Green, MJ Heseltine, JJ Kenny, ES Peters, BK Rank, AW Richards, RM Rome
1935 TR Courtney, DJ Dunn, KM Franklin, WR Gayton, AV Jackson, CP Juttner, AJ King, L Langmore, N Lewis, AD Matheson, RJ McAllister, FE Plarre, RJ Riddell, RJ Salts, J Smibert, TH Steel, BI Taft, HE Williams, NV Youngman
1936 TJ Beresford, HL Catchlove, FW Connaughton, TJ Constance, AA Ferris, M Gilchrist, LN Gollan, HW Hannah, JD Hicks, JF Hughes, JF Kaw, CA Kuhlmann, RA Lewis, FJ McCoy, WH Phillips, M Pratt, MH Ryan, HR Smith, FD Stephens, FG Turner
1937 V Brand, EC Coles, LS Davies, KJ Dorney, JM Downing, AS Ellis, JM Frew, JL Gild, EM Hill, JA Hutchings, DC Jackson, CA Jones, MM O'Brien, EM O'Keefe, JS Peters, HA Retallick, EP Roberts, KF Sweetman, LA Thomas, PF Wellington, MF Woodruff
1938 BG Burbury, AJ Christophers, RK Edwards, C Georgeff, MM Henderson, JA James, FM Kinross, JO Lavarack, HP Mackenzie, M Morris, JC Mullany, PJ Parsons, WD Refshauge, AH Robertson, S Rose, BP Ryan, VE Sampson, HF Tucker, RW Waddell, MH Williams
1939 DA Alexander, WJ Alexander, AJ Barnett, HR Clegg, CR Copland, RA Douglas, R Fitzwalter Read, AN Fraser, DR Gauld, MM Gooey, VE Hollyock, K Keely, CR Laing, RF Lowe, ME Meredith, AJ Nelson, U O'Day MBE, HC Pope, JJ Refshauge, TE Robertson, M Rohan, N Rose, DM Ross, GF Salter, WA Sanguinetti, EG Strahan, RF Strang, AL Thom, B Widmer
1940 JL Bignell, KF Brennan, JT Cahill, AF Christie, J Cohen, BM Conlon, PH Davis, CN De Garis, HR Elphick, JR England, RM Farrer-Meschan, WF Ferguson, DW Fleming, LF Irwin, FJ Kenny, MF Lauricella, SM Lusted, GG McKenzie, JG McMahon, SD Mecoles, FM Moore, LT Moran, LO Morgan, KN Morris, JS Murphy, NM Nicholson, FR Phillips, AE Piper, WR Rigg, FT Rose, WM Rose, ED Ryan, GW Simpson, RL Sleeman, GK Smith, EE Spring, EK Turner, ML Verso, L Waters, DH Waterworth, HN Wettenhall
1941 EW Abrahams, AD Atkinson, WM Barrett, AC Bell, GW Bennett, MS Benson, JJ Billings, PJ Bird, MC Blackburn, LH Catchlove, WE Champion, DP Churton, SE Clerehan, M Connaughton, BW Costello, FP De Crespigny, E Dennis, NG Elder, IC Galbraith, AH Gale, BT Glanville-Hicks, LT Griffiths, L Hardy-Wilson, KE Harrison, CA Hetherington, H Hoban, RW Hoyling, RI Inder, HH Jackson, TJ Jamieson, EM Kenny, JM McCracken, EJ McDonald, MM McKeown, HS Moroney, JP Noonan, AR Parkin, DB Pitt, W Rosenthal, IM Seward, JG Simpson, WL Sloss, MH Smith, IO Stahle, AR Steel, JD Trembath, TV Walpole, MB Wheeler, A Wheildon, IJ White
1942 GN Barsden, EL Billings, GH Brooke, NJ Chamberlain, IH Chenoweth, R Chenoweth, B Clerehan, WF Cooper, JB Craig, CK Davidson, ER Davies, DL Dixon, EM Dougall, DM Downing, DL Fearon, RJ Fleming, G Frearson, JW Gardiner, AG Gibson, HB Gibson, JM Gooch, E Goodman, M Hain, HJ Hoffman, RL Leedman, WM Leembruggen, DD Letham, GA Levinson, BR Lewis, AG Ley, CF McCann, NC Merrillees, JK Monk, BJ O'Day, DB Pearce, HC Purton, DJ Rae, AC Reith, LB Satchell, AC Schwieger, JG Shelton, JL Sinclair, LV Sisely, KN Speed, HR Thomson, VW Threlkeld, JC Trinca, JB Tucker, VG Walker
1943 CW Ahern, A Bardsley, EW Bate ,GE Bennett, PM Brett, FP Callaghan, EW Cameron, TM Cockbill, GT Connolly, DC Cowling, EM De Ravin, S Dimant, T Early, PD Fox,

DL Gordon, ES Hughes, GR Jones, JM Jones, WM Keane, KJ Lipshut, OO Logan, IT Macgowan, JW Macky, RJ Maguire, RW Manser, N Mendelson, BN Ostberg, E Perlman, J Perry, DG Rayment, PW Read, WS Rickards, AO Rosenhain, AC Salwin, RV Sellwood, HM Shaw, BB Spinks, WR Spring, WB Stafford, WE Swaney, IM Tulloch, IM Williams

1944 MJ Abrahams, PL Back, RH Bean, EL Beavis, AM Beech, PM Birrell, PE Blaubaum, S Brand, RC Bretherton, IB Brodrick, WM Calanchini, L Cebon, RG Cole, PH Cowen, N Cowling, RK Doig, GA Donald, AS Feddersen, JH Floyd, RT Galbally, AR Gilchrist, WI Gordon, ZE Green, JP Griffiths, AM Hall, HW Hardy, TD Hoban, HJ Hosking, JL Howqua, JV Hurley, MG Ingram, WJ Jamieson, JA Marsden, AC Newell, RM Porter, GA Pryor, GD Robinson, EL Ryan, GP Ryan, HA Sissons, VT Stephen, NG Sutherland, AH Toyne, JV Vaughan, PJ White, QJ Whitehead, SC Wigley, JF Williams, V Wynn

1945 CM Anderson, TE Antonie, JW Barrett, AG Bignell, BE Christophers, DP Cordner, JE Critchley, JV De Crespigny, W Etheridge, JA Farrer, DC Foster, SE Francis, JM Gardiner, J Gardiner, H Grinblat, JP Harper, RA Hayes, DN Hewson, DG Hurley, DB Hurley, PE Jeffery, A Jones, LW Knight, IA Leber, MC Levinson, W Lowen, IR Mackay, JP Madigan, BP McCloskey, JS Menzies, J Mowlam, L Murphy, AG Murray, NA Myers, MC Piercy, MG Pinner, DA Prentice, TP Rowan, RD Rush, K Schwarz, AW Shannos, MP Shoobridge, JL Swann, EH Taft, PJ Tiernan, KR Torode, JG Troup, AE Wilmot

1946 BH Barraclough, BL Butler, AB Connard, JW Cossar, KJ Cullen, HG Cumming, SP Derham, WG Doig, CA Edwards, JC Egan, IM Fisher, JW Flanagan, MS Forrest, LJ Fullagar, PH Gibson, B Goldman, MD Gooey, NT Hamilton, JK Henderson, EJ Hewitt, KW Hinrichsen, B Hudson, FX Hurley, SW Hyland, N Ingster, JE Lane, RA Langley, RB Lefroy, WM Long, DW Maginn, AG Mathew, IH McDonald, IW McDonald, GJ McKenzie, RG Nell, LM Reid, AF Roche, NJ Rothfield, R Rothfield, GR Serpell, MH Slonim, JB Sloss, CF Statham, S Troski, AW Venables, CR Wain, OA Whitney, PF Williams, RA Williams, RM Withers, LA Young

1947 H Byrne, JK Clarebrough, EJ Hodder, TH Hurley, JJ McCarthy, BW Neal, NM Ramsey, PM Robertson, HF Story, RW Webster, E Wong

1948 IH Anderson, HD Breidahl, GL Christie, GW Cooper, BC Edwards, LJ Hartman, JR Kelly, BL Kneale, KB Layton, JO Maxwell, PJ Ryan, JN Santamaria

1949 AG Bond, NM Cass, JB Egan, JR Fraser, JD Gunter, JA Horton, JA Kelly, WH Kitchen, LH Lanyon, CF Macdonald, AD Maclean, AF Neal, CJ Pawsey, PM Scrivenor

1950 BE Cohen, EB Collins, TW Farrell, R Fowler, FJ Grant, KL Hayes, HD Irish, A Liston, BE Mackay, PM McConnachie, AD McCutcheon, MH Morland, HC Newman, HD O'Brien, SD Roberts, BF Stratford, LI Taft, AR Waterhouse

1951 JM Allison, HC Barnes, GW Briggs, FH Buchanan, AC Clark, PR Cowderoy, MK Deerbon, DN Fearon, OM Garson, A Goldman, JJ Griffin, WS Hare, AF Hargrave, JM Henzell, SC Johnston, MJ Kenrick, JH Martin, RN Matthews, JQ McCubbin, JM McLeod, JW Middleton, JE Milne, G Pattison, GR Prendiville, CR Proctor, JG Refshauge, A Salvaris, RH Saunders, JN Taylor, BS Vanrenen, LN Walsh, RC Webb, GR Wigley, R Wyatt

1952 LI Baird, SR Coombes, PF Cosgriff, P Forsell, DJ Hewat, FH Hocking, O Lipson, BH Murphy, KJ Owen, HM Pannifex, NK Taylor, BM Wadham, JF Wiseman, NG York, F Zaccari

1953 WF Breidahl, MH Brennan, RF Bullen, PE Campbell, EM Cannon, JD Cannon, OM Coltman, GW Crock, LA Fennessy, NJ Gray, GS Hale, JR Hankey, WC Heath, JW Hill, FI Martin, WM McCubbery, HE McKenzie, MA McKenzie, DM O'Sullivan, MJ Sanders, M Schnapp, JG Sloman, VK Spowart, JW Upjohn, JB Webb

1954 PZ Adrian, OH Blomfield, AJ Caro, DP Gale, WH Huffam, WH Koschade, KD Muirden, PR Scott, L Simpson, B Sutherland

1955 HM Bartram, AE Brooks, GL Buckwell, RG Cameron, SH Chani, JE Galbraith, DM Gee, RD Glass, KJ Green, RP Gunter, L Hemingway, RW Hill, JV Holland, JA Horgan, M Kirwan, GJ Little, AK Lowe, UM McKenna, FJ O'Rourke, A Owies, P Pierotti, IK Robinson, JF Russo, BP Sawyer, GO Smith, MJ West, ME Whisson

1956 J Acheson, JE Aldred, W Chin, RM Compton, JF Connelly, DA Coventry, GA Danielson, JR Downie, JC Doyle, G Freed, ER Gillies, DC Hodge, AD Hore, BJ John, HA Larwill, J Levin, GD Lewin, SF Phillips

1957 GH Capp, CI Childs, DM Conroy, RW Farnbach, BS Gilligan, GM Greenbaum, IJ Hopkins, TJ Horgan, PV Kailis, GA Kune, JJ McTeigue, S Moraitis, VN Niteckis, JE O'Donovan, GH Rayner, B Sweet, HS Symons, GH Tippett, JR York

1958 FA Billson, BG Clarke, CP Clarke, JT Cummins, WM Donoghue, KJ Hardy, JB Heinze, RB King, CL Lo, HJ McMahon, JB Morley, R Valentine, CM Williams, JC Woods

1959 DM Bourke, DC Brodie, JR Cocks, PJ Duggan, WB Essex, PD Hall, GL Lipton, JY Matthew, JM McNamara, G Medley, AC Miller, KA Rickard, IE Robertson, PS Rogers, ME Scott, WJ Spicer

1960 RE Abud, CS Bennetts, AM Borten, DC Burke, PJ Campion, ER Dammery, PH Francis, MR Lie, TM Long, BJ Madill, RJ O'Bryan, FB Phillips, MA Pickles, SK Sutherland, J Wright-Smith

1961 RP Barkman, RW Brown, JA Burgess, JA Corrie, PJ Davies, MC Douglas, JF Garland, JC Grimwade, JR Grove, WF Heale, J Long, GB Matthews, IF McKenzie, HI Peake, WE Renton-Power, GL Richardson, RG Robinson, IG Rossiter, JH Rush, T Rush, EA Shanahan, M Shenfield, RM Southby, AM Steiniger-Lueders, JR Stockigt, NW Trezise, FM Weir

1962 RM Adie, DL Bell, RG Bell, DB Brownbill, JF Cade, DM De Kretser, JW Doncaster, AW Harrison, RJ Hjorth, A Isaacs, DG Johnson, H Kranz, SK Loh, CN Luth, JH Maynard, RA McCarthy, GA Montague, R Padanyi, JW Paton, I Rechtman, ME Schramm, JE Scott, HR Shilkin, MM Stannard

1963 RM Barry, DC Cade, DK Chan, DP Crankshaw, WA Darvall, GE Duigan, P Dumbrell, IB Faris, AM Jenkins, C Kibel, PA Lowe, DJ Macintosh, DN Mushin, DH Nye, BD Rabinov, WJ Rogers, CJ Smith, DI Stewart, RA Ward, RA Weaver

1964 FP Alford, BP Batagol, IW Black, DG Buist, BB Davis, JT Dowling, ID Gust, EB Heffernan, JC Holm, S Imecs, JF King, FE Mair, NL Nicholas, BE Petersen, FJ Power, MR Redpath, JM Ross, RL Sutcliffe, EA Tomlinson, AG Tymms, RW Wade

1965 WR Adam, A Blokmanis, JC Burford, S Ceber, BJ Dowty, ME Doyle, BG Elliott, ST Fan, PG Habersberger, JE Hammond, PE Harrisson, JE Hryckow, LI Landau, W Leung, HM Manning, MJ Martin, KM McBeth, FA Mendelsohn, DP Mitchell, RW Murley, JF O'Brien, RJ Pepperell, NJ Radford, L Rose, KW Sleeman, JF Stickland, RJ Thomas, VH Thomas, AM Van Der Knijff, ND Yeomans, V Zachariah

1966 GJ Baker, MR Brown, MF Brown, AR Clifford, CJ Cox, JC Davey, JP Dowling, RE Farnbach, PA Faull, KJ Fraser, PG Gray, JF Gurry, RG Larkins, WH Leadston, M Maddisson, JR Nave, LM Parr, GM Patience, AK Roberts, GC Shardey, JH Silver, U Wilson

1967 RJ Bartlett, JB Brennan, JN Chamberlain, BJ Dawson, PC Dobson, JC Duggan, RL Eyres, DH Feiglin, P Fox, RD Gaunson, RW Gee, JH Iser, T Jones, EM Kermode, PM Loewy, MD Lush, PJ McCann, JA McLeish, ME Meldrum, L Mendel, PM Motteram, GC Mullins, EJ Nash, JF Oldham, MJ Power, AM Tonkin, BM Tress, MJ Wallin, SJ Williams

1968 MJ Best, DM Birks, KP Birks, JM Brown, LK Cleeve, PJ Collier, AM De Clifford, DD Elder, SD Hogg, ME Kemp, GD Kerr, PK Lim, L Markman, PR Mayall, LM McBride,

M Mina, RG Newnham, P Nisselle, LJ Norton, K Oppenheimer, S Prager, GD Richardson, WD Rigg, BR Speed, CG Tan, A Zimmerman

1969 RJ Bond, NA Brinkley, CW Butcher, PR English, G Fell, P Grossberg, EJ Gurman, LM Harewood, KA Jackson, DJ Kidman, RJ Kuhn, NM Ludbey, ER McKenna, HM Moran, CA Morgan, DI Moss, CJ Mullany, F Oberklaid, HM Parker, AJ Portelli, PM Rosenberg, AW Ross, FJ Ryan, D Steiner, DD Westmore, RJ Whiting, GP Young, RA Young

1970 DA Barbaro, EA Carew-Reid, L Dennerstein, GC Fabinyi, RI Fitzpatrick, RS Grogan, GD Grossbard, ZW Gruba, PJ Hammond, ME Judson, RT Judson, R Lefkovits, MJ Macdonald, G Mendelson, PY Milne, JA Pedrotti, RB Reid, AB Rossiter, JJ Scally, JP Sherman, GA Thompson, PW Trembath, HL Weaver, DJ Wohlfahrt, KV Woollard, RL Yewers, RW Ziffer

1971 AI Anderson, DJ Butterfield, C Calandra, AH Crosthwaite, SM Garland, DM Gawler, WT Han, B Korman, MJ Liddell, BJ Main, AF Mariani, RR Ragazzon, E Rothstadt, N Salanitri, GC Stribley, GJ Taggart, HR Taylor, K Tiedemann, HW Tom, GA Varigos, JM Weiner, GA Werther, MJ Wilson

1972 SN Bell, CM Blecher, JM Butler, LE Clemens, AJ Costello, MG Dobson, RM Drummond, P Fineberg, J Freeman, BH Hong, PV Jenkinson, PW Kamen, PA Kelly, TH Landy, GP Leitl, GJ Lockrey, SE Martin, CJ Meehan, ZJ Minas, WE Orgill, JJ Pattison, AM Perlesz, GJ Pribaz, MA Rigoni, JM Russell, S Sandrasegar, MG Soccio, RL Spokes, RG Stillwell, IK Symington, MW Verso, BH Wakefield, RH White, AD Winter, MJ Wisdom

1973 PM Ashton, VR Billson, LE Bolitho, SR Clifforth, ME Dalziel, NP Downes, PJ Eastaugh, N Eizenberg, HP Ewing, CK Goh, PR Harcourt, SB Kay, JR Lambert, GE Littlejohn, EA Livingstone-Moller, PG Lynch, PD Meese, WH Miles, JG Mullett, S Oliver, JG Plenderleith, MJ Plunkett, J Proietto, P Roberts-Thomson, DJ Rose, MR Salzberg, I Schweitzer, RJ Stawell, RF Terry, BJ Williamson, PI Wong

1974 RC Allen, JC Beaumont, RB Brink, WF Christophersen, L Congiu, DL Copolov, BR De Morton, MP Esser, RN Gibson, MI Haskett, AW Heinz, GJ Hill, LY Ho, RI Holmes, L Kilvington, DW Kissane, AM Lavoipierre, JB Nash, DA North, V Novelli, DM Russell, MS Skinner, RM Voselis, DR Webb, LA Woollard

1975 SB Baker, AC Bong, PM Clifton, NJ Collins, DB Czarnecki, PD Danne, JA Fleming, JM Flynn, A Gordon, CD Hogan, JL Holmes, AK Horwood, M Jalland, IT Jones, SJ McLaughlin, PF Millington, MV Minogue, LG Munro, AD Pattison, A Rosalion, E Varigos, HJ Wansink, DJ Warburton, JE Woinarski, JR Zalcberg

1976 NR Atkinson, IS Beasley, KH Chan, DA Clifton, R Colahan, WG Cowell, R Fagan, AB Glover, WJ Howson, ND Johnson, TM Kostos, PV Lockie, SA Macintyre, AE McCleary, LB McGrath, M Medownick, IN Olver, CS Reeves, SJ Rodgers-Wilson, JV Rosenfeld, D Rosner, AP Sheehan, SR Smith, ME Sonneveld, RJ Southwell, MD Spillane, PA Tesar, PD Ward, AM Zagorski

1977 JC Broderick, PD Brukner, LJ Campbell, WD Capell, PL Champness, AJ Chong, ML Christie, DA Clift, SM Cordner, MJ Cotter, SM Davey, DM Dobriansky, HJ Grossman, GK Hart, WJ Kelly, MS Kleid, LJ Kliman, BJ Lichtblau, DA Lindsay, R Mestrovic, AJ Monk, MF O'Sullivan, DR Phillips, M Sovers, JH Tan, MR Tyers, H Unger, AT Weerasiri, BS Workman

1978 RA Ayton, EF Boyd, MT Chapman, NA Fisher, DR Ford, LE Grigg, R Herrmann, TJ Hodson, CW Hsu, HF Joyce, FK Judd, PJ Keppel, DJ Kerr, EM Langenegger, ID Mathieson, BF Murphy, ME O'Connor, RJ Pucius, MA Rees, SD Robertson, RJ Simmie, E Storey, Y Torii, AB Waterhouse, MA Watson, RF Weller, FS Wong, SD Woods

1979 L Baker, GK Barker, RE Beavis, MR Buckland, AG Frauman, NP Kafieris, DP Lowenstern, RA Macdonell, WS Mackie, HG McLennan, AA McNab, HA Royston, RJ Searle, SG Warmington, CR Welsford, S Zalstein

1980 JM Adams, RA Cuthbertson, TA Dillon, AL Fisher, HD Goonatillake, JJ Hatfield, BF Kay, TW Kay, CJ McHardy, EA Popovic, MH Rowe, GW Self, RJ Sitlington, NF Strathmore, AC Street, GE Taylor, JH Van Den Broek

1981 A Bendrups, R Black, DG Bolzonello, RJ Briggs, GJ Campbell, JM Campbell, JO Churchill, MF Cole-Sinclair, JE Elder, MC Fitzgerald, JL Gelb, MD Koutsoukis, RA Kwiatek, BM Lyons, CJ O'Donnell, GF Opie, A Pranckunas, RM Ryan, AC Saunder, AJ Sellars, JA Smith, LJ Smith, MJ Stewart, SA Tobin, BR Tulloh, RL Wall, CL Wilson

1982 DH Ashton, RM Brewer, AD Cass, MF Coffey, M Coppersmith, RP Davies, DJ Dyall-Smith, D Ernest, GM Falcone, WR Fleming, JG Fox, PH Goonetilleke, EJ Green, TJ Kilpatrick, AP Lawrence, AF Little, JA Martin, HA McPherson, MT Naughton, PK Neerhut, MJ Rasmussen, GM Russell, JP Ryan, MC Stebnyckyj, KH Tai, AM Walbran, OD Williamson

1983 WH Anderson, RL Basser, JB Clark, RG Doig, JR Dyer, E Fabris, SS Game, AP Garnham, MK Harris, A Kelly, MK Law, AH Marceglia, KM McNamee, CM Moore, CJ Nolan, RG Padanyi, MV Pirotta, AG Radovini, MA Rosenthal, CA Silagy, MP Slade, JM Tobin

1984 C Baldi, JL Bodycomb, RJ Bonwick, RM Chan, MA Daly, LM Danvers, G Garra, RC Leung, HG Mack, AE Malatt, JL Newstead, MR Patrick, PG Ragg, MJ Walland, CJ Worsnop, MM Worsnop

1985 FA Basile, AG Cain, RM Fethers, CR Grant, GS Hebbard, KW Horsburgh, MR Hurley, R Jacobs, JC Jamieson, O Kefaladelis, GJ Morgan, IK Ng, HE O'Connell, JM Opie, MS Pang, AV Pienkos, LA Pinto, AP Porter, AJ Robertson, D Shnier, TM Travers, J Tsaltas, MG Veitch

1986 F Alberico, LR Bridgford, DG Clarke, V Cocotis, J Gardiner, M Lancaster, PW Larsen-Disney, JL Leong, CF Liow, RV Liubinas, SA Locarnini, P Mainland, JM Negri, C Papachristos, SG Radford, VR Ross, MA Viney

1987 MC Anderson, MF Bennett, GN Boag, FG Brown, CP Burren, ML Chong, JP Cooney, M Cranswick, NE Cranswick, PA Hancock, SE Hauser, CJ Holmes, AD Kerwin, SM Knights, CS Lee, CL Ong, MA Pearl, BF Raleigh, AJ Ryan, HF Savoia, T Sdralis, WR Seager, JF Seymour, RK Sinha, CJ Stern, DA Westerman, NW Woodford

1988 MJ Clarke, JJ Conn, AT Crawford, CM De Poi, GR Hocking, AP Howard, RJ Ingamells, BE Jones, AG Kambourakis, IH Katz, MC Killen, JL Leong, RY Leong, DP Manton, CM McKenzie, HL Parker, J Proimos, AP Rothfield, IJ Skinner, SP Stafrace, M Starr, PS Subramaniam, DE Terry, MA Watt, GM Wright

1989 IP Anderson, RB Auwardt, EK Bekhit, WP Chang, AR Davies, LC Eastaugh, SL Elliott, PB Fitzgerald, BD Gunn, J Katsoulis, SL Keeling, HC Lai, CR Lawson, AJ Mikkelsen, KE O'Leary, SI Proper, C Rassias, ML Rawson, EW Ryan, JM Sandbach, LM Schachter, CL Scott, AJ Tauro, AE Tobin, JJ Torr, SJ Trethewie, EB Whan, EM Wood

1990 AN Cullen, GA Davis, ML Favilla, WJ Hoffmann, CL Huang, ML Joslin, RA Lewin, AW Mar, AJ O'Brien, LB Oude-Vrielink, PG Shanley, C Temelcos, SC Treleaven, AJ Troy, GJ Wilson, KA Wright

1991 PN Antippa, A Baric, DJ Castanelli, RL Coulson, D Cunnington, TE Davies, DJ Fox, J Gioulekas, RJ Grills, EB Hu, CO Jackson, AC Keeble, JC Knott, E Law, EK Lim, FV Lo Giudice, AS Lo, B Lui, AG McDonald, KM McKertich, LJ Newman, AW Nugent, M Pellegrini, HC Platt, SL Rosen, JA Shaw, PM Sheehan, DM Smallwood, RG Steele, CB Steer, DL Stella, AH Strickland, A Swingler, PP Tagkalidis, RB Tam, M Thomas, TL Ton, AB Tosolini, VM Wilson, TF Yee, MJ Yeoh

1992 A Aly, DJ Amor, A Boussioutas, H Butzkueven, CL Cherry, DW Chiu, SL Chua, DA Cowie, GA Cowie, MA Croxford, AC Dawson, JH Elliott, MC Evans, EM Garoni, RJ Goudge, A Grossi, RL Gruen, RC Hau, AJ Haughton, AC Hui,

MA Johnston, P Johnston, HA Karunajeewa, WF Lau, PD Lawton, CP Ling, AS Lung, AJ McDonald, RA Meusemann, G Osianlis, SJ Parnis, ME Pekin, CE Phillips, AG Pitman, AM Poon, C Quan, CW Scarff, MJ Shackleton, PM Srivastava, M Triglia, SH Tudge, RB Vaughan, LD Walsh, JL Wood, AE Wright, K Zebic

1993 JP Aitken, JD Akikusa, JA Anderson, RC Andrew Symons, AS Anthony, EF Armitage, SA Barwood, JE Birchall, M Borosak, JY Brown, DG Bui, AB Bystrzycki, T Cameron, RJ Cann, PW Carne, RP Carne, SD Chandrasekara, CM Chang, AC Cheng, MC Chin, CF Chiu, HA Chiu, TC Chiu, AH Chong, G Chong, ME Choo, P Chu, SR Cochrane, BP Condon, AN Crockett, AL D'Aprano, RJ Dallalana, TH Dinh, SA Dobell, C Dolianitis, CT Donohue, MJ Duane, CP Duong, CS Falconer, D Fernando, KA Fethers, CH Fiddes, TA Fisher, JV Froster, MP Garrett, KA Gassert, NS Goh, MH Gokhale, JM Graham, BF Greenwood-Smith, A Gunes, J Haddad, D Haller, AJ Hardidge, FJ Heale, JA Heath, JS Hii, MM Hii, DA Holdaway, AM Hopper, ST Horne, MA Humphries, BK James, SJ Jassal, PA Jordan, E Karpathakis, PY Khaw, NC Kilfoyle, MT Krawczyszyn, AY Kyoong, JA Lade, SL Larkins, RM Laurie, TT Le, ML Lee, MY Lee, SM Lee, D Liew, DW Lim, N Livingstone, SN Lo, A Ludekens, LQ Luu, SJ Mackay, PS Mackie, SA Malki, JS Marty, V Matthews, A Mau, KA McLachlan, RN McLeod, DR Micheletto, JA Mitchell, E Mitropoulos, PM Moore, JA Moran, DJ Morgan, PF Mount, EC Neo, TN Nguyen, V Nimorakiotakis, CJ Norsworthy, D O'Donnell, IB Palit, A Paspaliaris, A Pellicano, DS Penn, GA Phillips, TA Pickersgill, PA Plank, AE Poliness, EC Poon, MA Poon, EN Provenzano, KL Quach, BJ Reynolds, RI Richardson, WA Rouse, IC Routley, PJ Ruljancich, AM Sadruddin, ML Sandars, S Schemali, IH Sein, K Seipolt, AJ Selvendra, TA Seneviratne, S Sengupta, AJ Smith, MD Snape, B Solomon, NS Spanos, KL Staggard, KA Steele, JB Stella, HE Stergiou, JL Stevenson, RS Stokes, BA Sutton, HM Tan, KS Tan, TN Tang, ET Tay, JL Thomas, PQ Tiet, M Toh, D Tores, SN Traill, MJ Tuszynski, EM Uren, S Van Doornum, HA Wark, AB Whan, AJ White, AM Wilkin, EA Williams, JD Winnett, JN Wintle, FY Wong, LH Wong, M Wong, PK Wong, SS Wong, Y Xing, MS Yeo, KC Yu, VA Yuen, S Zalstein

1994 S Alatakis, BP Allard, PD Anderson, S Ang, GC Antolovich, TA Ash, EG Barker, FR Bassed, NG Beck, KA Beecroft, SR Bertrand, PJ Bowden, RG Brouwer, SA Bryant, RJ Buchanan, KI Chan, SW Chan, MF Chen, KY Chin, OW Chiu, WL Choi, WT Choi, RC Chu, AF Clancy, BS Cowie, SV Cross, JL Cruickshank, S Daniel, SL Davison, AK Deans, AT Dennis, NB Desai, I Dibella, CR Dowling, MA Dunkley, DN Edis, A Eimany, MM Elder, DL Elias, SM Fairbank, MP Ferguson, AH Fong, DP Fong, JL Freeman, CC Gan, HK Gan, KN Gaunson, Z Gorji, E Greenwood, AL Griffiths, GD Guest, GS Hamilton, TG Hardy, KR Harris, TT Hau, SJ Hennel, SK Ho, VF Hong, LR Horng, JT Hughes, TW Hwang, ZD Irani, KJ Jeffs, CR Kearney, PA Kearns, JS Kiing, MI Knuckey, JC Kovacic, WW Kwan, P Lam, CS Law, CP Lee, FT Lee, V Lee, VK Lee, CP Leopold, YN Leung, LL Lim, MS Lim, D Lisowska, MI Liu, VS Lok, JH Lokan, ML Loughnan, FA Malara, JA Manderson, H Maroulis, DR McAdam, LT McNamara, LR Mileshkin, M Miletich, SD Moore, AP Morokoff, AJ Murrie, B Nathan, PT Nguyen, C Oh, BJ Ohis, P Papadopoulos, JP Papson, RP Parker, AR Peterson, H Phan, RS Phan, CJ Pilgrim, AN Poon, SD Quach, JY Quek, E Readman, SA Richmond, MA Roberts, AC Rogers, NS Rose, CD Ryan, JM Said, LS Seow, M Sestan, AL Shub, RA Standish, RG Steele, DH Sullivan, SH Tang, KI Taylor, LM Thorn, CM Ting, D Topchian, KT Tri, CL Troy, CH Truong, NL Urquhart, C Veith, DA Wade, AL Walker, MJ Watson, RM Wee, MJ Westcott, D Wilkinson, SL Wilson, CY Wong, S Wong, YM Wong, PR Wraight, WC Wu, B Yan, DO Yek, B Yong, T Zafiropoulos

1995 G Anasson, DI Arhanghelschi, R Aziz, AG Bradbeer, AJ Brett, KL Buising, CB Campbell, JM Castro, K Chaiwatanatorn, CH Chan, WH Chan, P Charalabidis, PG Charles, H Chau, LQ Chiam, DM Chorowski, FY Chow, LC Chow, LH Chow, R Choy, J Chu, KC Chuah, BM Clancy, KA Connelly, NJ Connelly, CM Cornwallis, J Cotroneo, T Cugadasan, KG Cvach, MH Danchin, JA Daniel, QH Dinh, RW Essex, CN Fahrer, TR Farrell, BM Fitzgerald, LK Fong, S Fourlanos, SL Fullerton, K Galatis, A Gavralas, DN Goodall-Wilson, MJ Gould, BJ Greenall, KR Hamilton, GR Harrison, IC Heng, MJ Hew, MA Howard, MW Hua, AJ Hull, SL James, EN Jarvis, SB Joshi, SC Kam, K Kartsogiannis, JY Kausman, Y Kaya, HK Kee, JA King, PK Kong, TY Kwok, EA Kyle, CH Lee, SW Lee, AE Leong, ME Lewis, AY Lim, E Lim, K Lim, L Lim, YN Lim, CI Lin, K Loke, S Lontos, S Loo, AW Lovett, HH Ma, RJ MacIsaac, RA Macbeth, S Malekzadeh, RW Mar, JT Martin, Z McCallum, MJ McCann, SR McConnell, CA McCutcheon, AP Meakin, PM Mezzavia, M Michail, KM New, TA Nguyen, TN Nguyen, M Nikpour, KL Ong, TJ Ong, J Ooi, RM Orme, R Pandey, MK Pang, P Patel, TD Phan, EJ Poliness, H Psihogios, NC Rabbidge, M Raftopoulos, VG Ramanathan, SG Rametta, TH Reade, CJ Reid, JS Reid, MG Richardson, G Roberts, DC Rolls, MC Ryan, SS Seevanayagam, SK Sirisena, KJ Sleeman, MP Sparrow, P Srikanthan, N Stragalinos, CC Tan, S Tan, MF Taylor, MM Tee, MW Teoh, C Tran, D Tran, LT Tran, J Tryfonopoulos, AE Tsui, EK Tsui, JA Tye Din, GM Tymms, DJ Van Bavel, WJ Van Gaal, HB Vu, TP Wagner, AP Wake, LM Waldrip, AF Ward, ME Williams, CP Wong, GK Wong, JM Wong, M Wong, TT Wu, LM Yap, VY Yap, B Yim, D Zantomio, HS Zimmet, K van Haaster

1996 KS Yeang

UMMS Foundation Life Members & Life Members

TF Acheson, GA Barker, CM Bayly, RC Bennett, RC Bennett, AS Bodey, GM Bradley, JE Breheny, AM Brooks, GD Campbell, AJ Cass, N Christophidis, AD Cochrane, KS Crowley, DM Danks, ME Davey, CF Dibden, GA Easton, DF Eckel, GT Ellis, FA Firgaira, JD Fitzpatrick, HC Foster, NS Gordon, JS Guest, WJ Hare, RF Haskett, TL Hee, RM Hemphill, MH Heyning, RW Howard, TN Jackson, HR Jenner, FC Jones, AH Kaye, RJ Kearney, WA Kemp, RG King, SW Kwong, SW Lau, DF Lee, I Mackay, EA Macknight, DG Macleish, CA McConnell, J McMullin, RN Mellor, KC Miran-Khan, JH Mitchell, LL Morgenstern, MH Ng, J O'Day, JH Olver, P Palasanthiran, DG Penington, H Perelberg, M Pirpiris, JH Pryor, LJ Reeves, RB Rodrigue, JG Rogers, DA Ross, GB Ryan, AM Sandland, SM Scott, S Sethbhakdi, EJ Shaw, KG Siu, TF Spring, DW Stoney, WG Straffon, JA Streeton, IA Swain, NT Thai, T Uttaravichien, FA Walker, AG Walpole, JA Wark, RW Warne, MJ Waters, DO White, HG Williamson, CH Wriedt

UMMS Members who are not MB BS (Melbourne) Graduates

SN Anavekar, HD Attwood, S Baingana, JR Ball, DW Blake, S Bloch, GD Burrows, SC Chan, BZ Chen, E Chiu, GJ Clunie, DJ Colville, RS Cowan, CA D'Souza, B Dean, PP Deliyannis, MR Digby, JE Douglas, A Eglezos, DJ Evans, I Favilla, JR Forsyth, MP Galea, LW Gregory, KN Ham, LI Hatherley, CS Haughton, GG Hogg, PP Hopkins, DJ Horne, HJ Jones, G Kapaklis-Deliyannis, JE Keeffe, GC Kenny, ZS Kiss, KW Koschel, WA Kunze, PM Lavoipierre, KJ Liem, SC Longano, DG Maclellan, AJ Marchingo, JP Messenger, RT Murdoch, P Murthi, A Nana, SE Neil, MR Newton, M O'Connor, P Pannangpetch, G Panuncialman, JW Parry, PD Phelan, RM Robins-Browne, N Rushford, MA Schier, MT Siddins, SL Skinner, GM Somjen, MC Southey, RO Stanley, WJ Sturrock, JA Svec, JR Syme, JW Tiller, V Tselepis, N Vardaxis, MD Wahlqvist, MR Williamson

MB BS 1946 – 50 Years Reunion

Seated(L-R): Cecily Statham, Lesley Fullagar (Leask), Sheila Wain (Hyland), Mary Apted (Hewitt), Ruth Birrell (Williams), Janet Elder, Joan Cossar (Towns). **Standing (L-R):** Barrie Connard, Keith Henderson, Russell Wain, Michael Forrest, Maurie Slonim, Dennis Maginn, Ian McDonald, Nick Hamilton, Bill Derham, Bob Withers, Sandy Mathew, Jean Sloss (Proud), Peter Williams, John Fullagar, Bruce Bailiey, Bill Doig, John Lane, Frank Hurley, Brian Barraclough, Mary Lane, Barrie Butler, Alex Venables, Geoffrey Serpell, Pat Nell, Kevin Hinrichsen, Braeme Goldman, Harry Cumming (almost hidden), Neville Rothfield, John Snell.

MB BS 1933
Sixty-Three Years Reunion
Alcaston House
17 September 1996

From Spot Turnbull – The celebration of the sixty-third anniversary of our graduation took place at the Alcaston Restaurant on Tuesday 17 September 1996.

There were only four graduates present – Lorna Lloyd Green, John Hayward, Harry Sinn and Spot Turnbull, but we were joined by Harry's and Spot's wives and by Elwyn Hooper. The food was excellent and the service superb.

In 1928 there were 119 first year students – a small intake – and by 1933 there were only 58 graduates – a very heavy reduction which was usual in those days! As of now, there are only fourteen still alive at various levels of activity and the average age is eighty-six. Two are in nursing homes. There has only been one death since our last meeting: Anthony Kelly.

We are, of course, looking forward to our sixty-fourth anniversary next year.

Those still with us: *Norman Cust, Harrie Drury, Cam Duncan, Dusty Ebell, Ernest Green, Bill Holdsworth, Russell MacDougall, Dorothy Sinclair, Manuel Starke, George Watters.*

MB BS 1941
Fifty-Five Years Reunion
University House
20 September 1996

From James Guest – Of the 101 medical graduates who received their degrees on 20 September 1941, twenty-six (and three partners) dined at University House on the same day in 1996.

It was an excellent evening, the catering, wines and company were good and the flowers outstanding.

We decided to meet again at a luncheon in 1998.

We graduated in September 1941 instead of December of that year as this was the first group to experience the gradual shortening of the course from six to five years, linked with the Second World War.

There were a number of apologies: Marcia Blackburn (Jack), Sue Wheildon, Roxie Inder (Abbey), E J (Scottie) McDonald, Mick Connaughton, Lach Wilson, Al Steel and Nairne Elder.

A small surplus was donated to the University of Melbourne Medical Society.

Attending were: *Doug Atkinson, Mervyn Barrett, Ida Benson (Seward), Michael Benson, E Billings, John Billings, Peter Bird, Win Champion, Sheila Clerehan (Clifton), Brian Costello, Frank De Crespigny, Alex Elder (Gale), Tom Griffiths, James Guest, Clarice Hetherington (Arendson), Beric Glanville Hicks, Knox Jamieson, Elizabeth Kenny, Jim McCracken, Malcom McKeown, Stewart Moroney, Arthur Parkin, David Pitt, John Simpson, Ian Stahle, Bill Sloss, Tom Walpole, Mary Wheeler.*

MB BS 1942
Fifty-Four Years Reunion
Leonda Restaurant
2 June 1996

From John Tucker – The reunion to mark the fifty-fourth year since our graduation was held as a luncheon at Leonda on the Yarra on 2 June 1996. This was the first occasion we had held the gathering at lunchtime, many of us becoming a bit reluctant to venture out at night, and it proved a popular move.

We had three members from interstate, Ruth and Ian Chenoweth from Brisbane, who have attended every meeting since graduation, and Don Letham from Perth accompanied by his wife Teddy. We are very grateful to Lyn Billings (née Thomas) who gave us a short summary of the many overseas trips that she and John have taken, attending conferences and speaking, and to Don Letham who told us how he met the late Alan Williams. They were both excellent.

The following fifty people attended: *Lyn and John Billings, Graham Brooke, Phyllis and Norman Chamberlain, Ruth and Ian Chenoweth, Joan (George) Champion, Sheila and Brian Clerehan, Jean (Noel) Colyer, Anne (Ted) Cordner, Rae and Roy Davies (Cochran), Betty and Lloyd Dixon, Eve (Stewart) Esnough, Patricia and Rob Fleming, John Gardiner, Pamela and Ted Goodman, Mossy Hain, Teddy and Don Letham, Rena and Bray Lewis, Austin Ley, Joyce and John Monk, Bill Purton, Rita and Len Satchell, Dorothy and Arthur Schwieger, Anne and Bill Spring, Desmond Sisely, Lorna Sisely, Jim Sinclair accompanied by Mrs Joan Bell, Mary and Verner Threlkeld, Margaret and John Tucker, Pat and Quin Whitehead, Dorothy (Alan) Williams, Percy Zerman and June (John) Zwar.*

It was agreed that our fifty-fifth year would be celebrated this year. A room has been booked for a luncheon to be held at midday at Leonda on Sunday 1 June 1997. Notices will be sent out later but if anyone has any other ideas please get in touch with me straight away.

MB BS 1946
Fifty Years Reunion
University House
22 March 1996

From John Snell – The 'Forty-Six Graduates' reunion dinner was held at University House and attended by thirty-six graduands. Braeme Goldman came all the way from Capetown, South Africa where he is an ENT surgeon, and we also had two from Western Australia - Janet Elder and Bill Derham.

Those attending were: *Bruce Bailey, Bryan Barraclough, Barry Butler, Barrie Connard, Joan Cossar, Harry Cumming, Bill Doig, Bill Derham, Janet Elder, Michael Forrest, John Fullagar, Lesley Fullagar, Braeme Goldman, Nick Hamilton, Keith Henderson, Mary Apted (Hewitt), Kevin Hinrichsen, Frank Hurley, Russell Wain, Sheila Wain (Hyland), John Lane, Mary Lane (Long), Dennis Maginn, Sandy Mathew, Ian 'Skeet' McDonald, Pat Nell, Jean Sloss (Proud), Neville Rothfield, Geoffrey Serpell, Maurice Slonim, John Snell, Secily Statham, Alec Venables, Peter Williams, Ruth Birrell (Williams), Bob Withers.*

We had no special guests and no speeches so that we were able to mix and meet better informally. Some of us were somewhat difficult to recognise due to the ravages of time but we had a good dinner and an enjoyable evening.

Perhaps we will repeat it in five years time, this time maybe, as a lunch.

MB BS 1956
Forty Years Reunion
University House
Saturday 23 November 1996

From Henry Burger – We elected to hold our reunion in the form of a dinner at University House. One hundred and fifteen people attended, approximately sixty members of the class, together with partners in most cases.

The occasion was marked by the attendance of three of our year from the USA (Kevin Catt, Syd Phillips and Ted Ceraolo) and one from the UK (Lilly Dubowitz) in addition to a number of colleagues from Western Australia, South Australia and New South Wales.

Our dinner was informal though several people did make a few general comments and there was enthusiasm to hold a further reunion in 2001!

A reunion booklet was produced as a memento of the occasion. The Class of '56 would like to express their particular appreciation to Sue Pengelly who worked hard to make the evening such a success.

The reunion was attended by: *Ern Aldred, Kevin Barham, Ted Bevan, Bob Birrell, Ken Bowes, NCT Brito-Babapulle, Henry Burger, Henry Byrne, Ted Ceraolo, John Connelly, Max Connor, John Dawborn, John G Downes, Lilly Dubowitz (Sebok), R Peter Evans, John Foster, George Freed, John Gault, Eric Gilford, Peter Glenning, Desmond Gurry, Jack Hansky, Graham Harms, Cleve Hodge, David Hore, Frank Jones, Don Larsen-Disney, Alan Larwill, Bev (John) Larwill, John Levin, Gerald Lewin, Ron Lucas, John McConachy, Ralph H Meyer, Evan Morgan, Len Morris, John Reddish, Mary Rettic (Zalcman), Geoff Rickarby, Ian Ross, Ken Stuchbery, George Tippett, Jim Watts, John Woodhouse.*

MB BS 1966
Thirty Years Reunion
Sofitel Hotel
and
The Melbourne Club
8 & 9 November 1996

From Stanley O'Loughlin – This reunion marked the thirtieth anniversary of the medical graduates of 1966. Eighty-nine of the 138 known graduates attended the reunion which consisted of a cocktail party on Friday 8 November and a clinical conference on Saturday 9 November, at the Sofitel Hotel, where fifteen graduates presented papers mainly related to the problems we are experiencing with the ageing process. This, of course, had a humorous side to it. The conference was a great success and very entertaining. On the Saturday night we had a formal dinner at The Melbourne Club. Spreading the reunion over two days was extremely successful as it enabled people to move around and contact as many of their fellow graduates as could be achieved.

MB BS 1971
Twenty-Five Years Reunion
Rydges Hotel, Richmond
15 December 1996

From Grant Barham, Elizabeth Dax and Michael Wilson – Ten graduates presented their ideas of what the next twenty-five years might deliver in each of their specialties at the 1971 Medical Graduates of Melbourne University Reunion held at Rydges Hotel in Richmond on 15 December 1996. Impressions ranged from medicine bound by endless red tape, to a world free of disease and aligned to preventive medicine alone. All agreed that the changing demography with respect to age was a predominant factor in predicted change. We are preparing an article to summarise the medical meeting and already have a couple of expressions of interest from Australian journals. The meeting was preceded by a lunch for graduates and followed by a dinner for graduates and partners. Overall the delegates agreed that this was a good format for the meeting. Most enjoyed catching up with the old faces!

The most complex part of the entire organisation was getting the graduates together for a photograph in the 32°C heat on the day. The reunion was attended by seventy graduates which we considered a large proportion of the 120 graduates of the year. Several of our group came from interstate. A number requested that another reunion be held for the thirtieth year of our graduation.

Those 1971 graduates who didn't attend this reunion would be welcome at the next one!

MB BS 1981 – 15 Years Reunion

Back row (L-R): Pat Giddings, Mike Boykett, Richard O'Brien, Andrew Pranckunas, Bruce Johnstone, Peter Dawson, Lindsay Smith, Corry DeNeef, Jane Goddard, Rob Briggs, Joe Tjandra, Lawrie McMahon, James Elder, Graeme Campbell, Kevin Leslie, Margie Beavis. **Middle (L-R):** Dick Dawkins, Zoltan Vilagosh, Sue Adams, Jeaneane Rea, Grant Snibson, Lyndon Hale, David Bolzonello, Richard Druce, Jan Culliver, Peter Meagher, Steve Bismire, Trevor Jackson, Alison Murray, Mark Gillies, Andrew McLaughlan, Jane McKenzie, Bill Hurley, Ian Harley, Sandra Bailey, Ian Stone, Andrew Danks, Paul Johnson, Sonia Grover, Leon Hamond, Kieran Keane, Greg Snell, Ian Webb, Heather Crockart, John Campbell, Mark O'Sullivan, Andrea Bedrups, Christine Dooley, Bernie Lyons, Lindsay Mollison, Meron Pitcher, Mark Ellis, Anne Mitchell, Mick Christie, Sue Wilson, John Marx, Martin Hodgson, Julie Brennan, Ian Grant, Rowena Ryan, Mick Stewart. **Seated (L-R):** Jenny Firman, Barb Robertson, Emily Prewett, Pauline Schokman, Gillian Opie, Merrole Cole-Sinclair, Anne Chenoweth, Mary Ann McLean, Hadia Haikal-Mukhtar, Kathy Thacker. On floor (L-R): John Rogerson, Tony Sellars, Sue Morris, George Braitberg, Amanda Rynie, Andrew Mason, Garry McInerney, Juris Briedis. Absent from photo: Judy Carman, Peter Edwards, Stephen Eicke, Claire & Peter Eizenberg, Andrew Fuller, Vince Ginevra, David Harms, Vicki Higgins, Rhonda Hemphill, Liz Kotchoff, Henry Krum, Mark Lawry, Kevin Merrett, Peter Morley and Bruce Tulloh.

MB BS 1971 – 25 Years Reunion

MB BS 1976
Twenty Years Reunion
MCG
Sheraton Hotel
16 November 1996

From David Vivian – Our twenty year reunion was held on 16 November 1996 and started with a lunch meeting in the Landy Room at the MCG. The scientific program included a number of highlights: an illuminating discussion about the history leading up to the current state of Rwanda given by Jeffrey Rothschild (neurosurgeon), who also told of his experiences in the first Australian medical force to attend Rwanda since the genocide commenced a number of years ago; Ian Olver's amusing talk on the use of emetics in medicine; and Peter Brukner and Hugh Seward on sports medicine. The meeting was enjoyed by forty graduates, this component excluding spouses, although James Harvey felt that his wife was necessary as he was attending from Adelaide.

In the evening, a black tie dinner dance was held at the Sheraton which proved to be an excellent venue. There were no speeches. Music was provided by Frankie and the Highlighters, and we rock 'n' rolled until they kicked us out! A sizeable anteroom enabled those who did not want to dance or be mildly deafened by Frankie and the Highlighters to stand outside and enjoy it.

We produced a book, telling something of the history of the last twenty years, and we obtained photos of our undergraduate years which were quite a sight!

Graduates who attended were: *Terry Ahern, Helen Andersen, Noel Atkinson, David Ball, Peter Baquie, Mark Beeby, Stewart Booth, Mario Bramante, Bob Brownlee, Peter Brukner, Paul Buncle, Warwick Butt, Paul Calafiore, Sue Carey, David Chan, Christine Chipperfield, Rosie Colahan, Nicholas Demediuk, Penny Foster, Jill George, Alice Glover, Andrew Goy, Peter Gregory, Ruth Hand, James Harvey, Hulme Hay, Wilson Heriot, Chris Holland, Richard Horton, Bill Howson, Jennifer Johns, John Kelly, Genevieve Kennedy, Graeme Kernutt, Tony Kostos, Mark Lawrence, Mandi Ling, Patrick Lockie, Joanne Love, Steve Manolas, Jenny McCloskey, Terri McNally, Peter McNeill, Mark Medownick, Bob Millar, Rob Murdoch, Joe Nastasi, Marnie Newman, Tim O'Brien, John O'Donnell, Ian Olver, John O'Sullivan, Mary Papadopoulos, Ian Parkin, Michael Plunkett, Pam Quatermass, Collette Reeves, John Reid, Kevin Rose, Jeffrey Rosenfeld, Ernie Rosza, Liz Russell, Judy Savige, Denis Schifter, Peter Schlesinger, Ron Scholes, Hugh Seward, Tony Sheehan, Colin Sheppard, Keith Skilbeck, Janey Sklovsky, Stephen Smith, Marcia Sonneveld, Bob Southwell, John Stubbe, Phil Susman, Chris Sutherland, Barbara Szwede, Kerry Taylor, Andrew Thomson, Michael Tooth, Neil Vallance, Wendy Vanselow, David Vivian, Gordon Wallace, Andy Wallis, Geoff Wells, Bernadette White, Guy Williams, Graeme Wood, Jenny Woods, Liz Zenner and Allan Zimet.*

MB BS 1981
Fifteen Years Reunion
Hilton Hotel
29 June 1996

From Anthony Sellars – Well it finally happened. June 29 was the day that I met and re-met a lot of people I hadn't seen for fifteen years. It all seemed to fall together reasonably well: only one person was sick on the night; only one person went to the wrong venue (and didn't find us); only one person turned up unexpectedly; only eight people were finally unable to attend after initially accepting.

The conference. The speakers excelled themselves! Bruce Tulloh – Laparoscopic surgery - what the future holds (and some holiday snaps)! John Rogerson – PR or not PR or do we just do a PSA (and some famous Ca prostates). Bruce Johnstone – Excavation and reclamation (or how to put us off our lunch). Grant Snibson – Excimer laser eye surgery (or can we throw our glasses away?). Richard O'Brien – Cardiac risk factors in your forties (or is wine good for you?). Andrew Fuller – The latest on AIDS and treatment (weeks before press releases). Paul Johnson – Bairnsdale ulcer epidemiology (or how to buy a house on Phillip Island). For those who didn't attend the conference - you missed out. The speakers were excellent and deserve praise for the time, thought and their ability to place the talk appropriate to the audience. The chat over, afternoon tea was very noisy as people started to remember the faces and pasts of the other name badges in the room.

The dinner. The Hilton Hotel provided a wonderful meal – excellently chosen of course (thanks Richard and Amanda). In the midst of all the noise of fifteen years to be caught up with Paul Jennings gave us some very amusing impersonations of various political figures. I laughed my way through the next forty-five minutes.

People of note. Kevin Leslie turned up from Canada. Rhonda Hemple turned up from Broome. James Elder has five kids and still has time to be an eye doctor. Anne Chenoweth looks just the same and no grey hair like Michael Stewart and Mick Christie now possess.

Lots of people talking to lots of people they had forgotten they spent an important part of their life with. Then it was off to room 2001 for the kick on which was a lot quieter than it would have been fifteen years ago. A short sleep to follow and it was back to our own little medical corner until the next reunion in 2001.o

Reunion Announcements

Think Ahead!

When did you graduate? Is next year your fifth or fifty-fifth since graduation? Reunions are best planned well ahead of time. Your classmates who are living overseas or interstate will travel to Melbourne for reunions if they have enough advance notice. Venues also need to be booked well ahead.

Please let the UMMS office know of your plans – we like to publish information about reunions in *Chiron*. We can obtain, on your behalf, a list of graduates from your year and sets of address labels from the Alumni Office. We can also advise you on alternatives you may wish to explore regarding University venues.

We are also able to help you publish a reunion booklet containing details of graduates' activities since graduation. Graduation booklets give those who attend the reunion something to remind them of the event and those unable to attend some information about their colleagues.

MB BS Graduate Anniversaries in 1998

5th Year Class of '93
10th Year Class of '88
15th Year Class of '83
20th Year Class of '78
25th Year Class of '73
30th Year Class of '68
35th Year Class of '63
40th Year Class of '58
45th Year Class of '53
50th Year Class of '48
55th Year Class of '43
60th Year Class of '38

1997 REUNIONS

10TH YEAR CLASS OF 1987

Dr Ann Staughton
bh: (03) 9584 3055
ah: (03) 9532 8098
Dr Donna Henderson
(03) 9899 0544

20TH YEAR SINCE COMMENCEMENT IN 1977

21 June 1997
Sheraton Hotel
Dr Nicholas Gelber
bh: (03) 9419 8711
Dr Jeremy Ryan
bh: (03) 9591 0466

35TH YEAR CLASS OF 1962

April 1997
Dr George Santoro

40TH YEAR CLASS OF 1957

8 November 1997
The Australia Club
Get-together followed by dinner
Keynote speaker:
(Professor Sir) Peter Morris
Mr John Buntine
bh (03) 9895 7604
fax: (03) 9895 7652

50TH YEAR CLASS OF 1947

10 July 1997
University House
Professor Ross Webster
bh: (03) 9280 8785

55TH YEAR CLASS OF 1942

1 June 1997
Leonda Restaurant
Dr John Tucker
ph: (03) 5251 3468
fax: (03 5253 2591

UMMS Office

c/- School of Medicine
The University of Melbourne
Parkville Vic 3052
Telephone: (+61 3) 9344 5888
Facsimile: (+61 3) 9347 7084

OBITUARIES

NAN PATON BELL

MB BS 1949, GDip Psych Med 1957, BSc 1960

1924-1996

UMMS RECORDS WITH SADNESS the death of Dr Nan Bell on 13 August 1996. An obituary will appear in the 1998 edition of *Chiron*.

HA & LB

ARTHUR WILLIAM BURTON

KStJ, MB BS 1940, LLB(Hons) 1969, FAMA, FRACMA

1916-1996

ARTHUR BURTON

ARTHUR WILLIAM (BUDDY) BURTON died on 27 July 1996, two months before his eightieth birthday.

He graduated MB BS from the University of Melbourne in 1940 and after the mandatory intern year immediately joined the Australian Army Medical Corps during the dark days of the Second World War. He was one of a now rapidly diminishing number of medical graduates who saw active service in that war.

In 1941 he married Betty, daughter of Dr John Adamson, and in 1948, when John Adamson died, Buddy took over his general practice in Burke Road, Glen Iris. When Buddy was elected to the Council of the Victorian Branch of the Australian Medical Association in 1956 he, perhaps unwittingly, mapped out his future career. In 1960 he was appointed to the then new position of Deputy Medical Secretary and on the death of Dr Cyril Dickson in 1966, the Council, without hesitation, promoted him to the position of Medical Secretary. After a very distinguished contribution to the medical profession as a whole and to the AMA in particular, Buddy retired in 1975, at least in part because of deteriorating health.

It will be noted that his administration embraced the period marking the end, for the time being, of many years of conservative government and incorporated the turbulent 'Whitlam years'. The same period saw the introduction of the concept of the most common fee, the rise of private health insurance, the establishment of Medibank and the abolition of the honorary system in Victorian public hospitals. Individually and collectively all of these reforms resulted in tremendous upheavals for the medical profession and changed forever the manner in which doctors practised and their relationships with patients. It is not difficult to imagine the stresses placed on the head of what was effectively the political arm of the profession. Not only will Buddy's colleagues always remember his calm and incisive approach to the many problems that arose but there were, and are, many past presidents indebted to him for his timely and rational advice in guiding their public utterances.

Outside his immediate medical career Arthur Burton was a member of the Committee of the then Victorian Civil Ambulance from 1954 until 1970 when he was made a Life Governor. More significantly he was a Commissioner of the Victorian St John Ambulance Brigade and Chief Surgeon from 1972 to 1979. In 1973 he was honoured with the knighthood of the Order of St John of Jerusalem.

For twenty-two years he was a director of the British Medical Insurance Company, later to become the Victorian Medical Insurance Agency. The other directors would agree that he undervalued his contribution to this as he did to other organisations. He was Chairman of Directors from 1984. In 1988, despite the protestations of his colleagues, he quite firmly and characteristically decided he should retire. In 1990, in recognition of his service and reflecting his particular expertise, the Company provided material assistance for the establishment of the A W Burton Associate Professorship in Legal Medicine at Monash University.

The private side of Arthur Burton was not so well known, even to many of his closest friends, and the writer is indebted to Lawrence Money, Buddy's nephew by marriage, who presented a moving tribute in his very fine eulogy at the funeral service in St Andrew's Church, Gardiner. Some of the comments which follow are extracted from that address.

He was an individual of the highest intellect. He read extensively, particularly history and the classics of which his knowledge was formidable, as was his memory not only of literature but also of dates and statistics and he could add up whole columns of figures at will. His secondary school record was more than impressive but in retrospect, even though he was top student at Queens College, he probably underachieved in his undergraduate medical course. Hence it was no surprise to those who knew him when he embarked on a law course at the University of Melbourne whilst fully employed and working long hours at the AMA. In 1969 he graduated LLB with honours. In the same period he published a book, Medical Ethics and the Law, at the time the first definitive text on medical ethics appropriate to Australian conditions and used universally in medical schools for many years.

His great generosity, known only to his family and his most intimate friends, is well-illustrated by the following example. Buddy and Betty had no children but his sister-in-law had been deserted with three young children and minimal financial support. Buddy regarded it as a privilege to educate two of her children at private schools and would have financed the third except that another uncle stepped in and did it for him.

The above perhaps best illustrates Arthur Burton's personality and the close family ties which he fostered. He was a fastidious and meticulous person, intolerant of fools, always punctual and immaculately groomed with a thick head of hair that never turned grey right to the end. He was a natural leader and manager, always unchanging, resolute, reliable and courteous, personifying the chivalry of a bygone era. At the same time he loved his solitude and his gardening.

The death of his ever-loving wife three years earlier, many will agree, was to set him on his final path. The medical profession will mourn his passing.

Ross Webster

MARY HAZEL DEAN CHENNELLS

BSc, PhD (Lond)

1922-1996

MARY CHENNELLS

MARY HAZEL DEAN CHENNELLS died on 26 May 1996 after a short illness.

Mary was born at Enfield, London, on 2 December 1922. During the Second World War she was evacuated as a teenager from London and later directed to work at Harefield for the Ministry of Aviation. Here she took lodgings (with a woman who became a lifelong friend), but rode her bicycle seventeen miles home each weekend to visit her parents. It is of interest that a number of Australian air men are buried in the Harefield cemetery and to this day are honoured by the local school children, who place flowers on their graves each ANZAC day. After the war she took a BSc at the University of London, followed in 1955 by a PhD in Physiology while working as a research assistant to the late Prof. Samson Wright at the Middlesex Hospital Medical School. Her thesis was entitled 'Some properties of reflex and spontaneous activity in the central nervous system and the action of drugs thereon'. She then

turned her attention to 'the electromyography of typing activities'. When both her parents died within eighteen months of each other, Mary, an only child, decided to go to Australia where she had cousins.

In answer to an advertisement in the *Lancet*, Mary applied for and was appointed to a position as Lecturer in the Department of Physiology, University of Melbourne, under R D Wright, arriving in 1960. She set about researching the parameters of physical fitness and was particularly interested in ergonomics.

Her teaching brought her into contact with students in medicine, dental science, science, agriculture and veterinary science. In the mid 1960s work on the physiological parameters of physical fitness involved her with Australian olympic athletes, and with civil aviation firemen who waited, fit and well, for fires that never occurred. She set up the laboratory for exercise physiology with treadmills, rowing and other exercise machines together with physiological gas analysers. Many of her past students now hold senior positions in this field of study throughout Australia.

In addition to her University commitments and in order to understand the demands of various sports, Mary undertook to learn sailing, windsurfing, swimming and skiing. She remained a dedicated swimmer all her life.

Mary Chennells was a quiet, self-effacing, thoughtful and unselfish person. Capable in whatever she undertook, she quickly gained the affection and respect of her colleagues. She had an enormous depth of knowledge and interest in her own discipline and in all subjects which impinged upon it. She was a member of the Physiological Society, the Australian Physiological and Pharmacological Society, the Institution of Biomedical Engineering (Australia) – including a period as President of its antecedent, the Society of Medical and Biological Electronics – the Australian Ergonomics Society, and the Australian Sports Medicine Society.

Outside science Mary had many interests, in particular the history of Australia, especially Victoria. She was a keen member of the Royal Historical Society, of the Brighton Historical Society, and of the Southern Metropolitan Region Historical Association of which she was Honorary Secretary for a number of years. Much of her spare time was spent visiting historic sites in Victoria and in reading widely about related times.

It is a pity that music took last place in her full life, for she was a capable pianist and organist, taught by her uncle who was organist at Waltham Abbey, Essex for many years. All-in-all she led a very full life, so much so that she always had great difficulty in keeping to schedules.

Mary never lost her love for England – she often returned in connection with physiology and to visit relatives. She will be greatly missed by all who knew her and remembered with gratitude by the field of exercise physiology.

Patricia McColl

Edward Pruen (Ted) Cordner

MB BS 1942, MD 1951, FRACP, FRACGP

1919-1996

TED CORDNER

TED CORDNER, who died on 4 March 1996, aged seventy-seven, was most widely known as the eldest of four brothers who played football for Melbourne in the Victorian Football League. His father and uncle had both played League football for Melbourne and for Melbourne University in the early years of the century. Ted played fifty-three games between 1941 and 1946. With his brother Donald, he was a member of the Melbourne Premiership team of 1941, and he represented the VFL against South Australia in 1946. He took the field with his brothers Donald and Denis in one game in 1943, a family record equalled but not bettered until a few years ago. It was thought by many observers that had there been a Brownlow Medal in 1943 he would have been a strong contender.

He took out his MB BS at Melbourne University in 1942, then joined the Navy and the Second World War. He served as Medical Officer on HMAS *Vendetta* in the Pacific for nine months before being seconded to the Royal Navy in which he served both in England and in the Pacific. After the War he completed his MD and his Membership of the Royal Australian College of Physicians, being elevated to FRACP in 1975. He also became a Fellow of the Royal Australian College of General Practitioners. He returned to general practice in Greensborough while also becoming Assistant Physician and then Honorary Senior Clinical Physician at the Alfred Hospital, a position he held for twenty-eight years. From 1960 to 1975 he was also Assistant Physician at the Austin Hospital. In 1966 he had a three month stint as a medical specialist with an Australian Civilian Surgical Team at Bien Hoa in Vietnam. [see *Chiron*, Vol 2, No 4, 1991, p 65]

Apart from his hospital residency and three years in war service, Ted lived his whole adult life in Ashmead, the family home built by his parents in the outer Melbourne suburb of Greensborough, where he was in general medical practice right up until few months before his death.

Ted was much involved in local affairs in Greensborough. For forty years he was one of the two medical representatives on the Diamond Valley Community Hospital Board. He was Vicar's Churchwarden at All Saints' Greensborough from 1952 to 1973; he sang in the choir with tenor voice which, though creditable, was not a fine as his father's; and he was involved in the building of the new Anglican church complex in Greensborough in 1967. In recent years he also became involved in the local Regional Council of the Ageing. He was Playing President of the Greensborough Football Club for nine years, not hanging up his football boots until he was forty-two.

Love of sport was a theme of Ted's life. An able left-arm medium-fast bowler, Ted played cricket for Melbourne University in the District competition, and later played with the Old Melburnians for twenty-six years in the MCC Club Elevens competition. His lawn tennis strokes, forged in hot boyhood competition with his brothers, had something of the quality of the Geebung Club's polo-playing – little science but a lot of dash. For the last twenty-five years or so, Ted was also a keen exponent of Royal Tennis. Although lazy on the football training track, like his brothers, he could enjoy exercise which was not in pursuit of a ball and in 1976 walked from Kathmandu to the Everest Base Camp.

As Greensborough grew from the country hamlet of Ted's childhood to a busy suburb, Ashmead remained an unchanging centre of warm hospitality. Visitors could be sure of enjoying Ted's excellent cellar, often after tennis on the family court and with the roast which Anne seemed always to have ready in the oven. To Ted at Ashmead I owe my own introduction to Havana cigars and excellent cognac. Such largesse was always accompanied by conversation both robust and challenging. Those present were expected to be able to give an account of themselves and to participate in discussion, at the same time serious and passionate, about all manner of things. There were no barriers of age or gender: not only Ted's children but also very many friends were drawn into this large circle. Some households seem to be both a centre of social gravity and a fount of vital energy for those around them. Ashmead has been one such, and, together with Anne, Ted was the chief source of its being so.

Ted Cordner had many qualities which compelled the admiration of those who knew him: great vigour of mind and body; generosity both of spirit and in things material; intellectual curiosity and acuteness which was always responsive to intelligent challenge; a manner which was open, direct and warm, (at times hot, especially in the face of even slightly leftist political views); and an unrehearsed and unaffected elegance of demeanour. But in addition to all of these qualities, there was in him a passionate vitality, a great love of life, which animated all that he did and was. The effect of this was a remarkable presence and impact, which summoned not only the admiration of others, but also their love. It is, and will be, most keenly missed.

Ted's bond with his three brothers was always very strong. In later years, despite his many achievements and wide range of interests, Ted's main focus increasingly became his immediate and his wider family. His burgeoning tribe of grandchildren were a

source of delight to him. Although Ted's imposing physique had in recent years become thinner and somewhat bowed – in good part the legacy of numerous operations – he remained physically active until the last few months of his final illness. Even while hospitalised in the last weeks of his life, he never lost his vital sharpness of observation and wit, or his gratitude that his family could be about him. He is survived by his wife Anne, and their six children.

Christopher Cordner (nephew)

Ernest Reginald Crisp

MB BS 1926, MD 1931, DMRE (Camb), FRCR, FRACR

1903-1996

ERNEST CRISP

REG CRISP was the last survivor of a small group which set a firm foundation for the rapid development of Radiology in Australia and New Zealand by establishing the Royal Australasian College of Radiologists in 1949. He was the first Chairman of the Education Committee. In 1957, whilst Senior Honorary Radiologist to the Royal Melbourne Hospital and visiting for only two sessions weekly because of his busy private practice, he realised that expansion in radiology in teaching hospitals required full-time leadership and recommended the appointment of a Director. As President of the College in 1962, a time when town and gown aspirations were not always harmonious, Reg Crisp supported this University's move to introduce a Chair of Radiology, leading to the establishment, in 1965, of the first such academic appointment in Australia.

Reg Crisp was the first Australian radiologist to serve abroad during the Second World War. He left a busy practice in 1939 to join the first convoy that left Australia for the Middle-East. He served in Egypt, Palestine, Syria, the Western Desert and, with the fall of Singapore, was directed to New Guinea where he spent the rest of the war years. With the rank of Colonel, he then became Chairman of the Radiological Advisory Committee for the Australian Armed Forces, a role he filled until 1963. On returning to Melbourne he rejoined the practice of Frank Stephens and they were joined later by Dr Albert Piper and Dr Douglas Pearce. Stephens and Pearce continued radiotherapy at Epworth Hospital whilst Crisp and Piper developed a highly respected diagnostic practice at 12 Collins Street, Melbourne.

Reg Crisp was an astute observer. Those training in radiology in the 1950s acted as scribes for Reg and the legendary Dr Barbara Wood. Whereas most fix on the obvious abnormality in a radiograph, Reg had taught himself to avoid the obvious until he had excluded all significant findings in the periphery. A wry smile would appear when, so often, he discovered abnormalities which had been missed. The Crisp manoeuvre, as I called it, has been an important ingredient in my teaching of students since.

Reg was born in Hobart and his decision to study medicine may have been influenced by his mother's offer of a car to the first of her seven children to do so! Of necessity in those days medical training meant the mainland and Reg entered Trinity College and graduated in 1926. He planned to be a paediatric physician and took the MD in 1931, but during a stopover in Adelaide whilst working as a ship's doctor *en route* to England, he was influenced by Johnny McCoy, a pioneer radiologist, to enter radiology. He took the DMRE at Cambridge which was the only radiological qualification available in the British Empire at the time, and then returned to private practice in Melbourne.

From 1954 to 1978, Reg was Honorary Treasurer to the Medical Defence Association of Victoria. In 1982, he was awarded the Gold Medal of the RACR, the highest accolade the College bestows, and at the time was only the sixth radiologist to receive it.

In appearance Reg was ageless. He spoke with a stammer, which made him reluctant to take the podium, but with an innate sense of humour. On one occasion he set a high standard for Spoonerism when he called on those present 'to drink a test to the ghost of honour'! He outlived those siblings who baulked at the offer of a car to enter medicine, and took on a patriarchal role in regard to his fourteen nieces and nephews, who enjoyed his friendship to the end.

Reg is survived by his wife Joy and children Digby, an engineering graduate of Melbourne University, and Deborah. He always put the welfare of his country, his chosen specialty, and his family, ahead of himself.

William S C Hare

David John Dewhurst, AM

BA(Hons), MSc, PhD, FIE(Aust)

1919-1996

DAVID DEWHURST

DAVID JOHN DEWHURST belonged to the University of Melbourne for most of his life, as a student and later as an outstanding teacher and scientist. He was a pioneer in Australia of biophysics and medical instrumentation, and was one of the first in the country to apply computer technology in physiological and medical research.

As a boy growing up in the Melbourne suburb of East Malvern, David already had an interest in electronics and amateur radio, with a little workshop under the stairs where he was the fixer of the family wireless set. He was dux of his final school year, combining physics with humanities subjects. He then took an Honours BA in classics at Melbourne University, intending to become a Church of England priest like his father, but war changed all that; in June 1940 he joined the AIF in the Corps of Signals.

David's unit left Melbourne in February 1941 for the Middle East, where he served in Palestine, Syria and North Africa, often attached to anti-aircraft artillery. Some of his experiences left lasting traces. For example, when Australian troops occupied Beirut in 1941 after battling Vichy forces, his unit had to learn quickly to use the mechanical predictors of French 75 mm AA cannons, although the manuals had been destroyed by the previous owners. In later life David used such events to illustrate points of principle about good biomedical engineering, such as the ability to adapt to a lack of 'suitable tools' – an army term for standard repair-kits, which often went missing.

Evacuated by hospital ship from Tobruk in early 1942, with hepatitis A, David arrived back in Australia in March, among the first AIF troops to return following the contention between Churchill and Curtin concerning their disposition against Japan. In September 1942, about to be sent to New Guinea, he was redirected to Air Support Control Signals, and was commissioned as lieutenant in December. Attached to an anti-aircraft brigade, he served in units in Sydney, Brisbane and Townsville. He was later to describe the unfortunate consequences of battery gunners on Sydney harbour firing at the Japanese midget submarines over open sights – low trajectory projectiles bounce off water, as nearly every schoolboy knows. In March 1945 he was seconded to an army trade school in the former Marconi Wireless School in Sydney, which was preparing Instructors. He met his wife Marjorie, an army Cipher Officer, when she was sent for further training at the Land HQ School of Signals in Bonegilla, where David had been appointed as an Instructor. This was the start of his career as a lecturer.

His experience in signals brought about a change of career. In 1946, after demobilisation, he began a BSc in physiology and electronics on the advice of Dr Arthur Turner of the CSIR Animal Health Laboratory, and in 1949 began an MSc while demonstrating in the Physiology Department. In the same year he participated, with one or two physiology MSc students, in a class of scientific Russian offered by the University, and later on remembered with pleasure bits of Russian from the readings, such as 'Around the World on the Cruiser Beagle'. In 1952 he was appointed as Lecturer in Physiology by Professor R D Wright.

Along with his teaching load in physiology, he quickly transformed a small electrophysiology laboratory into a renowned centre of medical instrumentation. This was located mainly in two preparation rooms behind the demonstration benches of the old medical north and south lecture theatres, which stood next to other building relics then occupied by Physiology in the north-east corner of the University, on Swanston Street. Many older colleagues remember his office (and workshop) and his electrophysiological laboratory (and workshop), on either side of the foyer leading to the theatres and central staircase. Together they were called 'The Shielded Room' – soon a legendary name. David's windows looked onto some nondescript trees growing on a roundabout in the middle of an assembly of ramshackle red brick or concrete buildings, which at one stage included the maintenance painters' workshop, the School of Architecture, third-year biochemistry laboratories, and the rooms of anthropologist Donald Thompson with his collection of Aboriginal artefacts. The male toilets below the medical north lecture theatre displayed an impressive collection of pornographic graffiti, known across the whole campus (Professor Wright once justified having the walls whitewashed by remarking 'Well, now they can start again'). When space was needed in the early fifties for an assembly-line to build the Department's first classroom electrophysiological stimulators, amplifiers and cathode-ray display units (from army disposals material – all that was available), David took over the lecture theatre benches in vacation time, with technicians as the factory workers. As a result, every undergraduate student-pair recorded sciatic nerve action potentials, as well as muscle responses, with their own set-up.

David Dewhurst received a PhD in 1959 for research on cell membrane biophysics, and in 1964 was appointed Reader in Biophysics in the Department of Physiology. Much of the apparatus built for his (and his colleagues') research, and for the classroom, used cheap war disposals components, together with sound design. A University publication of 1957, *Discovery,* reports on his design for a cardiac defibrillator and his electronic equipment for recording physiological variables during surgery. By 1960 he was using intracellular recording, and single-unit electromyography in human subjects, to study muscle physiology. In 1961 he started giving an extension course in medical electronics for biological researchers, with theory and practical construction, which had a major influence in Melbourne, evolving to match the rapid advances in electronics into the seventies. Among its first intake of students was Professor Frank Hird of Biochemistry.

All his old colleagues remember discussions with David in his office, when they sought help in getting some apparatus built, advice about membrane potentials, and so on. There would be repeated interruptions: David singing out to Lindsay or Stuart for some fact or other and telephone calls for advice from all and sundry in hospitals, institutes, other departments and our own. Memorable Shielded Room traditions included monthly lunches of Chinese food – all colleagues welcome to subscribe – with the small tables aligned from desk to door; Friday fish and chips collected by Albert Kennedy, in which most of the Department joined to eat amongst the circuit elements; sherry from 'S'-marked Erlenmeyer flasks; and about the time of the 1965 Twenty-Third International Physiology Congress in Tokyo (to which David organised a group tour of Australian physiologists), the Shielded Room television session of the *Samurai* serial showing the adventures of Shintaro and the Ninjas (goodies and baddies). Until the mid-sixties there was an annual Shielded Room ski outing to Mt Baw Baw (on a week-day, of course). Later on, in the 'new building', David tried to consolidate the tradition, adding a 'Gandalf Wand' to the opening of the monthly lunches. All these Shielded Room activities had the effect of building an *esprit de corps* among the participants, and everyone in Physiology was welcome. Sadly this solidarity dissipated after the departure of R D Wright and D J Dewhurst from the Physiology Department, in the early seventies. Of the early years, David would quote Rutherford as saying; 'We had no money so we had to think'. Even when more money did become available, David always valued thinking: about physiology, equipment, technical servicing, and about life.

Early in the field, David became an expert computer programmer, and in 1966 acquired a PDP-8, the first minicomputer in Melbourne. The expense was shared between Physiology and Chemistry with a line linking the two. Transferred to the new medical school building in 1968, he used the PDP-8 to train a large cohort of students and colleagues, and the wider community was offered a course on computer methods in biological research.

His sabbatical year with Sir Bryan Mathews in Cambridge, in 1959, had several consequences. One was an intense research interest in the recording of single motor unit responses to sudden stretch of human muscle, using the famous 'muscle puller' in ever-improved versions to suddenly extend a subject's elbow. On this project many postgraduates were trained for later professional success. Another result was David's lasting involvement in the International Federation for Medical and Biological Engineering (IFMBE), including serving on its administrative council. In 1971, as President, he organised the Ninth International Conference on Medical and Biological Engineering in Melbourne University, for which all his students and available colleagues were recruited (without escape) to ensure a major successful event. One whole laboratory classroom was taken over by a single Japanese trade exhibitor, with other exhibitors in adjoining labs of Physiology and Anatomy. The new Nobel Laureate in Physiology and Medicine, Sir Bernard Katz, was the guest of honour. In 1979 David was made an Honorary Life Member of the Federation.

David began to identify more and more with biomedical engineering as a profession, especially after leaving the Physiology Department for Electrical Engineering in 1973. It was there that he collaborated in the design of the first cochlear ear implant – the 'bionic ear' – applying his computing expertise to a miniaturisation problem in service of the handicapped, within his continued broad interest in developing new medical engineering techniques.

Throughout his professional life David was intensely concerned for the electrical safety of medical instruments, and had stories to tell of accidental electrocution due to poor design or maintenance; as of the patient who sat down for a rest on an improperly insulated grid supposedly protecting the power source of an early x-ray machine. Together with E R Trethewie he researched the parameters of fatal current flow affecting the heart, and contributed decisively to the establishment of safety standards on a physiological basis. He was always proud of his part in the development of Australian Standards for Medical Apparatus. A member of the National Health Technology Advisory Panel, he was involved in the introduction to Australia of high technology medical techniques such as MRI, and was sent abroad officially to survey available instrumentation.

Between 1977 and 1988 David Dewhurst wrote a popular column for the IFMBE, called *On the Real Axis*. A selection of the articles was published in a small book of the same title, in 1991. They cover a wide range in an easy style entirely characteristic of Dewhurst the teacher and adviser, with observations on the practice and philosophy of biomedical engineering, especially its human side. Reading them invariably conjures up vivid images of the warm-hearted, cheerful, inventive, gently critical, and humour-loving Dave Dewhurst we knew. Forceful didactic purpose is executed with a light touch. A solemn lesson is often visible just below the whimsical surface, or itself takes the stage after an amusing and perhaps barely relevant introduction. One article about the variability of parameters in biology as contrasted with physics, begins with a quotation: 'Brethren, we should at all times strive to walk the straight and narrow path between right and wrong', attributed as 'Irish Sermon', and follows by reminding us that 'Irish' jokes are universal, and were known in ancient Greece. A homespun style of preacher (or, as David called himself, 'professional spouter'), he draws on life in the army and officer school, classical and Biblical reading, and above all university teaching, research, and instrument-making. His formulations of scientific laws in common language are amusing, yet deep. Thus his laws of thermodynamics – 1st: In the real world you expect to get exactly what you've paid for, 2nd: You always get less.

David's devotion to his disabled elder son, Peter, inspired in him a commitment to the needs of the handicapped. One expression of this was his invention of FRED (Friendly Educational Device), an interactive teaching station using microprocessors, for people physically unable to use a computer keyboard. After he retired to Portarlington, David would take a visitor to his

laboratory-workshop installed next to the garage, and demonstrate the latest version with huge enthusiasm. FRED has given many severely disabled people a degree of independence and a confidence that they can indeed achieve something by their own efforts. This work was recognised when David was made a Member of the Order of Australia in 1990, for 'services to biomedical engineering for people with disabilities'.

In retirement, he remained actively involved in the Portarlington community and local Anglican church. He is survived by his wife, Marjorie, and children Penelope and Timothy.

J S McKenzie
Department of Physiology

Prepared in consultation with Marjorie Dewhurst and former colleagues of David at the University of Melbourne. Some material borrowed or adapted from the funeral eulogy by Dr Richard Kirsner.

Effie Jessie Hone

MBBS 1921

1894 - 1996

ON 18 SEPTEMBER 1996, Effie Hone, one of the University of Melbourne Medical School's oldest graduates, died at the age of 102. Born Effie Robertson, in Bendigo, on 11 September 1894, Effie was sent to school at the Continuation School in Melbourne (which became Melbourne High School) then studied medicine at the University of Melbourne, graduating in 1921.

After graduation Effie moved to Adelaide where she did an internship at the Adelaide Children's Hospital and then worked at the Royal Adelaide Hospital before marrying Ronald Hone, a soldier and businessman. Effie continued to work while raising their four children – at Adelaide Hospital, in the Pathology Department at Adelaide University and at the Insitute of Medical and Veterinary Science in Adelaide.

Effie Hone's 100th birthday was celebrated on page fifty-four of *Chiron* Vol 3, No 3, 1995.

LB

Anthony Richard Kevin Kelly

MB BS 1933, FRCS, FRACS

1909-1996

ANTHONY KELLY

TONY KELLY, a much respected figure in surgery at St Vincent's Hospital and the University of Melbourne, died on 9 September 1996 at the age of eighty-six.

Born in East Melbourne in 1909, Tony was the son of Dorothy and Piers Kelly, a civil engineer. He went to school in Ballan, then to St Patrick's College in Ballarat, and entered the University of Melbourne as a medical student in 1927, commencing a lifelong association with the Medical Faculty and with Newman College. After graduation and early appointments at St Vincent's Hospital, he moved to London for postgraduate training, becoming a Fellow of the Royal College of Surgeons in 1936. In that year he was appointed to the surgical staff of St Vincent's Hospital at the early age of twenty-seven. In 1939 he was appointed Lecturer in Pathology under the late Professor Peter MacCallum and was Senior Lecturer in Pathology from 1943 to 1946. Tony was a general surgeon with a wide range of skills despite an injury to his left elbow dating from childhood which limited the movements of his left arm. In spite of the fact that this disability prevented him from enlisting in active service in the Army during the Second World War he never allowed it to interfere with his work as a surgeon nor, indeed, impair his very successful playing of Australian Rules Football as a young man, or membership of the Melbourne University Rifles in which he took considerable pride.

Tony Kelly became a member of the Faculty of Medicine in 1942 and, but for a brief period in 1945-46, he remained a member until his retirement from St Vincent's Hospital at the end of 1969. He was an active participant in Faculty affairs, was a strong supporter of Sir Clive Fitts during a somewhat turbulent time in the history of the Faculty in the late 1940s, and was a member of the Committee which initiated discussions between the University and the teaching hospitals, leading to the establishment of the first Chairs in Medicine and Surgery. He was later a member of the Selection Committees for appointments to the Chairs of Medicine and Surgery at St Vincent's Hospital. He gained a reputation during this period as a man of principle willing to consider any argument put forward on its merits and in so doing playing a significant role in many important decisions. At St Vincent's Hospital, as Dean of the Clinical School from 1960 to 1964, he was a lucid teacher with sound clinical judgement in his approach to general surgical practice. He led the development of the general surgical staff as Senior Surgeon from 1965 to 1969. When he retired at the age of sixty, he had completed thirty-three years of conscientious and devoted service to the Hospital and to its patients, all in an honorary capacity.

Tony Kelly had the reputation amongst students as a stickler for proprieties and formalities and amongst others in the Hospital, as being somewhat reserved and shy. However, his marriage to Mary Ellis in 1935, celebrated by Father Jeremiah Murphy S J in the Newman Chapel, could not have been warmer or more successful. He took great pride in his four children and later, in their families. Following his wife's illness in 1981, he nursed her for twelve years until her death.

Tony was always a great walker and family holidays often entailed vigorous walks at Mount Macedon and elsewhere. He was a gardener in his active years, and an avid chess player throughout his life. He read The *Age* daily until the last three months of his life: he was a vigorous correspondent in its columns in the 1950s and 60s in the cause of Melbourne's heritage. He maintained subscriptions to the Melbourne Theatre Company, Australian Opera, Ballet and ABC concerts throughout his professional life, and was an ardent supporter of the Bayreuth Festival. A loyal parishioner of St Thomas Aquinas Church, and later St Peter's, his elegant figure, complete with bow tie and cane was a regular feature striding around South Yarra and Toorak. Until his final illness overtook him in 1996, he continued to read widely in medicine and a broad range of literature.

Despite his formality and concern for correctness in all matters, he was a broadly cultured, intelligent man who to his family and close friends displayed great warmth and humanity. His commitment to considering all issues on their merits could not be better illustrated than by the fact that, despite his conservative background, he expressed strong support for the proposal that marijuana should be decriminalised as a basis for achieving more effective education and control of abuse, and advocated the re-introduction of heroin for medical use. He will be remembered by his students, colleagues and friends as a man with a high sense of service to his profession and a commitment to a 'right order of things'.

David Penington

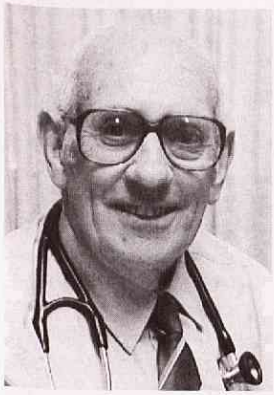
William Carr Lawrence

MB BS 1953, MRACGP

1925-1996

A SHORT LETTER to the editor of *The Australian* in November 1996 alerted us to the death of Bill Lawrence, a valued correspondent and contributor to *Chiron*. The letter, from John Hankey in Western Australia, paid tribute to Bill Lawrence's forty-odd years of solo general practice serving a small rural town in Northern Victoria, and asked who would fill his shoes now the town was without a doctor.

Bill Lawrence, the son of a Brigadier, was born in Brighton, Victoria, and educated at Melbourne Grammar. After matriculating he was accepted into medicine at the University of Melbourne in 1941. He did not, however, start his medical course until 1947, as an ex-serviceman with the first intake at Mildura.[1] In 1941, he had sought advice from George Paton, then Vice Chancellor, on



WILLIAM LAWRENCE

whether he should proceed at the University or enlist in the services. George Paton told him that if he enlisted and survived he would be a better doctor. Adjusting his age – from seventeen to eighteen – he joined the Royal Engineers as a private (sapper): his father was a highly regarded engineer.

During his service in Borneo with the 2/16 Field Co, Bill and another sapper were ambushed by a four man Japanese patrol and marooned for four days with little food. Bill and his mate killed three of the Japanese with sniper fire at night and the fourth only a few yards from friendly patrol lines. It is likely that during his war service in Borneo, Bill's contact with toxic chemicals precipitated the bone marrow disease, multiple myeloma, which caused his death.

On graduation, Bill became a junior RMO at the Alfred Hospital and also joined the Royal Australian Army Medical Corps Reserve. 'I went from a two stripe Corporal Lawrence to a bloody three pipper Captain in one day.' During that year he spent a spent a month at Puckapunyal caring for national servicemen. In an article he wrote for *Chiron*[2] Bill told most vividly of meeting his future wife, Captain Betty Crocker, at Puckapunyal when they treated eight servicemen seriously injured in a grenade accident.

In 1955, Bill married Betty in St Peter's Cathedral, Adelaide, and together they took up general practice in Red Cliffs, Victoria – twenty kilometres south of Mildura. 'Dr Bill' and 'Sister Betty' worked there for forty-one years. At that time Red Cliffs was the largest returned servicemen's settlement in the British Commonwealth. Betty was familiar with the problems of primary producers: she was the daughter of an English First World War soldier who had become a pioneer in the Riverland of South Australia, an area similar to that round Mildura.

In the early years at Red Cliffs, Bill did dentistry as well as coping with the more usual problems of trauma, midwifery and childhood infections. Trauma could be severe in a farming community and was generally borne stoically.

Bill had insight and compassion and knew how important it was to listen to his patients. John Hankey describes Bill as:

> . . . an ordinary bloke who, because of the tenor of the times, his upbringing and his resolute and upright character, lived an extraordinary life. He immersed himself in the the life of a small town for forty years; treated the sick, listened – forever listened – to the distressed, comforted the dying and uplifted the spirit of all the other citizens . . .

As general practitioner he served professionally and in an executive capacity the Red Cliffs Hospital, the kindergarten, the RSL, Red Cliffs Community Hospital, the Mildura Base Hospital and the Mildura Private Hospital. Bill served in all offices of Rotary including President and was awarded Rotary's highest award, the Paul Harris Medal, for his work as District Director of the Medic Alert Program.

Bill was proud of being in general practice, but this pride could be assaulted. On a visit to Melbourne to attend an alumni dinner, Betty records that a former classmate remarked 'Still in the bush, which specialty did you fail?'. The remark was unwarranted, unkind and ignorant, but hurt badly. To be a general practitioner in a small country town for forty years and earn the respect and love of the local community must be *the* mark of success in the most difficult of all specialities.

Maggie Mackie, recently retired co-editor of *Chiron* attributes Bill Lawrence with an important part in the development of *Chiron*. He sent her an obituary of John Murray Blair OBE, MB BS 1923, FRACO, another unsung hero who devoted his life to his country and to a rural community.[3] This made Maggie determine that the journal should 'represent the young as well as the old, the humble and silent achievers, as well as those who have achieved public recognition . . . that it should represent medical graduates not only in their professional roles, but also as people of many and varied talents'.

In July 1995 Bill Lawrence wrote to Maggie Mackie about his difficulties trying to sell his practice:

> No, we have not had one single 'bite' to take over the practice, despite advertising in Australia, UK & NZ for almost three continuous years – most recently again in NZ, to tempt some of those in mid-year stints at hospitals at different levels. We just cannot understand why nobody will even 'come and have a look' – it really makes me wonder 'Do they really know what this area and this practice in particular really offers'.

The practice was still unsold when he died.

Bill Lawrence is survived by his wife Betty, his three children – David, Katrina and Elizabeth and his two grandchildren – Timothy and Kathryn.

This tribute was compiled from letters from Mrs Betty Lawrence, Dr John Hankey and Mrs Maggie Mackie, the eulogy at Bill's cremation, an extract from the official Sappers' War *and articles from local newspapers including the* Sunraysia Daily *and the* Red Cliffs Settler News.

HA & LB

1 *Chiron* Vol 2, No 2, 1989, 'The Mildura Experience' p611-63
2 *Chiron* Vol 3, No 2, 1994, 'A Good Life, A Country Practice' p59-61
3 *Chiron* Vol 1, No 5, 1987, 'John Murray Blair 1897-1986' p51

John (Jack) Williamson Legge

BSc, MSc

1917-1996

WHEN JACK LEGGE returned to Australia after three years in Cambridge, England he joined the Biochemistry Department of Melbourne University. It was just a few years after the Second World War. At that time the Department was being built up under the firm direction of Professor V M Trikojus. Jack came into the Department like a good-natured whirlwind; he was bubbling with fresh knowledge and a multitude of new ideas and immediately set about doing half a dozen things at once. The things he was doing were at the forefront of biochemistry which was to be a feature of his life in biochemistry. The mild austerity of the Department was softened by Jack's presence and the young people found him both socially and mentally attractive and always accessible.

Just after he joined the Department, I went to a lecture course of his and came away astounded – I did not have to take notes, I could just listen to his conversational style and walk out of the lecture room knowing all that had been said. I had not encountered this quality in a lecturer before – even from the few others I have admired.

Jack Legge had a versatile background; he had also majored in chemistry, had worked in the chemical warfare section of the 'army', and published a major reference book with Lemberg on blood pigments and related compounds. One could not speak with him without getting the feeling of great depth and he became a useful colleague to many carrying out investigations in hospitals.

There were some other aspects to Jack Legge which made him a complex personality. He had a certain duality to live with and this must have created difficulties for him; it certainly did for his scientific friends. He was a broad, biological scientist with firm beliefs in its foundations and integrity and he was also a communist of equally firm belief. The two beliefs did not always overlap. At that time there was a conflict between those who accepted conventional genetics and communist party dogma associated with another view. This was the infamous T D Lyssenko affair and its dictates on the mode of inheritance together with the persecution of respectable Russian geneticists. It became dogma that a communist environment would expose conventional genetics as being limiting and wrong. Jack was in the position of having to play it two ways. To his communist colleagues he tried to talk, general genetic sense and to his University colleagues he had to take a more oblique view; he pointed out remote examples of where inheritance was not restricted to passage through the nucleus of cells. As it turned out, several important examples of this type of inheritance are now well established but they actually have nothing to do with the claims of Lyssenko.

Jack Legge, highly intelligent and well informed, faced this sort of dilemma on some other matters. Many shared with him a dislike of the excesses of capitalism but did not share his 'obedience' to communist dogma. Many, also, were never really sure of what Jack felt – only of what he said. There was a slight, but distinct,

ambiguity in his tones. I took the plunge one day and asked him about the Hungarian episode – why didn't he pull out? His reply was a typical Jack Legge assessment: 'I know blunders have been made but there is enough left for the future benefit of the world for me to continue in the movement'. Later, after the collapse of the Soviet Union he just shrugged and mourned the collapse of the great experiment as a failure of human nature, but a necessary try. He never became an apologist – he just 'asymptoted' out.

Not many people realised that in every conversation, Jack was measuring the other person against himself. He never said he made these comparisons and he never announced the results but I am not the only one to have noticed this soft, egotistical, intellectual habit. Once discovered it became a nice little game.

His sympathy for the underprivileged and the weak was strong and he spent a great deal of time and effort trying to help hapless people who were not making a go of it. In many cases this was wasted effort: the number of people coming to him for advice, and the time taken to deal with them, lessened Jack's personal scientific output. However, like all of us, he was entitled to his own priorities.

Jack Legge was a voracious reader of astonishingly varied material and his powers of assimilation were enormous. These intellectual powers were matched by an equal level of enthusiasm. He was always up with, or ahead of, the forefront of knowledge and he directly accelerated the advance of many aspects of biochemistry in Australia by his influence on others. He made people aware of what was coming in molecular biology and introduced many to it. Unfortunately, his active imagination led him on and away from finishing many of the things which he had started.

As a teacher he was perhaps a little too far ahead of the undergraduate - his presentations were biased to interpretation rather than to the factual information not yet in the minds of the students. The students loved him but did not always understand him. For informed postgraduates, I found him brilliant. Outside the University, Jack became the Australian JBS Haldane – he gave many lectures on science to workers and was an important source of information for his public.

I looked forward to visits from this smallish, untidy man who knew so much. He was the only member of staff who would regularly wander into my laboratory and ask about what was going on. 'Dear boy,' or 'Mon vieux,' he would say, 'what are you doing?'. It was a genuine interest and often he would pass on a useful piece of information or suggest a new addition to a technique. During conversations he would often take snuff; he was fairly untidy about it and, unless you knew of the habit, the brown stains on his nose and upper lip gave the appearance of an added eccentricity.

Jack Legge revolutionised the practical work for the students from its old, stodgy past. His printed lecture notes were masterpieces of simple explanation. He was promoted to Reader and was the only person in the University, known to me, who filled the Cambridge-Oxford requirement for the title – he read and he dispersed the digested products of his reading to other members of the Department.

Jack Legge was one of the significant people in my life. He had a great and generous mind and other worthy characteristics. I witnessed his remarkable patience during his long recovery from a serious motorbike accident. When his health began to decline in retirement I witnessed the same steady patience after his incapacitation by stroke.

Jack is survived by his four sons and seven grandchildren.

FJR Hird

Dame Ella Annie Noble Macknight

MB BS 1928, MD 1931, DGO 1936

1904-1997

UMMS notes with regret the death of Foundation Life Member Dame Ella Macknight FRCOG, FRACOG, FRACS, FAMA, on 1 April 1997.

A full obituary will appear in the 1988 edition of *Chiron*.

LB & HA.

Una Beatrice Porter, CBE, OBE

MB BS 1944, MRANZCP

1900-1996

UNA PORTER

UNA ALWAYS SAID 'I came in with the century'. Yet she fitted in with people of all ages. She came from hard-working, strongly religious Scottish stock. Her father and mother were both school teachers until her father joined his cousin, L Moran, and they founded the first chain of highly successful grocery stores in Melbourne. Una was one of eight children, brought up amidst great wealth, comfort and a family ethic (adhered to with an almost biblical intensity) that the family had been given ten talents which were to be used for God's work and in the service of people who were not so fortunate. Her father founded the F J Cato Charitable and Benevolent Funds of which Una became a trustee. The monies were used for the family's great philanthropic gifts to individuals and to schools, hospitals and any public appeal for money for a good cause.

Una grew up in an age when the education of women was not considered to be of vital importance. Accordingly, when she left school, she joined her mother and her sisters in charitable and committee work particularly with the YWCA. She spent a great deal of time with her elder sister Gertrude, whose husband, a missionary with the Sudan United Mission, died leaving his widow with two children. When Gertrude's younger child Lucy, died with diabetes, Una's thoughts turned towards doing the medical course. She had a first class brain and a very perceptive mind and realised she really wanted to do something practical with her life.

Unfortunately, Una's schooling, both at MLC and in the United Kingdom had been frequently interrupted, firstly by her own bad health and then by the First World War. Now in her thirties, she decided to begin a new life by going back to school and gaining her university entry qualifications for the medical course. She had a tutor, obtained the necessary requirements and enrolled in the medical course. Sadly, in the second year of her course, her father died and Una gave up her studies to return to family duties for a few years. However, in 1939, she saw her way clear to coming back to medicine and rejoined the course at second year. In order to be free to pursue her medical studies, she moved out of home and took a flat in Clivedon Mansions for the duration of her medical course.

At nearly thirty-nine years of age Una was the oldest student in our year. Although many of us were graduates from other faculties, now doing medicine, it always amazed me how well Una fitted in with the hurly burly of medical students of all ages. Una was everyone's friend and always had a sympathetic ear to listen to the troubles of her confreres. Instead of holding to the usual custom of medical students, and striving for individual results, Una was keenly aware of the life of the group as a whole. This was particularly evident in her relationships with other women in her year – if anyone became ill, became engaged or married, or had a birthday, Una sent them flowers or a gift appropriate to the occasion. I remember Una's birthday (I think it must have been about her forty-second) when we were doing our two months' stint in the Women's Hospital. When dinnertime came on that night, Una produced party fare for all the resident students and a lovely gift for each one of them. For many years I used the navy blue leather handbag which Una had given me on that special occasion.

Dr Bell Broderick writes: 'One of my fondest memories of medical student days with Una, was my taking delivery of a beautiful flower arrangement on my twenty-first birthday in 1940. It was from Una and made me feel special and valued. Every time I see those flowers, I recall that moment and think of Una. She was a wonderful colleague and fellow-student, and just as she had listened to us in our student days, when Una was eventually practising medicine, she had a wonderful touch with her patients and listened to them too. When Una was psychiatrist to the Queen Victoria Hospital,

she got on well not only with her patients and the medical staff but was loved and respected by the non-medical staff also.

She was a very cultured person, interested in music and reading and painting. She dressed immaculately and always had a beautiful diamond or diamond and emerald ring on her small, expressive hands.'

Just before Una came back into second year medicine, she bought a property at Olinda which consisted of a very comfortable home, complete with caretakers. Una built a superb chapel on the hillside below the house, overlooking the mountains. She had the chapel consecrated and it became her spiritual home. Una was absolutely desolated when the chapel was subsequently burnt down during bush fires while she was away on a world YWCA meeting. While she was at university there were many tired medical students whom Una would invite for a few days rest at 'Lazy Acres', to return to the medical course refreshed.

Una did well in her medical course and elected to do her general residence at Prince Henry's Hospital and later, her specialist residence at Lakeside Psychiatric Hospital in Ballarat. She had always been interested in psychiatry and psychosomatic medicine: even before she completed medicine, she had paid the expenses for Dr Anita Mihl to come to Australia to teach psychiatry. It was only natural, therefore, that when she finished her residency at Lakeside, she continued specialist psychiatric training. Eventually she was appointed Senior Psychiatrist at the Queen Victoria Hospital from 1949 to 1965. In 1965, Una and her brother, Alec Cato, endowed the University of Melbourne Foundation Chair of Psychiatry.

After retirement Una kept her interest in psychiatry, but gave most of her time and energies to the YWCA at both national and international levels. She used this time of her life to devote herself to the YWCA and the needs of young people in the under-developed and under-privileged areas of the world – her work there is legendary. Una was World President of the YWCA from 1963 to 1967. Sadly, it was during this time that her loved husband James, whom she had married in 1946, became ill and died. They had no children.

As well as being a great achiever, Una was always a gracious lady, even in the last months and weeks of her life.

Gwen Donald and Bell Broderick

L-R KARL GASSETT, SHIRLEY WONG, DELIA TORES, JULIE THOMAS, SHOMIK SENGUPTA AND FRANKIE WONG AT WANGARATTA HOSPITAL IN 1991.

Frankie Kuan Wen Wong

MB BS 1993

1970-1996

FRANKIE WONG died on 26 July 1996, aged twenty-six – killed in a tragic car accident. When he died Frankie was the medical registrar at Wangaratta Hospital (the country rotation of the Royal Melbourne Hospital) and waiting to sit the FRACP examination in 1997.

Born in Canberra on 22 March 1970, an only child, Frankie spent his university and working years in Melbourne while his Malaysian-Chinese parents were living in Hobart, Tasmania. Frankie's love and respect for his parents always showed when he talked about them: he often told us how he admired the intelligence of his father and the tenderness of his mother. Frankie's love for them will never die.

After graduating MB BS from the University of Melbourne in 1993, Frankie spent his internship and JHMO years at the Austin and Repatriation Medical Centre then decided to return to the Royal Melbourne Hospital to do the FRACP training.

Frankie was a dear and valued friend for many years. We were in the same group during our clinical years (1990-1993) at the Royal Melbourne Hospital. There were six of us in the clinical group. We grew up together. We shared many ups and downs in our lives. We encouraged each other in the hard days during endless examinations. We celebrated together at graduation.

Frankie was a very intelligent person, a real achiever in the medical field and a dedicated doctor. The night before his tragic accident, he spent many hours in the Wangaratta Hospital Intensive Care Unit trying to resuscitate an elderly patient. The subsequent fatigue took him away from us.

In his short but prosperous life, Frankie was surrounded by love from his parents, friends and colleagues. I had the pleasure of knowing him for nearly ten years. Frankie will be mourned by many and will be specially remembered by me.

You who suffer from the tribulations of life, you who have to struggle and endure, you who yearn for a life of truth, rejoice at the glad tidings. There is balm for the wounded and there is bread for the hungry. There is water for the thirsty and there is hope for the despairing.

Lord Buddha

Frankie and his father were faithful buddhists.

Shirley Wong

Percy Zerman

MB BS 1942

1919-1996

FOR NEARLY FIFTY YEARS Percy Zerman was a general practitioner in Pascoe Vale South, a northern suburb of Melbourne, for most of that time in amicable partnership with Albert Vella, who had earlier come from Malta. This was one of the golden ages in medicine – science had replaced herbals, doctors were highly regarded and their advice unquestioned, high technology had not invaded with its associated commercialism and interference from government and bureaucrats was relatively benign.

Percy Zerman was born in Warsaw, Poland, in 1919 and came to Australia with his parents soon after. He was educated at Moreland Central School, University High and Melbourne University. After residency at Launceston, he enlisted as medical officer in the AIF and served in 8 Field Ambulance in New Guinea for the Lae campaign.

Percy joined Legacy in 1956 and this became a major dedication for him. He served as Medical Officer to boys' classes, on various welfare committees, the Sir Edward Dunlop Medical Research Foundation, and found time to visit widows and those needing special attention. He also served as Chairman of Directors of the Australian Jewish Welfare Society.

Percy's major hobby was the collection and study of ancient coins, particularly Greek, but he was also a lover of literature and all types of music, especially jazz.

He was supported by a strong wife, Regina, until she had a permanent paralytic and aphasic stroke. This dealt Percy a tremendous blow, but he devotedly attended Regina for several years until she died in August 1995. Percy is survived by sons Michael and David and granddaughter Moya.

People remember Pecy Zerman as a man of relatively small physical stature but of abundant friendliness, kindness and sincerity.

Ron Lowe

UMMS records with regret the passing of

William Samuel Benwell (MB BS 1941)
Rona Marjorie Charters (MB BS 1943)
Edward Hayden Wilcox Deane (MB BS 1925)
Robert Leo Fulton (MB BS 1921)
Peter Warren Joseph Leighton (MB BS 1952)
L E Le Souëf (MB BS 1922)
Donald McKenzie McNab (MB BS 1939)
Geoffrey Leon Richardson (MB BS 1961)
Joseph Paxton Robinson (MB BS 1941)
Norman Royal (MB BS 1953)
John George Simpson (MB BS 1941)
Ronesh Kumar Sinha (MB BS 1987)
Francis Bernard Spillane (MB BS 1929)
Neil Sutherland (MB BS 1960)
Ian Tulloch (MB BS 1943)
Mary Margaret Westcott (MB BS 1974)
Ian Arthur Wilson (MB BS 1940)

UMMS Congratulates . . .

COLIN MASTERS

PROFESSOR COLIN MASTERS, Head of the Department of Pathology of this University, who has been jointly awarded the 1997 King Faisal International Prize for Medicine for his fundamental research into the pathogenesis of Alzheimer's disease.

As a medical student, Colin started his research into degenerative diseases of the central nervous system in collaboration with Dr Carleton Gasjudek of the National Institutes of Health. In 1978 he concentrated his interest into the deposition of amyloid in Alzheimer's disease. Collaboration with Professor Konrad Beyreuther in Heidelberg delineated the amino acid sequence of the AD plaque amyloid which enabled the cloning of the gene coding for the amyloid precursor protein.

Colin shares the prize of US $200 000 with his associate, Professor Konrad Beyreuther, a protein chemist and molecular biologist from the University of Heidelberg and with Professor James Gusella, the Bullard Professor of Neurogenetics at Harvard. Each also receives a 22 carat 200 gram gold medallion.

It is likely that the fundamental work done by these researchers will lead to a rational form of treatment for Alzheimer's Disease.

- Professor Tony Burgess, Professor Donald Metcalf and Professor Nick Nicola, joint winners of the AMGEN Australia Prize for excellence in medical research
- Professorial Associate Peter Colman – one of a group of four awarded the 1996 Australia Prize
- Professor Ashley Dunn – AMRAD Pharmacia Biotechnology Medal and Travelling Lectureship for 1996
- Professor Andrew Kaye, Sir Arthur Sims Commonwealth Travelling Professorship 1997
- Professor Emeritus Priscilla Kincaid-Smith – awarded an Australian Achiever Award for her lifetime's work in renal health
- Professor Richard Larkins – new Chairman of the National Health and Medical Research Council
- Dr Ronald Francis Lowe – on being awarded the Gold Medal of the Royal Australian College of Ophthalmologists
- Professor Sir Gustav Nossal - Honorary Degree of Doctor of Science (University of NSW)
- Associate Professor Michael Quinn – the Victoria Day Award for outstanding community service.
- Dr Rob Shepherd – awarded the Garnett Passe and Rodney Williams Memorial Foundation Senior Research Fellowship for research into cochlear implants in young deaf patients.
- Professor Hugh Taylor – awarded the Paul Harris Fellowship of Rotary International

Officers of the Order of Australia (AO):

- Professor Ruth Bishop, Professorial Associate in the Department of Paediatrics for her contributions to the understanding of gastroenteritis in children
- Professor John Paul Coghlan, for service to scientific and medical research at the Howard Florey Institute of Experimental Physiology and Medicine, particularly in the field of endocrinology, and to the arts
- Professor John Allan Eisman, for service to medical research, particularly in metabolic bone disease, and prevention and treatment of osteoporosis
- Professor Colin Johnston, for services to medical research particularly in the field of hypertension in relation to heart and kidney disease and postgraduate education
- Professor Jack Martin, Department of Medicine, St Vincent's Hospital for his service to medical research, particularly in the field of endocrinology and as director of St Vincent's Institute of Medical Research and Professor of Medicine at the University
- Dr Heather May Munro, for service to medicine in obstetrics and gynaecology, and to the Royal Australian College of Obstetricians and Gynaecologists

Members of the Order of Australia (AM):

- Emeritus Professor Charlotte Morrison Anderson, for service to medicine in paediatric gastroenteroloy, research of cystic fibrosis and coeliac disease
- Captain Peter Graeme Habersberger, for exceptional service in the integration of members of the Australian Naval Reserve

Recipients of the Medal of the Order of Australia (OAM):

- Dr John Henry Winter Birrell ISO, for service to medicine and the community, particularly by reducing alcohol-related road trauma and by advocating recognition of child abuse as a social problem
- Dr Dorothy Laurel Pauline Chong, for service to the community and medicine in general practice, particularly in caring for the elderly
- Emeritus Professor Kenneth Russell Cox, for service to medical education and the World Health Organization.
- Ms Fleur Spitzer, Associate, Department of Public Health and Community Medicine, for service to, women, particularly the ageing as benefactor of the Alma Unit on Women and Ageing in the University's Key Centre for Women's Health in Society.

The Royal Melbourne Hospital 150 Years Anniversary

The Royal Melbourne Hospital will be celebrating the 150th Anniversary of its establishment on Sunday 15 March 1998.

A conference will be held at the hospital on 12 and 13 March with satellite meetings on 11 and 14 of March.

The conference will focus particularly on the achievements of the hospital staff, with special emphasis on the future role of information technology and multimedia in health practice.

Former Royal Melbourne Hospital graduates are most welcome to register their interest in receiving further information by contacting the Board of Postgraduate Medical Education, Royal Melbourne Hospital Post Office, Victoria, 3050, Australia.

Medicine and Music

A Reflection on a Memorable Evening

by Peter McInnes

Member of the University of Melbourne Music Alumni Committee

ON 9 AUGUST 1996, an unusual program took place in the Old Pathology Theatre at the University of Melbourne. The unusual nature of the program attracted many members of the University of Melbourne Medical Society and of the Music Alumni Society. The interest of the two groups was focused on an aspect of the life and an example of the work of a rare individual: Ludwig van Beethoven.

Beethoven's life was characterised by both triumph and tragedy and it could be said that the triumph and the tragedy were the essence of the evening's program. The tragedy was his deafness; the triumph was the music he left us. Each of the two contributors to the program is extremely well known in his respective field.

Dr Peter Davies, a well known consultant physician and gastroenterologist, is also an internationally acknowledged authority on the illnesses of Mozart and Beethoven. In 1991, the University of Melbourne awarded Dr Davies an MD for his work on Mozart. During 1997, the BBC will release a new documentary on the life of Beethoven including a segment on Beethoven's deafness contributed by Dr Davies.

Ronald Farren-Price, one of Australia's finest pianists, has given concerts abroad and in Australia for four decades. He is also head of Keyboard Studies in the Faculty of Music. In 1990, he was awarded the Order of Australia for service to music.

Peter Davies spoke first and fascinated his audience with a measured and methodical description of the chilling onset of Beethoven's deafness. His commentary was enhanced by a slide presentation which provided both supporting evidence for his assertions and ample indication of his extensive research in Vienna, Bonn, London and New York.

He gave particular attention to the manuscript evidence which ascribed a serious febrile illness to Beethoven in 1796, when he was twenty-six years old. The Heiligensladt Testament of 1802 is a central element of documentary evidence in any discussion of Beethoven's hearing loss and Peter Davies gave considerable attention to Beethoven's acknowledgment in the document that hearing loss had been an affliction 'for the last six years' - since 1796.

The notes of a Salzburg physician who was himself deaf and visited Beethoven at the time of the Congress of Vienna in 1814 were also considered. Evidence from these sources and from the autopsy report led Peter Davies to dismiss otosclerosis, the most favoured cause of deafness in the current Beethoven literature.

Instead, an analysis of available evidence led him to attribute the cause of Beethoven's deafness to Meningo-neurolabyrinthitis, probably caused by an attack of typhus fever or some other form of meningitis. Other factors which may have affected the progress of the disease were auto-immune mechanisms, auditory trauma (Napoleon's canons!), acoustic trauma (the ear trumpets!) and prescribed drugs, particularly quinine and mercury. Illustrations of the actual ear trumpets used by Beethoven added an element of pathos to the presentation.

By 1815, Beethoven was almost stone deaf, and the conversation book began in about 1817.

At the conclusion of the extremely warm reception given to Dr Davies' address, without further comment or introduction, Ronald Farren-Price moved to the piano and played for an enthralled audience the Sonata in F Minor Opus 51 – The *Apassionata*. Ronald Farren-Price gave a superb performance of a magnificent work; a fitting complement to Peter Davies' outline of the tragedy of the composer's life.

The audience response was extremely enthusiastic and a fine program was thus brought to a close.

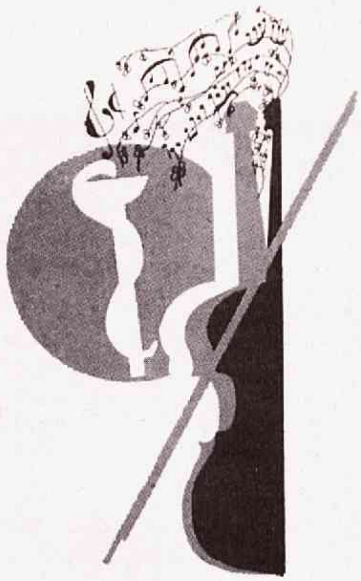
The choice of the *Apassionata* for the evening's program, was, in my view, perfect. As one writer has it:

> The title Apassionata was given by the publisher without waiting for Beethoven's consent. It is justified by the eminently tragic tone of the whole work. No other work of Beethoven maintains a tragic solemnity throughout all its movements.[1]

The performance of the sonata set against the content of Dr Davies' address leads to the reflection that Beethoven himself never heard the music as we were fortunate enough to hear it - in the hands of a master pianist.

I believe that this was the first occasion on which members of the Medical Society and the Music Alumni Society joined in a program of interest common to the two specialised fields. I hope it is not the last, for it was a memorable evening.

[1] Donald Francis Tovey, *A Companion to Beethoven's Pianoforte Sonatas*, The Associated Board of the Royal Schools of Music Board, 1931, p 169.



Music in Medicine Conference

THE VIITH CONFERENCE of the International Society for Music in Medicine (ISMM) is to be hosted jointly by the Faculty of Music and the Faculty of Medicine, Dentistry and Health Sciences in July 1998.

ISMM was founded in 1982 as a medical research society. Two thirds of its members are medical doctors, and one third comprises scientists and representatives of other academic specialties who have special knowledge of music and medicine.

One of its prime purposes is to 'foster and encourage research into the therapeutic mechanisms of music to help improve the management of patients through musical means by bringing together scientists, physicians, musicians, psychologists and other professionals'.

Scientific exchange of information is provided through the International Journal of Arts-Medicine (IJAM). There are three sub-fields of Music in Medicine: 1. therapeutic applications of music in medicine (physiological outcomes); 2. occupational health problems of musicians (particularly in relation to performance stress); and 3. music therapy in medical settings, including music and pain relief.

ISMM has issued a **Call for Papers** for the VIIth Conference. Details can be obtained from Denise Erdonmez Grocke, Faculty of Music, University of Melbourne, Parkville, Vic 3052,
Telephone: +61 3 9344 5256,
Fax: +61 3 9344 5346.


Medicamenta
ad Apoplexiam, Cephalaã; Epilepsiam, Maniã, omnesq. Morbos Cephalicos

Life and Death in Georgian England

Case Notes from a Country Medical Practice

Dorothea Rowse
Life Sciences Librarian

A WONDERFUL ARRAY of early anatomy atlases forms a highlight of the Brownless Medical Library Rare Book Collection. Aptly described bibliographically as elephant folios, they provided the main vehicle during the seventeenth to nineteenth centuries for publication of new anatomical discoveries, carefully described and illustrated with exquisite engravings. Some of the anatomists did their own drawing and engraving, while others commissioned plates from well-known engravers.

One of the gems in the collection is an extremely battered copy of *The Anatomy of humane bodies* by William Cowper. The copy lacks a title page but from internal evidence, it must belong to the notorious first edition of 1698, for which Cowper was accused of plagiarism. Govert Bidloo, Professor of Anatomy at the Hague, had in 1685, published *Anatomia humani corporis*, much admired for over one hundred beautiful copperplate illustrations. Cowper appears to have translated the text into English, purchased three hundred sets of the copperplate illustrations, added a further nine plates to each set and published the resulting work under his own name in 1698. A second edition appeared in 1737 and a Latin edition in 1739. Cowper never admitted to the theft, claiming that the prints had been the intellectual property of Jan Swammerdam of Amsterdam, by then conveniently deceased. He and Bidloo indulged in a vitriolic exchange of published accusation, but, essentially, Cowper is credited with a spectacular piece of intellectual theft.

The copy in the Brownless Medical Library has an additional claim to fame. Its owners of the early eighteenth century used it as a convenient place to record case notes. The verso of many of the large, engraved plates are covered in a fine, very elegant script, detailing the treatment given to patients. Generally, the prescriptions are lists of the constituents of '*the mixture*'. Occasionally more drastic measures such as breast amputation or bleeding are noted. The careful, even handwriting suggests that these notes were copied into the book when time permitted, and that these were successful treatments worth recording.

Each pair of pages is devoted to a particular condition – for example one section groups apoplexy, mania and epilepsy together, while another deals only with inflamed eyes. Fever of many kinds, stomach and lung complaints and kidney problems predominate in the diagnoses. Down the outer edges of the pages are the names of patients, sometimes with the dates of consultation and the name of the doctor. These dates are earlier than the publication date of the second edition, thus dating this volume definitively to the 1698 edition. A number of doctors and a surgeon, Richard Tribe, are named and research is currently in progress to establish their professional relationship.

No indication of geographical location appears anywhere in the volume. However, a variety of historical sources have been used to track down the occurrence of the names of the patients for the period 1725 to 1735. For example, using some of the maladies as a rough guide to the possible age of the patients, baptismal records for England were checked. Many of the older patients were born in the 1670s and 1680s and in the case notes carried the additional descriptor of 'Snr'. Death records for Hampshire show that a number of the patients succumbed to their illness, sometimes shortly after the date of consultation. The coincidence of names finally made the location of the practice in an area centred on Hambledon in Hampshire indisputable.

Hambledon lies north of Portsmouth, and is surrounded by a number of historic villages in which many of the patients lived. One of its better-known features is a very early cricket ground. Research to date suggests that the patients ranged from gentry – the Hyde family of Catherington – through retired officers such as Captain Edmund Hook, and professional men such as clergymen and the doctors of the Tribe family, to innkeepers, yeomen farmers and the occasional agricultural labourer. The practice appears to have served a relatively affluent community.

Research on this volume and the community it describes is continuing. Based on this study, a large exhibition of books drawn from the Rare Book Collection, illustrating medical knowledge and practices of the time, is planned for Autumn 1997, to be held in the Baillieu Library.

The Blow-out of the Medical Students' Society

May 13th 1902

— PRO-GRAMME —

1. BEER UP at 8 PM. SHARP
   followed by
2. POSITIVELY THE FIRST AND ABSOLUTELY THE LAST APPEARANCE OF JAMIESON. D.D.
3. ONE MINUTE INTERVAL
   FOR THE SLAUGHTER OF THIS PERFORMER BY THE GRATIFIED AUDIENCE succeeded by
4. COMIC SONG by J.E. STREETER whose STYLE is POSITIVELY UNIQUE
   SO MUCH SO THAT HIS DEMISE WILL "PROBABLY" OCCUR ABOUT THE END OF THE SECOND BAR
5. ONE HOURS INTERVAL FOR REFRESMENTS
   — PART II —
6. FACTS CONCERNING SANDOW and MY DOGS and POULTRY &c. &c. &c. by
   M. C. LIDWILL
   THE UP TO DATE DE ROUGEMENT
   (TOO GOOD TO KILL)
7. GRAND FINALE. LECTURE ON THE LIFE HISTORY, MORPHOLOGY, DIAGNOSIS and PROGNOSIS OF A PIMPLE
   by W. D. FERGUSON. DERMATOLOGIST TO HIS MAJESTY

N.B. WILL ELDER and other JUNOR PERFORMERS will fill in THE GAPS
BRING CATHETERS

A dead cold invitation is extended to the friends and regulars of the MEDICAL STUDENTS SOCIETY to attend a WAKE over the death of the Old Room (at Rubira's) to be held on TUESDAY EVENING MAY 13th at eight o'clock Friends of the Friends of the Society's friends are requested to bring crape and ice and join in the Dead March and partake of the liberal fare supplied by the caterer (See the left hand bottom corner). Free of Cost. Term STRICTLY CASH Payment before DELIVERY

SYMPATHY FREE

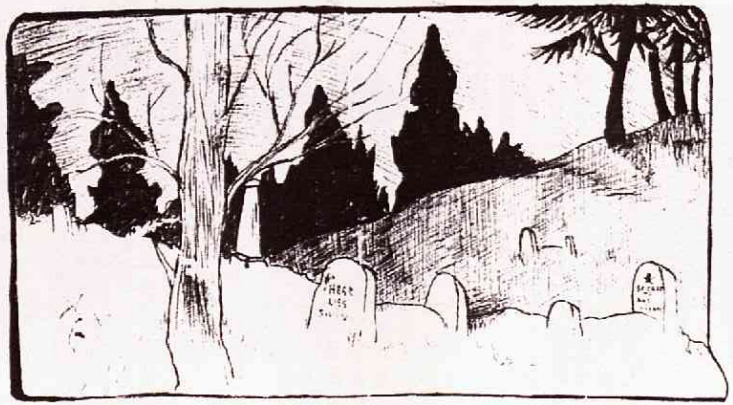
Note. The new gorging chamber is under selection and will be made known as early as possible.

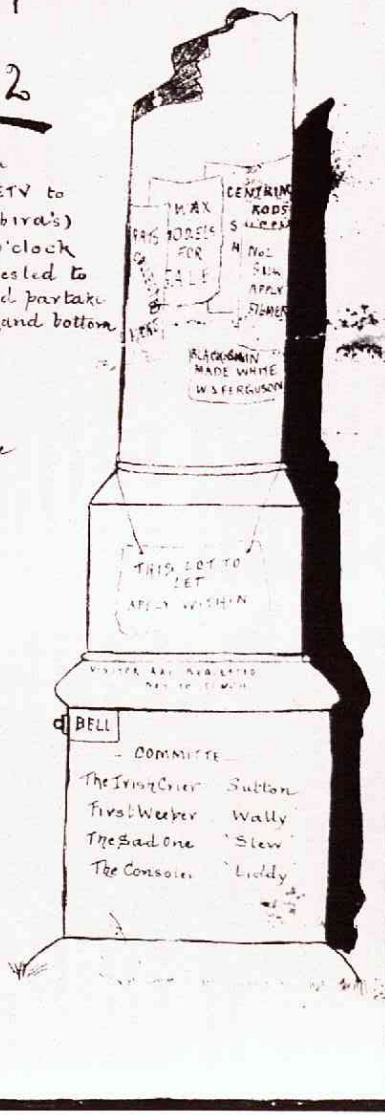
BILL OF FARE

1. NO ALE
2. NO WINE
3. NO BEER
4. NO SPIRITS
5. NO PASTRY
6. NO PORK
7. NO PICKLES
8. NO CHEESE
9. NO TEA
10. NO SOUP
11. NO CURRIES
12. NO NOTHING

By order of the CATERER
J. E N-H-LL
M D (illegible)

— The Artist —
(in regard)
Copyright Reserved





Architect, Draftsman, Scribe, Cartoonist, Doctor

John Russell Parry – A Posthumous Tribute

In Chiron *1996, 'Models For Remnant'(p70) recorded, for the first time, that John Russell Parry was the creator of the spoof of the famous Anatomy Lesson by Rembrandt which appeared in* The Speculum *of 1935.*

JOHN PARRY

JOHN PARRY DIED IN 1940, yet he is happily and instantly remembered by the small number of his contemporaries still alive fifty-seven years after he died. This instant, happy recall of someone, so long after their death has been a new experience for me and hence this posthumous tribute.

Neither obituary nor death notice appeared in the *Medical Journal of Australia* after John Parry died. This omission may reflect that most of his contemporaries were overseas or in the services. He had, moreover, only been medically qualified for two years when progressive muscular atrophy prevented him working. Notices of his death appeared in journals and newspapers to which he had been a regular contributor – *The Herald, The Sun News-Pictorial, The Argus, The Bulletin, The Australian Home Beautiful* and the *Sydney Catholic Press.*

What did he contribute and why is he so well remembered – John Parry was not *just* a doctor!

John Parry was educated at Xavier between 1918 and 1923, but long remained an active Old Xaverian and often took a prominent part in concerts by the O.X.'s *Thespians.* A talent for drawing is said to have directed him into the Diploma of Architecture course at the University of Melbourne in 1925. From his record card he passed all the subjects involving drawing, indeed he got an Honour in 'Free Drawing', but stumbled in the more scientific subjects.

In 1928, John submitted a measured drawing of the National Gallery to a competition held by the Royal Victorian Institute of Architects. The drawing had involved months of work as it was necessary to climb ladders and scale buttresses to get the exact measurements. John not only won the bronze medallion, but his drawing was considered to be such a fine one that the judges 'agreed that the medal had never been so well earned and so thoroughly merited'. John's drawing was retained, framed and put on exhibition in the institute as an example for future contestants.

Gaining his DipArch in 1929, he joined the firm of Messrs Hudson and Wardrop, who were then at work on the Shrine of Remembrance.

In the 1931 *Melbourne University Magazine,* John contributed an article on the War Memorial of Victoria. He emphasised the care taken by the architects 'to adhere to the Classic Greek principles of optical refinement' best demonstrated in the Parthenon. A long classic cornice will only look horizontal if there is a camber in the middle and classic columns must taper to look uniform!

The title of this article is written by John in 'a form of English Gothic text' in exactly the style and size of the names in the Book of Remembrance. John was one of seven scribes each of whom was responsible for about 16 000 names. The names of 'every Victorian soldier, sailor, airman and nurse, not only those of the fallen' are given in alphabetical order and only the surname, initials and military decorations given – no rank is given.

> For example, in between the names of privates Monar, W. J., and Monck, F. O., appears the simple record 'Monash, Sir John' followed by the decorations K.C.B., G.C.M.G., V.D. The names of Matrons, Sisters and Nurses are intermingled with those of the soldiers. . .

The names of the men of the Royal Australian Navy are contained in a separate volume.

In 1929 and 1930 John Parry contributed many illustrated articles to the *Age* and *The Australian Home Beautiful* on architectural matters or 'do it yourself jobs'. He was a regular contributor to *Melbourne University Magazine* 'the only really serious publication undertaken by the students' (*Age*). The *Age* also had a critical article on one copy of the MUM, but nevertheless recorded appreciation of the 'clever sketches by J.R. Parry'.

In 1932 John Parry entered the medical course because 'he wanted to do so'. In that year he passed only in Botany, but passed the other subjects – Natural Philosophy, Chemistry and Zoology in March 1933. His drawings in his practical notebooks are superb – indeed his drawing of a flea is very like that of Hooke's in *Micrographia* (1665). John Parry graduated MB BS in December 1937, but his extracurricular activities were far more important than his academic achievements. His mother kept a scrapbook in which many of these were recorded and it is from this I can cite contemporary descriptions of some of John's activities.

In the early 1930s medical students had shunned the Students' Representative Council, but in 1935, three stood for the three vacant general representative positions. The three medical students were elected – John Parry, John Catchlove and Charles Johnston – all from the same year. Methinks Parry had a hand in this. Several comments appeared in the press:

> The flag of the medical Students' Society, black with a white skull and crossbones flew triumphantly over the Anatomy School at the University today to celebrate the medical students' triumph in gaining all three places as general representatives on the Students' Representative Council. The election was the first one which the medical students have seriously contested and the first in which three students from the same faculty have been returned . . .

John was later elected President of the SRC and this produced more comments:

> John Parry has aptly been described as the doyen of the student body.
>
> The lighter side of student life has found him amusing the University Camp for Public Schools, of which he is Vice-President, wielding a musical(?) baton at Freshers' Welcomes, embellishing student publications, and indulging in diabolical impersonations of the lord mayor in the successful University revue 'Swot Next'. The Army has also claimed much of his attention. Having got his commision with the MUR in 1927, he has since served as lieutenant with the Artillery and Engineers, and is now on the Reserve of Officers.
>
> What a genial manner has the dashing red-haired architect-organist-soldier-medico John Parry. Attired in his Australian Citizen Forces mess uniform at the St Vincent's Hospital Ball last week, there was no missing this gallant young man for after he had said the 'right thing' to everyone at the official table, he wended his way and did the same to other friends packed in in other parts of the hall.

It is sad that such a bright and talented man should have been struck down with such a terrible disease as progressive muscular atrophy. The first sign appeared when, in 1938, as a first year resident at St Vincent's, John was unable to release an artery forceps while assisting Mr Leo Doyle. This caused criticism at the time but understanding prevailed afterwards. Despite knowledge of his illness John Parry was the Santa Claus at St Vincent's in 1938 and 'brought many gifts, chief among which was a box of flowers for the Mother Rectress containing a cheque for 1683 pounds raised by the auxiliaries during the past half year'.

In 1939 John became a Medical Officer at the Royal Park Hospital where he is said to have 'used his skill in illustrating an important scientific work'.

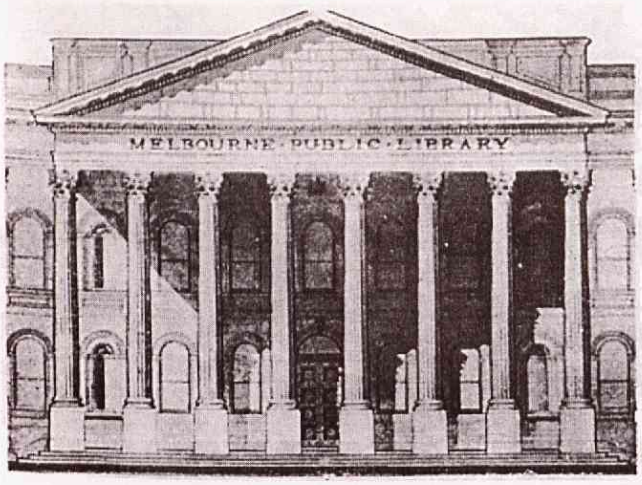
On the 12th July 1939, John married Eileen Frances McGrath who had been a nurse at St Vincent's and knew all about his illness. Eileen looked after John until his condition was such that two nurses were necessary. John, aged thirty-four, died on 16 October 1940 and was buried in Castlemaine Cemetery.

The grave is still tended regularly by Eileen – now Eileen Macintyre – and her husband Ian.

HA

Mac-Callum,
Sister K.E.
Mac-Callum, R.W.
Maccarlie, R.H.
Maccarthy, C.V.

A.



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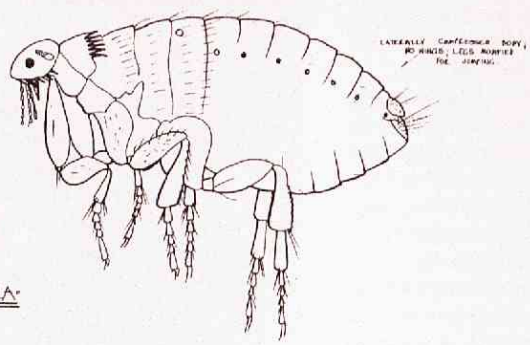

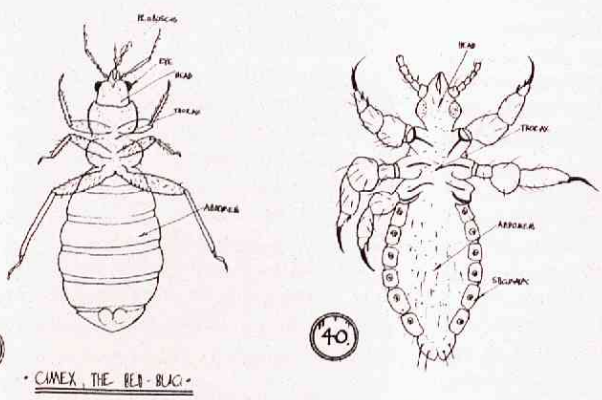

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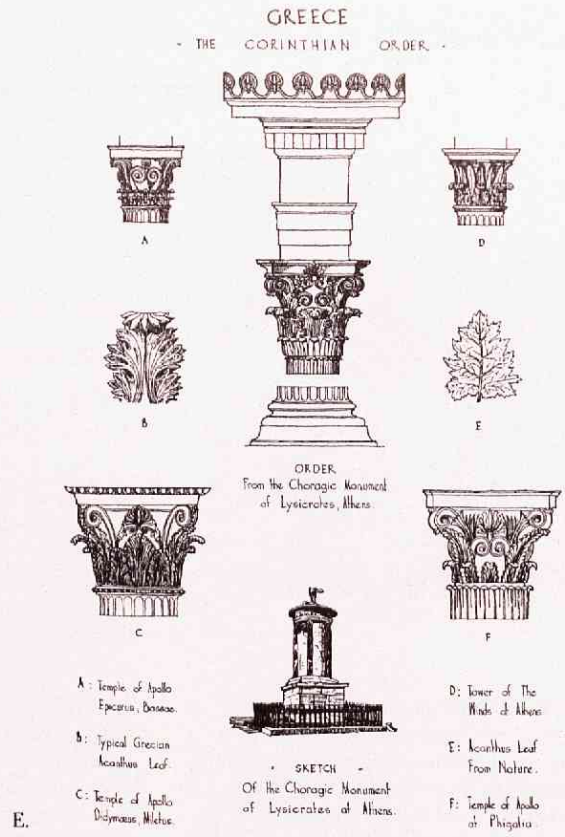

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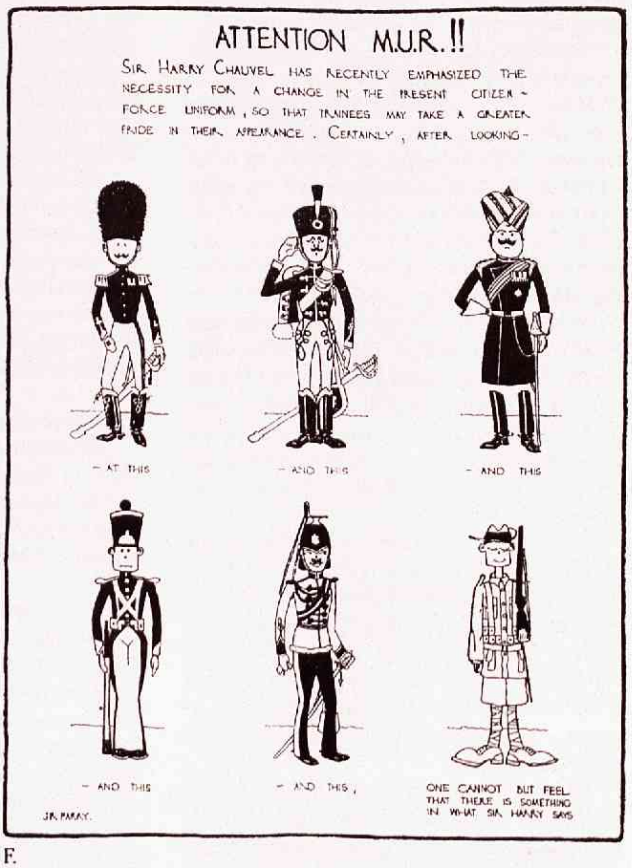

F.

A. Sample of calligraphy from the Book of Remembrance.
B. Portico of the National Gallery by John Parry from *Home Beautiful* magazine 1 May, 1928.
C. John Parry (centre) as 'visiting European royalty' at Somers Camp.
D. Sample of work from John Parry's biology notebook.
E. Sample of work from John Parry's architecture notebook.
F. Cartoon by John Parry from the October 1928 issue of *The Melbourne University Magazine*.

JULIE CLIFF AO, MB BS 1967

JULIE CLIFF

In 1996 Julie Cliff was awarded an AO for her service to medicine and international relations as a leader in the development of community services in Mozambique. The editors thought Chiron *readers would be interested to hear about her and wrote to her at an address in Melbourne. Months passed, then Julie's letter arrived from Mozambique asking if she could send her story via the Internet and not long after, the Internet duly delivered an Email message containing the following story to the* Chiron *computer.*

I NEVER IMAGINED that my interest in tropical medicine would lead me to a cassava field. I am resting after a sweaty walk through the African bush with an Australian food chemist collecting samples of cassava flour from peasant households to measure them for cyanide content.

This story began fifteen years ago when I was working in the Epidemiology Section of Mozambique's Health Ministry. A radio message came from a remote part of northern Mozambique: 'Epidemic of polio – patients with increased reflexes'. As polio does not give increased reflexes, my curiosity was aroused. I went to investigate and found hundreds of people suffering from spastic paraparesis.

With a team of local and international colleagues, we pieced together the story. Owing to drought and consequent failure of all their other crops, people in the area had become dependent on a diet of bitter cassava. Bitter cassava contains cyanogenic glycosides; we were dealing with chronic cyanide poisoning.

Cassava is a staple food for many of the world's poorest people and they often prefer bitter varieties, probably because the high cyanide content protects against predators and pests. Although various processing methods remove cyanide from bitter cassava, they are usually either lengthy or labour-intensive. Starving people don't have time.

Epidemics of the same disease have continued in Mozambique and in other African countries during agricultural crises. How to prevent them? The solutions are complex and beyond the competence of a health worker; they involve rural development, cassava breeding, and improved processing. The path I have taken in my career has led me from clinical to preventive medicine and now into an inevitable partnership with agronomists and food scientists.

How did I arrive in that cassava field in Mozambique? It all seems so very simple.

I graduated in medicine from Melbourne University in 1967. While a student, I had gone to New Guinea and discovered the fascination and rewards of working in an underdeveloped country. Following graduation and residency, I went to London to do a Diploma in Tropical Medicine and Hygiene. Some of the best teachers were old Africa hands, who conveyed to me the excitement of working in Africa. When I was offered a locum in Zambia at the end of the course, I couldn't resist.

After the locum ended, I visited other countries in Africa. In Tanzania, I met wise colleagues who explained that they needed more qualified teachers, not newly-qualified doctors. I therefore returned to London and studied for my Membership of the Royal College of Physicians. With that qualification, I returned to Tanzania in 1974 as a Lecturer in Medicine at the Medical School in Dar es Salaam.

Nineteen seventy four was an exciting year in Tanzania. Since independence in 1961, Tanzania had given unstinting support to liberation movements in neighbouring Mozambique, still a Portuguese colony. In 1974, a new government in Portugal agreed to Mozambican independence the following year. At independence, Mozambique had a severe shortage of doctors: just eighty remained, for a population of about ten million people. Most Portuguese doctors had abandoned the country and they had very few trained Mozambicans: the one medical school mostly trained students who came from Portugal to get the rich clinical experience that Mozambique offered.

Faced with this shortage, Tanzania and other African countries rallied in support of Mozambique and sent medical teams. I joined the many expatriates working in Tanzania who decided to move to Mozambique and, in 1976, I began work as head of the infectious diseases unit in the Central Hospital in Maputo, the capital city.

Initially conditions were tough. My Portuguese was rudimentary, but as I couldn't communicate in English, I was forced to learn quickly. A promised paediatrician never appeared and so I laboured with inexperienced residents to treat overwhelming numbers of children with measles and neonatal tetanus. The work became satisfying, however, as conditions improved, Mozambicans were trained, and a health service was built up.

Three years of seeing children die of preventable diseases convinced me that prevention was a priority. I therefore returned to London in 1979 to do a Master of Community Health in Developing Countries. Afterwards, I moved to the Ministry of Health to work in preventive medicine and had the satisfaction of seeing measles and neonatal tetanus virtually disappear from Maputo city as vaccination programs took effect.

During these years, I was an old-fashioned epidemiologist – going to rural areas to investigate disease outbreaks. The excitement of investigating an epidemic was tempered by the hard slog of trying to control outbreaks of more mundane killer diseases such as cholera and measles. Mozambique was also experiencing a devastating war of destabilisation fomented by the apartheid government in South Africa.

In 1988, I travelled to the United States for a stimulating year as an International Epidemiologic Fellow at the Centers for Disease Control. Since I returned to Mozambique in 1989, I have had the luxury of working full-time in the Medical Faculty. Mozambican colleagues are now running the departments in the hospital and Ministry of Health. With the end of apartheid in South Africa, the war has finished and I am satisfied to be teaching a new generation of Mozambican health workers and helping rebuild the health services.

Julie Cliff
Tel: 258-1-421072 Fax: 258-1-425255
Address: C.P. 479, Maputo, Mozambique

A Year in Zambia

Richard Grills, MB BS 1991 & Leanne Douglas, MB BS 1991

DURING 1995 LEANNE AND I took the opportunity to spend twelve months working at the Chikankata Hospital in rural Zambia. Keen to make a contribution to health care in the developing world we also wanted a greater sense of satisfaction at the end of our workday than we were achieving as junior residents working in Melbourne teaching hospitals. Although working in a developing country isn't necessarily encouraged by many training programs, or your peers or mentors, it is one of the most fulfilling ways that you can put your MB BS to use. With only limited experience and basic skills you can make a real difference to peoples' lives.

Leanne with O&G nurse.

The Chikankata Hospital is a district hospital situated some 150 km south of the Zambian capital Lusaka and administered jointly by the Salvation Army and the Zambian Ministry of Health. Responsible for a catchment area of some 100 000 people it provides a full range of inpatient medical, surgical, paediatric, obstetric and palliative care services, and outpatient ambulatory care as well as the management of vaccination, infant health care, and a large number of outlying medical clinics. The hospital forms the main part of a larger mission, situated some 35 km off the main road, which includes a secondary school, a nurses training school and an agricultural development project. The local people, and as such most of our patients, were of the Chitonga tribe, the fifth largest of Zambia's eighty-three tribes. Almost all are subsistence farmers whose socio-economic status and level of education is low. The general standard of health in the community, despite the intervention of a number of overseas aid organisations, is poor.

The 250 bed hospital is, by Zambian standards, impressive, but by standards we were used to in Australia it is very much a developing world establishment. Facilities, equipment, investigational modalities and drugs are in short supply. Our entire available radiological repertoire involved the capacity to perform a plain x-ray. Our haematology, biochemistry and microbiology departments could perform a combined aggregate of twelve different investigations, dependent on the availability of laboratory reagents; we were unable to measure plasma Na, K or creatinine for most of 1995. The ability to provide the community with what the World Health Organization considers essential drugs in a developing country was a constant cause for concern. During our time the hospital averaged a staff of about six doctors, from a diversity of backgrounds and not necessarily possessing the full range of skills required for their designated duties. Even staffing a hospital with a reputation as one of Zambia's finest is often a problem; a case of making the best use of available personnel. Despite little training and limited experience I found myself accepting the role of hospital surgeon and Leanne, who had recently obtained a Diploma of Obstetrics, the mantle of Obstetrician. Our tropical medicine experience consisted of a series of lectures in the microbiology component of our medical course which I was quite unable to recollect and fear I may well have slept through.

Although it didn't take long to get used to a different practice of medicine, it took some time to get used to many aspects of a different work environment. It was difficult to look after the enormous load of patients, many of whom had been labelled with uncertain diagnoses of unfamiliar conditions. It was difficult with extremely limited medical experience to get used to accepting full responsibility for a patients' care. It was difficult to try and integrate the demands of a different culture into patient care, and to strike the right balance between the imposition of modern medicine and tribal beliefs. It was impossible to get used to an average of ten patients a week dying in hospital, many of them children.

The range of conditions we were dealing with were typical developing world diseases. TB, malaria, leprosy and malnutrition are common and are directly or indirectly involved in about eighty per cent of admissions. Although they represent considerable health problems they pale into insignificance in comparison to the problem Zambia faces with HIV infection and AIDS. East Africa has emerged as the world epicentre of AIDS and the disease is killing off thousands of the regions' limited number of trained professionals; the very individuals who represent its future. Promiscuity, the traditional healer's practice of tattooing and a number of traditional cultural beliefs provide good reasons as to why the rate of HIV infection in the hospital was close to eighty per cent. Sadly, despite a lot of aid dollars and a myriad of projects and programs, it is difficult to be all that optimistic about any improvement in the near future.

Leanne's main task was the running of the obstetric ward. The practice of obstetrics in the developing world can be a terrifying experience. As Chikankata is a district hospital and hence received referred patients from outlying clinics and smaller hospitals in the region, Leanne was in the unenviable position of intervening in what was all too commonly a half completed catastrophe transferred from another centre; or managing difficult perinatal problems with no backup, minimal assistance and little in the way of reliable drugs or equipment.

Despite what was glaringly obvious inexperience I was the hospital's most qualified 'surgeon' and I performed nearly 350 cases over the course of the year. These ranged from Caesarean Sections and bowel resections, to the manipulation of fractures and the drainage of abscesses of every size and occurring at every site imaginable. I would not have believed that six litres of pus could possibly fit into the anterior compartment of the thigh until I actually saw it all drain out for myself!

In addition to these duties we attended regular general outpatient sessions and did our share of the 'on call' after hours. We didn't always feel that confident about some of the treatments we instituted or the procedures we performed. I did some operations I'd not seen done before, including a few that I hoped I'd never have to do. Although possible, tertiary referral was difficult to arrange due to the high cost of transport and almost universal patient reluctance. I tried to be pragmatic about my role as Chikankata's surgeon – a useful strategy to adopt while working in such a setting if you're interested in preserving some sanity and hope to be of any real benefit. In almost every case the patients presenting had little or no other option for medical care and they could either take their chances with us or continue without any treatment. Confined to the realms of being both realistic and sensible, with the aid of a few 'surgery/obstetrics for idiots' type textbooks, and in accordance with local customs and traditions, most things turned out fairly well. We did have some tragic losses in addition to a few big victories. There were days when we felt really needed and that we could stay for ever and others when we felt useless and wanted to catch the next plane home.

Fearing the worst, we were pleasantly surprised at the standard of our living conditions when we arrived at Chikankata;

Hospital amubulance.

no dirt floor and a toilet that flushed! A shopping trip to Zimbabwe every few months solved our grocery problems, and milk, meat and eggs were delivered to the hospital twice weekly. Living on the mission and spending time out in the villages we had the opportunity to develop what we hope will be lifelong friendships with some of the locals and to experience some of the difficulties that make life for them such a constant struggle.

Working in the developing world (or in parts of our own country that possess similar health problems) isn't something that you can force yourself to do, but it is certainly something you should pursue if you think you might be interested. It doesn't provide you with financial benefits, comfortable surroundings or pleasant working conditions. It does, however, provide you with the opportunity to make a difference to people's lives by almost only your very presence. Armed with a medical degree, good health and a relatively secure financial future most of us are in a strong, some might go so far as to say privileged, position to help the less fortunate. There is certainly no shortage of opportunities throughout the world or lack of people that will not benefit from your help.

Richard Grills

Three Major Military Medical Disasters

A Personal Experience

by James Smibert, MB BS 1935

This paper has been stimulated by remarks by three distinguished graduates of this medical school: Dr W S Newton (later Sir Wilberforce), Dr (later Associate Professor) Bryan Gandevia, and Professor Charles Bridges Webb.

Newton. On returning from Britain in 1948, after an absence of ten years, I called on Dr Newton, as he then was, who had been my medical chief at the Alfred Hospital and had served in the British Army in the First World War as I had in the Second World War. On greeting me he said 'I want to ask you one question about the war and then we'll forget it for more pleasant topics. In the second war, was the British Army ADMS[1] the same bloody fool he was in the first?'

Gandevia. In June 1981 in Adelaide, in the Sir Edward Stirling Memorial Lecture, Dr Gandevia said that 'medical history was concerned with the adaptation of a community to its environment'.[2]

Bridges Webb. In 1984 at the Second National Conference on Medicine and Health in Australia, Professor Bridges Webb said 'we can best learn from history if we can personally identify with it.'[3]

Two weeks after joining the British Army, I was posted to Freetown, the capital of Sierra Leone, commonly known as the 'White Man's Grave'. I arrived on 1 April 1940 and began duty on the staff of the garrison hospital and as a medical officer to a shore battery. I knew no tropical medicine and began learning the hard way.

After five months, I was sent up country as a medical officer, without so much as a microscope, to a recruiting battalion – the 2nd Battalion of the Sierra Leone Regiment of the Royal West African Frontier Force. I was later given an assistant.

In January 1941, I received orders to hand over to my assistant and report immediately to the ADMS in Freetown. When I reported to him, he told me that Freetown had grown considerably whilst I had been up country and a Battalion of the Essex Regiment had arrived three weeks ago and was already decimated by malaria. The General was furious and had ordered the ADMS to sack the Regimental Medical Officer (RMO) and replace him with an efficient one, who knew tropical medicine and hygiene, to straighten the unit out. Forty-eight hours later I reported in writing to the ADMS:

1. The sanitary discipline of the 2nd/5th Battalion was above criticism.
2. The barracks they were in were all 'jerry built' with numerous gaps in the walls one quarter to one half an inch wide through which human odours could escape and mosquitoes could enter.

The ADMS rang me back immediately – 'I can't give that to the General – he's a 'Sapper[4] Officer'. To that I replied 'OK Sir, bring him down, preferably at night when light shines through the cracks and I'll introduce him to "jerry built" barracks'. Needless to say, the General did not come.

It later transpired that the camp was situated on a rise surrounded by three permanent swamps – two fresh water, one sea water and all breeding malaria-carrying mosquitoes – anopheles.

Who was to blame for thus siting a camp for British troops? Obviously the ADMS must accept some of the blame. In the Army, every officer is responsible for the health and morale of troops under him. This means the General must accept the ultimate blame for selection of sites but the ADMS, as senior medical officer, advising on all health matters, should have made a reconnaissance of the area as well as enquiring from local authorities.

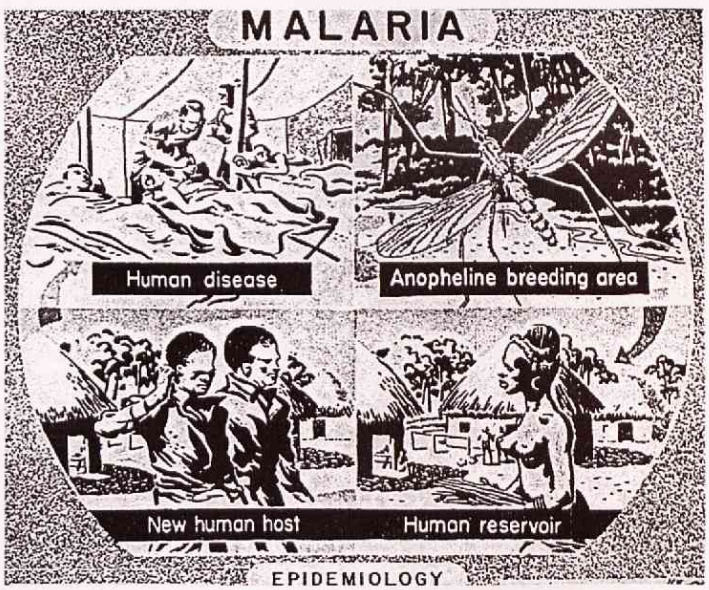

Fig. 1.

The only solution was to get the battalion out, which was done sometime later. I was kept with West African forces and the RMO rejoined his unit and won an MC in Egypt.

When preparing this paper it seemed a good idea to refresh my memory on tropical medicine. One text book I found illustrated the aetiology of some diseases including malaria (Fig 1)[5]. Fifty-four years after the event it struck me that the figure illustrated more than just malaria. When I joined the Essex Battalion, I was told that the battalion had left England with 150 gross of condoms, that these were kept by the medical sergeant, sold for threepence each in aid of NAAFI funds and the stock was slowly diminishing.

The local prostitutes gathered outside the barracks gates towards evening, were young, shapely, enthusiastic and cheap at threepence a time or a shilling a night. Quite obviously troops shed some clothing for intercourse leaving areas of their body exposed to mosquitoes.

Perhaps my criticisms of senior army officials should be tempered and my

admiration for unit discipline modified. Whilst the sexual discipline of the unit was superb – I only saw one case of VD in three and a half months – their anti-malaria precautions were appalling. Although malaria is not a sexually transmitted disease, it is certainly a sexually associated one.

Half a century later, one cannot help wondering what would have happened if the battalion had not embarked with 150 gross of condoms. The troops who succumbed to the attractions of the young ladies of Freetown would have got one of the many venereal diseases. The incubation period of clinical gonorrhoea is shorter than that of malaria and disciplinary action would have been taken. But the wisdom of preventing VD virtually gave the troops 'carte blanche' or official approval to go and get malaria.

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By 1943, two divisions of West African troops had been trained in jungle warfare and moved to India for final training before joining the Fourteenth Army under General Sir William Slim to help expel the Japanese from Burma.

Whilst in India, we were visited by a senior medical officer from the other division which was still in Nigeria. He told us that one brigade had been ordered to practise river crossings; as there was no river nearby it was decided to use a lake, embarking from one point and landing at another. A lot of people got wet and an order was given for everyone to get wet as marching back to camp with wet feet would be good training for fighting a war in a monsoon!

A few weeks later, at the morning sick parades of several units in the brigade, one or more Africans reported 'Please sah, I piss blood'. Each unit's return went to Divisional Headquarters and a repetition occurred next day. The penny dropped – BILHARZIA!

A team was sent out to every unit in the brigade to collect specimens of urine at random from all ranks. Fifty per cent were passing ova of *Schistosoma haematobium*.

The brigade was converted into a 5000 'bed' hospital. Medical and nursing staff were got from wherever was possible; the Allied supply of penta-valent antimony compounds (the drug of choice half a century ago) was exhausted and there was a definite mortality – largely iatrogenic. The epidemic was preventable – some deaths were iatrogenic.

The brigade virtually ceased to exist and most were invalided out.

The ADMS rightly resigned. Any enquiry from the local Nigerian doctor would have enlightened him that the lake harboured the appropriate snail (genus Bulinus), the intermediate host for *Schistosoma haematobium* (Bilharzia)[6] and this should be part of the basic knowledge of any senior medical officer in the tropics, who would also have told his subordinates who would have stopped any activity in the lake.

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Acting on the lessons of this story from the 82nd West African Division in Nigeria, the 81st Division sent a reconnaissance party to investigate the rivers in Burma. Believe it or not, we were told that 'the waters in Burma are clean and water sterilisation apparatus will not be taken into action'! This order must rank as one of the most stupid ever issued.

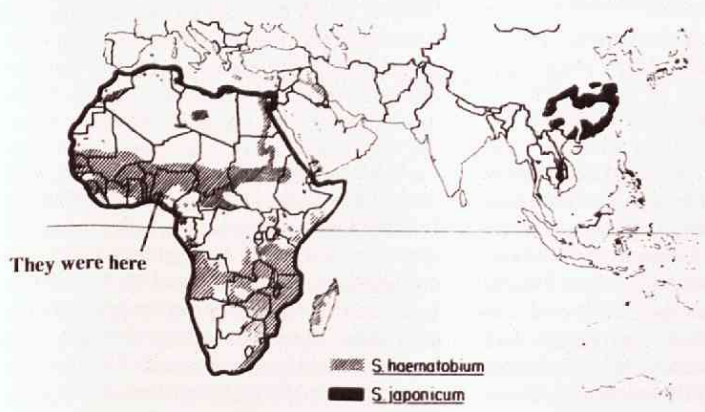
Experience is a great teacher and as amateur soldiers we had no previous experience of being given a stupid order. In retrospect, at least one medical officer should have demanded to see the ADMS, and if getting no sense from him, then the DDMS[7] of 15th Corps and so on up the the Director General of Medical Services at the War Office.

All I did was to tell my Company Staff Sergeant that water sterilisation apparatus would be carried in my personal kit – and it would be used – as I had never heard of an officer's kit being inspected.

I must confess that Europeans in Africa had been strict about the water they drank and not eating uncooked vegetables; about the only fruit we ate were oranges, pineapples and bananas. We let the Africans look after themselves in their own country. I am ashamed to admit that the rules were not changed when we entered Asia!

All went well until we set out for Burma in single file from a few miles south of Chittagong. After a few days, word came back from the advanced troops which included one Battalion, Brigade Headquarters and a Company of the Field Ambulance – 'Cholera – boil all water before it passes human lips'. There were seventy-eight cases in all with a fifty per cent mortality.

Those who survived owed their survival to the Company Commander, Major Hay-Shunker, and his Staff Seargent Cappella, who found a way of using river water and ration salt, strained through cotton wool, boiled and given intravenously through improvised apparatus, until we could get sterile intravenous fluid by air drop.



A few days later, the DDMS 15th Corps, Colonel Meneces, found our ADMS sitting in his office at Divisional Headquarters, when he, Meneces came forward to investigate. Meneces, who passed the examination for MRCP soon after the War, was the most outstanding senior medical officer I met in the British Army.

He sacked our ADMS.

All three of these disasters were due to the stupidity of senior British Army Officers, including negligence by an ADMS in every case.

They either did not know or failed to act on the dangers of water which does three things:

1. It breeds mosquitoes, the intermediate host of Malaria, Dengue and Yellow Fever.
2. It breeds a genus of snail (Bulinus), the intermediate host of all four forms of Bilharzia.
3. It can harbour Vibrio cholera, the bacterium causing Cholera as well as the protozoal and other causes of a host of other intestinal infections.

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A few years ago, I came across the autobiography of Sir Aldo Castellani, *Microbes, Men and Monarchs,* published in 1960. In 1935 he was asked by Mussolini to take charge of the medical organisation of the Italian forces about to invade Abyssinia.

He was granted twelve months leave from his post of Visiting Professor at the London School of Tropical Medicine and a similar post at the Louisiana State University in New Orleans. Due to his organisation and preparation, the sickness casualties were less than the battle casualties – the first time for white troops in the tropics.[8]

To the best of my knowledge, only one of the medical officers that I met in the RAMC was given any training in tropical medicine before being posted to the tropics!

One is reminded of George Santanya who said 'He who neglects the lessons of history is destined to repeat its mistakes'.

1 Assistant Director of Medical Services, the senior medical officer in a British Army Division.
2 Gandevia B. Occasional Papers on Medical History, Australia 1984; 79
3 Bridges-Webb C. Occasional Papers on Medical History, Australia 1984. Published by Medical History Unit, The University of Melbourne; 194
4 Sapper – colloquial term for engineer; engineers in the army are responsible for all building, construction and demolitions.
5 Hunter/Swartzwelder/Clyde; Tropical Medicine; 1976, Saunders WB, Philadelphia, Fig. 38-16.
6 Ibid
7 Deputy Director of Medical Services – senior doctor in an army Corps.
8 Castellani Aldo, Microbes, Men and Monarchs – a doctor's life in many lands, 1960. Victor Gollancz Ltd, London. 140-152, 273-287.

The Drummer

Doug Falconer, MB BS 1979

Drummer with 'Hunters and Collectors'

IT IS NOW EIGHTEEN YEARS since I graduated from Melbourne University, triumphantly exactly at the top of my year – at the top of the normal distribution curve, that is. And as much as I enjoyed my years at medical school, anyone who was around at the time will tell you I wasn't entirely focused on academic and/or clinical excellence. I had another love, and indulged it whenever I could. I was in bands of varying success and calibre the entire time, which goes some way to explaining my entirely average performance.

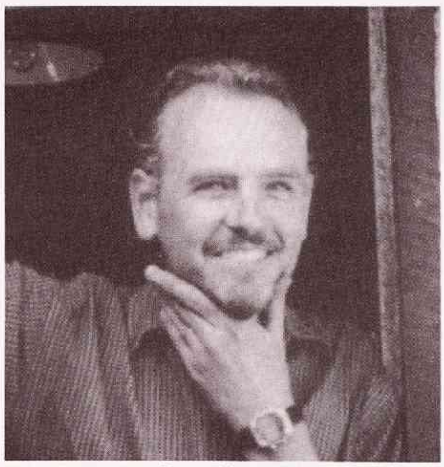
After graduation, I somehow managed to combine internship with the most successful musical effort to that point, the inner-city darlings known as the Jetsonnes. Staying upright on a drum kit after a weekend casualty shift was no small feat, and the whole year passed in something of a haze. At least that's my excuse – what's yours?

My second year 'out' began normally enough, though I must have had an inkling of the future, because I hadn't locked away a posting by mid-January (you could do that in those days). The 'Fateful Phone Call' came one afternoon while I was having lunch with my parents.

'Would you be interested in having a jam with some guys?'

'What guys?', said I.

'Oh, just half the Jetsonnes and a couple of others.'



Doug Falconer

'But I said I didn't want to play with you any more' (the Jetsonnes had broken up somewhat ignominiously).

'Oh, we thought you might like the stuff – it's a bit different.'

So off I went, and now, sixteen years, ten albums, seven overseas tours, umpteen Australian tours and a great many adventures later, here I still am; in the middle of another recording, contemplating another round of touring.

My parents, of course, were horrified. They'd successfully fended off every attempt I'd ever made to give up medicine for music and here I was doing it again, after getting my ticket! I actually kept working for some time – in order to eat while the band tried to establish itself – but gradually the band commitments made that harder and harder, until about the only medical work I do is the occasional round of golf on a Wednesday afternoon. Some teaching is just too strong.

I went to a reunion of my graduating year a while back. It was great to catch up with everyone and see just who hung in there long enough to become a consultant, who had how many kids, who had a BMW (almost everyone), who had hair (hardly anyone). And I'll swear twenty people said to me 'I really envy you, you did what you wanted to do, and you've succeeded'. One (and you know who you are) even tried out his stand-up routine on me! Then I got in my fifteen-year-old Cortina and drove away.

Actually, life in a rock band isn't all that different from medicine. People queue up to see you, they have to get past a battleaxe at the front desk (apologies to all receptionists I've worked with), they pay more than they'd like to, then they wait . . . and wait . . . and wait. Then, just as they start slow hand-clapping, you appear and make them feel better. See? I never really left the profession after all. Now, if I can just work out a way to get it all bulk-billed . . .

CanTeen

Kylie Mason, MB BS 1996

In 1996 Kylie Mason graduated MB BS from the University of Melbourne: the same year in which she was a finalist in the Young Australian of the Year Awards, named Young Victorian Achiever of the Year and awarded both the Victorian and Australian Young Achiever Community Service Awards. These awards were made in recognition of her work for teenagers with cancer, through the organisation CanTeen which Kylie joined when she was herself a teenager and living with cancer. The following is a revised version of an article Kylie wrote for The 1995 Speculum.

It was ages before Dad came back and asked me to come with him. From his face I could not tell what the doctors had said as he led me down the corridor and into the small room. The room was full of strange faces as I sat between Mum and Dad. The lady to Mum's right started to introduce herself 'I'm Dr Adams and I am an oncologist. I have been talking to your parents and Kylie, I'm sorry but . . .'

I really did not need her to go any further.

I was fifteen and very scared. I was also very ill, having just been diagnosed with Acute Lymphoblastic Leukaemia. I had endured a battery of tests since my arrival in hospital the previous day, and as I sat listening to my diagnosis, prognosis and treatment, my mind raced, taking in little of what was being discussed. I had no comprehension of what was ahead.

It was a long time before I dealt with and accepted the fact that I had Leukaemia. Initially I was too concerned about school work, my social life and family. Later I was engulfed by the illness and its treatment: too ill to care. The cliche of living 'each day at a time' became a reality. Friends who had been all too keen to visit initially, disappeared as their life continued whether I was a part of it or not.

I found it hard to relate to their concerns – gossip, boyfriends and clothes – just as they struggled to understand my world, filled with treatments, adults, uncertainty and possible death. In some facets of my life I was growing up very fast, yet I was missing out on discovering myself through adolescence as my friends were. Having cancer as an adolescent interrupted my life at a time when it was perhaps most important to move on.

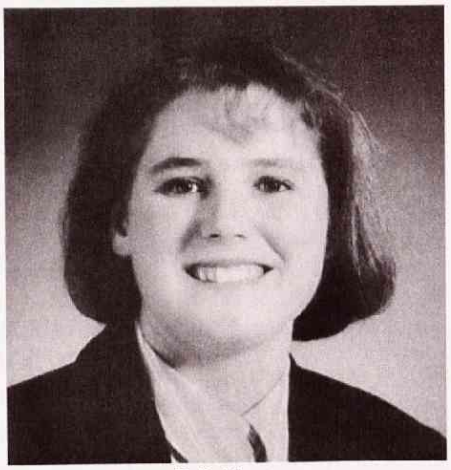
As time progressed, despite an inactive body, my mind refused to rest. This led to writing, which enabled me to put forth my anger and confusion and ask all the unanswerable questions like 'Why me?'. The collection of my writings, an honest account of my first six months' experiences with cancer and written as I was still undergoing treatment, has recently been published.

My treatment continued for two-and-a-half years, seeing me through from year ten to the finish of high school. I then entered medicine – a discipline that had always interested me and which I felt drawn towards after having cancer. Having been a cancer patient, and working with fellow patients and families through CanTeen granted me an insight into their world. As a medical student I found it interesting to see the dilemma of meeting the needs, wants and expectations of patients and their families, whilst working within the limitations and with the professional obligations of a doctor.

Adolescence is hard enough without the added burden of a chronic illness, and the specific needs of adolescents are often overlooked as they are categorised into either adult or children's health systems. Adolescents want to take a more proactive role in their disease and its treatment, to be informed about all the options available and given some control over decisions.

Control is important. Just as young people are rapidly increasing the control over their lives through adolescence, cancer, its treatment and the medical system are removing it. The provision of accurate information to patients and their families, as well as the opportunity to ask questions is important. Adolescents need to be assured of confidentiality and to feel that they are being listened to and taken seriously – no matter how trivial the matter may be or how many times they have asked the same question. Information about treatment options and consultation with the young person on decisions regarding their health raises awareness, increases compliance, improves self-esteem and increases the young person's control over their own health.

The whole health of a young person cannot be ignored. A chronic illness has physical, psychological and emotional facets and chronically ill young people are also encountering issues faced by many other young people – issues such as sexuality, contraception, hassles with parents, relationships, school, alcohol and drugs. We do not suffer from cancer, nor are we victims – we are living with cancer, living and fighting both against a disease and often a community's perceptions.



Kylie Mason

Siblings face their own problems. They are often overlooked in the family's quest to provide optimum care for the ill brother or sister. Many talk of being placed with relatives or having to fend for themselves through periods of the patient's hospitalisation, and are jealous of the attention and favours bestowed upon their sibling.

They are often not involved in decision making processes, nor are they informed of the resolutions, reinforcing their feelings of rejection. It is hard for siblings to understand why they feel so angry and jealous of a brother or sister who is obviously very ill, and many feel guilty that this is how they feel. There are many times when I have heard siblings wish for the disease themselves, just as the parents often say 'If only I could have this disease instead of my child'.

When living with a chronic illness, the involvement of, and access to, all members of the multi-disciplinary team for information and support is important to all members of the family. Having the opportunity to meet individually with any specific member of the team at appropriate times is much less intimidating than discussing concerns during ward rounds: ward rounds that my friends and I always found intimidating, as our condition was discussed above our heads, both literally and metaphorically.

Access to peer support groups can help integrate physical, psychological and emotional health. The introduction to other young people living with the same illness can help to combat the acute sense of loneliness and 'aloneness', as a young person realises for the first time that there is someone else going through the same experience. Such support groups can offer a wider view of health: providing education about specific issues, information about other services, support on an individual and group level and recreational opportunities.

It is vital that these organisations work in a collaborative relationship with the multi-disciplinary team at each centre of treatment to minimise overlap of services and ensure appropriate referrals and open communication. Such organisations have the ability to bring together isolated groups of individuals being treated at various centres to share experiences, have fun, offer resources and promote understanding, well-being and leadership. It is my opinion that these groups have it within their power to educate the community about the broader issues faced by chronically ill young people and their families.

Shortly after my diagnosis I was introduced to CanTeen (The Australian Teenage Cancer Patients' Society) by a friend in hospital. I have since been an active member and was the Victorian President from 1992 to 1995. CanTeen was created by teenage cancer patients and is guided by teenagers living with cancer. It is all about supporting, developing and empowering teenagers living with cancer and their teenage brothers and sisters.

When I was first diagnosed I found a quality of support through my fellow patients that was lacking in other sectors of my life. These people understood what it was like to have a lumbar puncture, a bone marrow aspirate or have your hair fall out in clumps. They shared my fears and hopes as strangers from vastly different backgrounds became friends over a lonely night in hospital.

At my first CanTeen camp, I experienced the same quality of support, enhanced by the opportunity to meet survivors of my cancer, to talk both formally and informally about what was happening to us, and to try a range of activities in a supportive environment.

CanTeen is unique in that it is managed in the main by teenagers. It is truly 'our organisation' as we sit on both the National Board of Management and State Committees. With the help of employed staff and a network of volunteers, we are able to assess the needs of the members and control the direction of, and the services provided by CanTeen. CanTeen provides recreational activities, camps and new members' meetings. A hospital/home visiting program exists with teenagers first undertaking a course in communication and inter-personal skills, and having the backup and supervision of a social worker.

Regular newsletters provide a link between members while educational workshops and discussion groups provide important opportunities for the exchange of information and support for both the patients and their brothers and sisters. CanTeen also aims to empower teenagers living with cancer through community education, teenage management and leadership.

My participation in CanTeen began on my first Victorian summer camp. It was then I was chosen to be interviewed for the ABC news to tell of my experiences. I have since become a willing and enthusiastic advocate for teenage cancer patients: I have spoken at many fund-raising events, service clubs, schools and business gatherings; I have surprised my fellow medical student colleagues by appearing as the guest speaker at a Grand Round and spoken on a number of occasions at various hospitals; I have spoken at a number of conferences – from the Centre for Adolescent Health forum on spirituality, to the Australian Association of Adolescent Health and the FRACGP training program.

I have had the opportunity to reach the community through the media. When I was ill, I found that many of my problems related to the community's misconceptions about cancer – although many people were curious about the disease, they were also scared of what implications it had. I hope that by telling my story and that of CanTeen, by being interviewed on television, radio and for newspapers, I have in part helped to dispel the misconceptions about cancer.

I am also fortunate to have had the opportunity to represent young people on the Advisory Council of the Centre for Adolescent Health, and to have been nominated onto the Australia Day Council of Victoria, and given the portfolio of Youth Affairs.

The most rewarding time over the past nine years has been that which I have spent with fellow patients – especially as a 'survivor', able to offer the same hope and support that was once given to me. It has also been a time of some sadness as friends have died, but overall a strength of spirit has prevailed and I have gained much from being able to share their lives.

It was an honour to be named the Young Victorian Achiever of the Year for 1996, and be one of seven finalists for the Young Australian of the Year for 1996 for the work I have done for teenagers with cancer. I was also awarded both the Victorian and the Australian Young Achiever Community Service Awards. My book, *We interrupt this life*,[1] is being sold through CanTeen with all proceeds going towards the formation of a resource library for patients and their families.

Cancer is not just a crisis, it is also an opportunity for growth and change. It is a hard and fast way to grow up, one that most patients would never have asked for, but having experienced it, would not want to change. There are still many issues facing us as survivors of childhood and adolescent cancer. As treatments improve there is an increase in the new generation of survivors. Together we can offer each other support, and through education and public awareness begin to break down the barriers facing many cancer survivors now.

1 *We interrupt this life. . . Leukaemia through a child's eyes* by Kylie Mason is reviewed on p72 of this issue of *Chiron*.

TWO UNUSUAL BOOKS

THE LIFE AND WORKS OF MATTHEW BAILLIE MD, FRS L&E, FRCP, ETC (1761-1823)

by Franco Crainz, MD, FRCOG, Emeritus Professor of Obstetrics and Gynaecology, University of Rome
PELITIASSOCIATI 1995, pp 195
This small book is the result of a labour of love over many decades. Produced by the author at his own expense, complimentary copies only are available.

I got to know of Franco Crainz and his work through the late Frank Forster. For some years I have corresponded with Franco because of our mutual interest in Matthew Baillie and his works. He is now eighty-three and frail.

The book is well produced with a number of illustrations of Baillie and members of his family. The endpapers are used for a Genealogical Table and a map of 'Glocester'.

Baillie's *Autobiography* has been transcribed from his manuscript held by the Royal College of Surgeons, London, with additions by Franco who has also provided a chapter on Baillie's last years 1819-23 and a final chapter about some of his most famous patients. Among Baillie's patients were Edward Gibbon, Lord Byron, William Pitt Jr., Georgiana, Duchess of Devonshire, Sir Walter Scott and Richard Brinsley Sheridan. These have not previously been recorded.

About one third of the book is an exhaustive bibliography of Matthew Baillie's publications some of which went into many editions and were translated into several languages.

An illustration of the gold-headed cane, now in the Royal College of Physicians, London, of which Baillie was the last recipient, is followed by 'Mrs Baillie's Account Book 1792-1844' and the Fee Book for Baillie's attendances on King George III at Windsor 1811-12 and 1817-20.

This small book is a very valuable addition to our knowledge of Matthew Baillie, his household and his practice. Franco Crainz deserves great credit for his painstaking work over many years and for his generosity in producing the book. With Franco's consent, I proudly took a copy of his book to the Grolier Club in New York.

THE GROLIER CLUB

The Grolier Club was formed in 1884 by nine business and cultural figures who were collectors of books and prints. Named for the French bibliophile Jean Grolier de Servières, 1479-1565, its aim was 'to encourage literary study and the art of the book'.

During its first century the Club had more than 3000 members, mounted more than six hundred imaginative exhibitions and published about 150 books. Lectures and symposia were also held in its impressive club houses. The first of these was in rented quarters; the second was built for the club at 29 East 32nd Street and is now a designated landmark. The present building designed by Bertram Grosvenor Goodhue, a club member, was completed in 1917 at 47 East 60th Street and was enlarged in 1984. It was there, on a cold day in October 1996, that I was made welcome by Martin Antonneti, the Club secretary.

The Club is a brick building of six stories with the entrance directly from the side walk. Exhibition areas are on the first and second floors and are open rooms with simple old display cases along the walls. On the first floor incunabula (books printed before 1500) and equally old documents were on display, while on the second floor the works of George Orwell, books and pamphlets, were featured. In smaller areas, fine bindings, old and new, together with some plagiarisms and fakes were elegantly displayed and there was one of Jean Grolier's finely bound books with his heraldic device subscribed with *Grolierii et Amicorum* as he frequently bought more than one copy of a book to give to friends. This device was used by some other bibliophiles of Grolier's time.

The third floor housed some of the library, but as 70 000 books are held other floors are also used. The collection is all about books and the care of books. It was therefore appropriate that a copy of Franco Crainz's book on Matthew Baillie be lodged there.

On the sixth floor a Dutch *Taperij* from the original club house had been rehoused. This tap room has a red tiled floor, wooden panelling, decorated here and there by church warden clay pipes, and a beautiful, old, wall clock with a brass grill through which the pendulum could be seen – the grill displayed Bacchus complete with a mug. A bar with barrels, steins, mugs, jugs and bowls occupied one corner.

I sat on one of the wall benches and thought of many things very contentedly.

This is a most suitable club house for a club with such a good purpose – the care of books. It was a privilege to visit.

ONE HUNDRED BOOKS FAMOUS IN MEDICINE

Executive Editor – Haskell Norman
The Grolier Club, New York, 1995
Hbk, pp 392, illustrated
rrp $45 250

This book is based on an exhibition held in the Grolier Club in 1995, an exhibition similar to several held previously with the titles: *'One Hundred Books Famous in – English Literature'*, (1903) *'– Illustrated Books'* (1921) *'– Influential in American Literature'* (1946) and *'Famous in Science'* (1958). The intervals between the exhibitions are not surprising when one considers the difficulty of selecting, gathering together and getting appropriate authorities to certify to the editions and write about them.

This book is beautifully produced:

Fifteen hundred copies . . . have been printed in Robert Slimbach's Adobe Garamond type on Mohawk Superfine paper at the Stinehour Press. Design by Jerry Kelly.

Housed in a chaste slip case the book is a delight to see and to hold. There are many fine illustrations including a number of coloured reproductions not commonly seen e.g. several hand coloured reproductions from Vesalius.

The majority of the classic works are included, but I was a little surprised to see William Smellie's *A Sett of Anatomical Tables* . . . included, but not William Hunter's *The Anatomy of the Human Gravid Uterus*. After a little thought I realised that this was correct as Smellie's books and atlas took precedence and the artist for both was Jan Van Rymsdyk. The engraving printed from Smellie's *A Sett of Anatomical Tables* of twins in utero is magnificent.

The pathologists included are Benivieni, Morgagni, Matthew Baillie and Virchow; I am delighted that Baillie's unillustrated text of 1793 and his series of engravings 1799-1802 are both included.

Not the entire one hundred are books in the usual sense. Letter thirty-nine of Leeuwenhoeck's letters to the Royal Society is included because it includes the first description of bacteria. There are also a number of offprints including those of Röntgen's *Ueber eine neue Art von Strahlen* (1895), Banting and Best's papers on *The Internal Secretion of the pancreas* (1921-22), Fleming's *On the Antibacterial Action of Cultures of a Penicillium, with Special Reference to Their Use in the Isolation of B Influenzae* (1929) and of course Watson and Crick *A Structure for Deoxyribose Nucleic Acid* (1953).

This is a beautiful book and a treasure trove of information.

The above two books are unusual in that neither are easily available and both are on specialised subjects. However copies of each are held in the Brownless Medical Library.

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CAMBRIDGE ILLUSTRATED HISTORY OF MEDICINE

edited by Roy Porter
Cambridge University Press, Melbourne, 1996
Hbk pp 400, profusely illustrated, index,
rrp $64.95

This handsome book is the most recent of a series of ten Cambridge Illustrated Histories. The jacket portrays a beautifully reproduced painting of an anatomy lesson, but not the one by Rembrandt of Dr Tulp's class. I had never seen this *De anatomische les door Dr van der Meer* (1617) by Michiel Janszoon van Mierevelt. The cadaver's head still has loosened head bands and

the abdomen has just been opened. A lighted candle is in the foreground and a metal bowl is held by an onlooker to the right of the dissector. However neither the dissector nor the other sixteen onlookers' gaze at the cadaver – all look directly outwards as in a family portrait.

The half title page displays a small woodcut from Paracelus's *Opus Chyrurgicum* (1565) which 'shows physicians and surgeons attending a patient' and the title page is a beautiful reproduction of the lovely *The old sick ward of St John's Hospital, Bruges* (1778) by Johannes Beerblock. In startling contrast, the introduction has a full page illustration of a 'woman's body revealed by false-colour magnetic resonance imagery'.

The book's purpose of examining 'through popular and professional perception, the interrelation of disease, health and medicine over more than two thousand years' is achieved. The format of the ten chapters is in the modern fashion graphically used by *Time Magazine*. This enables useful summaries of subjects such as 'The rise and fall of tuberculosis', 'The battlefield – the school for surgery' the 'Removal of "nuisances" – the reforms of sanitarians' or 'Voluntary euthanasia' with a photograph of Jack Kevorkian and his infusions to be highlighted. This encourages reading.

I mention a number of things that interested me. An 1882 illustration of an operation with an anaesthetic and the use of Lister's spray in which the operators are dressed in frock coats, followed by a painting, reproduced in colour, of Billroth operating in 1890. In the latter all operating participants are gowned or wear white coats, but neither masks nor gloves. Billroth's apron is obviously an old favourite and not surprisingly smeared with blood. A few pages later, in marked contrast, is shown the 'sterile theatre' of Sir John Charnley in which he successfully carried out hip replacements in the 1970's.

In chapter eight 'Mental Illness', there is a distressing, but very real portrait of a 'murderess of children' from a 'series of studies of mad people' painted by Théodore Géricault (1791-1824) during the last few years of his short life. The whole series must be frightening.

There are some powerful statements made. About drugs: 'Potent drugs are as dangerous as a surgeon's knife, and must be handled with equal care if they are to do good. The greater the power of the remedy, the greater the hazard of misuse'. (p277) And in a highlighted section on Controlling medical expenditure: 'if the NHS failed in international comparisons, it was by allowing medicine to be underfunded.' (p338)

In the last chapter 'Looking to the future' there is a highlighted section on 'A warmer planet – impact on health and medicine' in which the effects of a 2°C rise in temperature is linked with the possible spread of trypanosomiasis and malaria.

In a short section on the 'Quality of life' there is a wonderful photograph of a basketball player in action at the 1992 paraplegic games at Stoke Mandeville, England, which reminded me of some of the recent television coverage of the Paralympics in Atlanta and the amazing achievements of these very determined people.

At the back of the book there are some very useful reference pages: Chronology, Major Human Diseases, Notes, Further Reading and an Index of Medical Personalities.

This is a fine book to look at, to read, and from which to learn much. I thoroughly recommend it.

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Kylie Mason with her father.

WE INTERRUPT THIS LIFE . . .
Leukaemia through a child's eyes
by Kylie Mason
Sbk pp 64, illustrated
CanTeen, produced with the assistance of the Make-A-Wish Foundation®
Melbourne, Victoria 1994
Available for $10 plus $2 postage and handling from CanTeen, PO Box 63, Parkville, Vic 3052

This is the stark account of a teenager coping with the assaults of the modern treatment of Acute Lymphoblastic Leukaemia and surviving – physically and mentally.

Much of the story is harrowing, but from it comes the defiance of the human spirit encapsulated in the statement used as a preface 'Life becomes your most important asset' and in the last chapter by the reflection

Leukaemia is not something I would try and contract again, but I am not sorry that I got it. Through it I have made many new friends and I have matured faster than I would have if I had been healthy.

On page 68 of this *Chiron*, under the title *CanTeen* Kylie has produced a less stark and more philosophical account of her overall experiences with Leukaemia. This account, originally published in *The 1995 Speculum* has been 'brought up to date' by Kylie, now a graduate of the medical course and working hard to help other youngsters struck by similar malignancies.

Kylie's little book should be read by all interested in human beings whether or not affected by illness. We can all learn from it. I recommend it highly.

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FORENSIC MEDICINE AND THE LAW – AN INTRODUCTION
by David Ranson
Melbourne University Press, 1996
Pbk pp 220, illustrated, appendices, bibliography & index
rrp $34.95

This book should be compulsory reading for all medical students as soon as they commence clinical studies.

The foreword is written by Chief Justice John Phillips who is Chairperson of Council of the Victorian Institute of Forensic Medicine and who has had more than one occasion to rue 'the limits of professional experience of both doctors and lawyers'.

The first two chapters of this book – The Legal System and The Doctor and the Community – are of necessity rather heavy reading; thereafter Dr Ranson warms to his task.

Chapter three – Court Procedure and Evidence – is noteworthy for the clarity of the text. There is much to be learned here or re-learned even by those who consider themselves knowledgeable in such matters.

In chapter four – The Medical Witness – the author excels himself. It is divided into a number of subheadings – In the Witness Box, Communication, Preparation Before the Trial, During the Trial, After the Trial – and is all witnesses, non-medical, medical and medical expert, need to know to ensure as far as possible a not too traumatic experience in the witness box.

I was appreciative of the section 'During the Trial' and especially the paragraphs headed 'Appearance and Behaviour'. They brought to mind an incident many years ago when a particularly confident surgeon colleague called as an expert witness bounded to the box wearing 'pin-stripe suit and bow tie'. Following three quarters of an hour of humiliating and unrelenting cross examination, he left the box slowly and with bowed head. A senior forensic pathologist sitting next to me in court whispered 'If he had gone into the box as he came out of it, he would have come out of it as he went in'. Those of us who have frequented the witness box will also be heartened by Dr Ranson's remarks that a degree of apprehension and anxiety in witnesses (barristers and judges) tends to increase the quality of their performance.

The subsequent chapters on the roles of the forensic pathologist and forensic physician illustrate the fact that occasional and inexperienced practitioners who may have performed these roles in the past are no longer acceptable to either the

medical or legal professions. Extensive experience, postgraduate training and qualifications and continuing education are required. The improvement in the relationship between medicine and the law will thus be maintained.

The final chapter – The Forensic Medical Examination – emphasises the need for meticulous note taking, record keeping and appropriate description of lesions found at examination.

The appendices to the book, of which there are five, deal with forensic medical notes, body charts, a sample forensic autopsy report and sample clinical forensic medical report and equipment lists.

The sample reports particularly show the importance of comprehensive observations and clarity of description. The forensic report also includes a glossary. A full bibliography completes the work.

Throughout this book Dr Ranson has stressed communication – to oneself, to colleagues, to lawyers and to the public – and with this publication he has shown himself to be a master of the subject.

While I consider that medical students must be compelled to have this book, it should also be essential reading for medical practitioners and lawyers.

Denys Fortune

CRAZY FOR YOU:
The Making of Women's Madness
by Jill Astbury
Oxford University Press, Australia, 1996
Sbk pp 231, index
rrp $22.95

This book sets out to challenge the conventional belief that the higher rate of mental illness in women is rooted in the biological differences between women and men. In reviewing Dr Astbury's book I should state at the outset that I was her student when I studied at the Key Centre for Women's Health in Society for my Graduate Diploma in Women's Health. This book would have been a welcome resource to me then, but I should not, in making that remark, imply that this book is worthy of notice only for those studying 'women's health'.

Dr Astbury states in her introduction that she is going to present arguments against the acceptance that 'women have an innate tendency to mental disorder'. She challenges the androcentrism of research – turning the question 'why is the depression rate in women so high?' into 'why is the rate of depression in men abnormally low?'.

Dr Astbury uses words and a writing style familiar to those studying and working in women-centred research. I have to remind myself how I felt, as a mature-age postgraduate student from the very male-oriented (if no longer male-dominated) medical school, whose previous studies were based on the biomedical model, when I first encountered the vocabulary and literature of women-centred science and sociology. It took me some time to be at ease using that vocabulary and, reading this book, I sense that for those not comfortable with the language the first chapters would seem less accessible.

These chapters document the history within the medical profession of the perception and treatment of women and their mental health, linking the attitude towards women by the profession to the lower status of women in society. Dr Astbury argues: 'Only with an acknowledgment of the social construction of gender does it become possible to examine the psychological impact of growing up female in a society that has historically defined "female" as less than fully human'.

One of the sub-themes of this work is the language used to describe women and men and how this influences what can be said about women. In examining the sex-role stereotyping of women Dr Astbury looks at the language used to describe women (even by female therapists):

> Reason and mind has been identified not only with masculinity but also with independence, objectivity, impartiality and power. Body, mind's despised opposite, has been linked with femininity, dependence, subjectivity, partiality and an inherent lack of authority and power.

When Dr Astbury moves on to examining the influence of Sigmund Freud on the downplaying or even denial by our profession of the significance of childhood abuse (particularly sexual) a passion infuses her writing which makes her thesis not only more readable but impossible to put down. This historical lack of acknowledgment of one of the profound influences on mental health leaves you wondering how much more will be found when it is accepted that women's experiences of abuse are real.

In publication the author and publisher must be expecting an audience. For this book, who 'should' that audience be? It challenges not only conventional wisdom, but the teaching, the language of teaching, and the currently accepted view of women's mental health, so it should inform a wide audience – not only those involved in treating women with mental illness but women and men in general.

The content of this work however requires a more than superficial understanding of sociology, psychology, and in particular Freudian theory in relation to women. The content is controversial but the writing is neither as inflammatory nor as readable as a work by Germaine Greer.

It is a pity that the popular press has not latched on to this work and its author, publicising its evidence of the significant contribution of the experience of all types of abuse to the incidence of depression and other psychiatric disorders in women. It would be more than a pity but an indictment of the medical profession if this work did not stimulate further exploration of, and research into, the issues examined. It should be compulsory reading for all involved in caring or learning to care for women's health.

Lorraine Baker

ALFRED HOSPITAL
Faces and Places
The Alfred Healthcare Group Heritage Committee
The Alfred Healthcare Group, 1996
Sbk pp 360, index, illustrated
Available for $20 plus postage ($5.95 in Victoria) ($9.95 Interstate) from Health Services Library, Alfred Hospital, Commercial Road, Prahran, Vic 3181.

This book was published 'during the celebration of the Alfred's 125 years of service to the community'. It is meant to complement the centenary history *The Hospital South of the Yarra* and blends 'reminiscences and characters who have brought life to the corridors as they participated in the dramas and melodramas of the daily routine of care'.

Geoff Blainey had offered the advice that the book have 'numerous photographs' – the advice was taken with a fine result. This book has all the attractions of a family album with nearly everyone getting recognition with a comment and a photograph. The photographs are a major attraction of the book, but the brief biographies and anecdotes are what make it difficult to put down.

The first anecdote comes from the fine Ian Howard Oration by Dr Morris Davis 'Alfred Hospital 1925-75' which is an excellent historical summary. The anecdote 'The Time 1925 – the Place Ward 9' starts on page one and the style is set immediately. Mr Trinca 'flying up the steps' to meet his students only to 'slither wildly on the highly polished floor – the pride of the sister in charge'. Mr Trinca departs down the stairs, but not just to dust himself off; he returns with a 'large builders' shovel filled with soil excavations' with which he sprays the polished floor and says 'That will teach you, Sister, not to risk the lives of your staff by too much spit and polish'. He then burst out laughing, which may have helped to ease the discomfort of the Sister and awe of the students.

Staff of most hospitals tell similar stories and there are many in this delightful book, but there are also fine historical accounts of developments of services over the years and tributes to all personnel for their contributions.

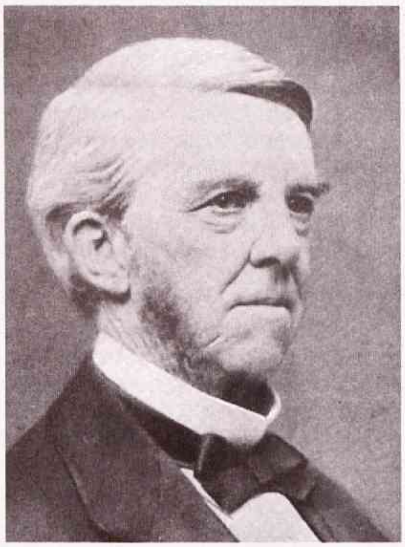
The extent of the developments are summarised by the photographs on the cover – on the front, the buildings as they now exist; on the back, what existed in 1954. Within the book are tales which extend from the frequency of typhoid and other infections in the absence of antibiotics, the early days of intravenous therapy and blood transfusion and to the wonders of organ transplantations and the effective treatment of burns and trauma.

I was never on the staff of the Alfred, but had the privilege of getting to know many of the staff and delighted in recognising old friends and colleagues. Nearly all the photographs are good, but the one of Geoffrey Kaye is distressing as he looks nigh to death.

I cannot review this book adequately for there is so much that could be mentioned. Everyone associated with the Alfred should buy a copy for they will read it with delight. It should be in all libraries and historians will be warmed by it. I thoroughly enjoyed it.

The Heritage Committee hopes that this book will encourage 'subsequent volumes'. I too hope this happens.

HA



OLIVER WENDELL HOLMES (1809-1894)

I like books – I was born and bred among them, and have the easy feeling, when I get into their presence, that a stable-boy has among horses. I don't think I undervalue them either as companions or as instructors. But I can't help remembering that the world's great men have not commonly been great scholars, nor its great scholars great men.

Oliver Wendell Holmes

From *The Autocrat of the Breakfast Table*
The Breakfast Table Series, Routledge, 1882, p.78

MENTAL HEALTH SERVICES FOR NESB IMMIGRANTS
Transforming policy into practice
by I H Minas, TJR Lambert, S Kostow and G Boranga
Australian Government Publishing Service, Canberra, 1996
Sbk pp 164, index, references
rrp $19.95

This report was commissioned by the Australian Government's Bureau of Immigration, Multicultural and Population Research and written by four Australian psychiatrists. It studies the mental health characteristics and needs of immigrants from non-English speaking backgrounds (NESB) and examines various models of mental health services that might be deployed to care for this numerically substantial, culturally diverse minority of Australians.

Under the chairmanship of Harry Minas, Director of the Victorian Transcultural Psychiatric Unit affiliated with the Department of Psychiatry at the University of Melbourne, the authors have produced a clearly-written, sober and comprehensive report, which systematically summarises a vast amount of epidemiological research, much of which the authors and their colleagues themselves conducted in what was previously uncharted territory. Predictably, in a report such as this, statistics, graphs and tabulations abound, though these do not overwhelm the reader, but rather assist to clarify and explain the data and to support the conclusions drawn.

In a field where diverse professional disciplines, research traditions and ideological perspectives intersect, the authors are mindful of the limitations of their methodologies, their conclusions and the solutions they propose. It is also clear that this is not an academic dissertation in social science. The authors' task was to lay empirically-validated foundations for the practical realisation of future Government policy in this neglected area of health care, rather than to write a Foucault-style treatise on the historical anthropology of mental illness. Important as this latter kind of research is, that was not what Minas and his colleagues were commissioned to do. They have performed their task conscientiously and competently and produced a document which is very relevant for social welfare and health policy development and implementation.

Accordingly, the monograph will mainly interest policy makers and their advisors. Its appeal to a wider readership might have been enhanced by some clinical vignettes illustrating the gritty details of the experiences of patients, their families and clinicians. Such vignettes might remind policy makers and researchers of all stripes of the gulf between statistical surveys and the emotional pain and chaos that daily confront the clinician with his/her patients.

Nevertheless, psychiatrists, other clinicians and medical students who are curious about the wider context in which we work will find much that is of interest in this report, ranging from the admission rates of NESB migrants to psychiatric hospitals relative to their Australian-born counterparts, to patterns of symptomatic presentation of torture survivors and the evaluation of programmes for professional education.

A closing sombre note. Most of the research and the ideas which form the basis of this report date from 1980s and early 1990s. Since then three changes have occurred in the social and political context which bear directly on the spirit and the conclusions of this report. Firstly, draft mental health policies have been advanced at both Federal and State levels which rely on economically-weighted indicators derived from statistical data based on diagnostic abstractions which are often far removed from clinical reality. Secondly, what some call the race debate, and others call the immigration debate has sounded a troubling and confusing note in the national psyche. Thirdly, peoples' hopes for ready access to the kind of education required for the development of vocationally skilled, gainfully employed and socially responsible citizens have been eroded. No-one knows yet what the impact of these changes will be, but it is likely that those most affected will be the people studied in this report and their families.

Edwin Harari
Consultant Psychiatrist,
St Vincent's Hospital, Melbourne
Senior Associate, Department of Psychiatry, University of Melbourne

CODES OF ETHICS AND THE PROFESSIONS
edited by Margaret Coady and Sidney Bloch
Melbourne University Press, 1996
Sbk pp 250
rrp $29.95

In 1966 Stephen Bantu Biko, aged twenty, began his medical course at the University of Natal. Soon he became a full-time organiser of the South African Students Organisation, a responsibility which affected his academic progress resulting in his exclusion from medical school. On 18 August 1977, he was detained at Walmer Police Station in Port Elizabeth under Section Six of South Africa's Terrorism Act which gave the police power to hold him indefinitely and in solitary confinement for the purposes of interrogation. On 6 September he was interrogated by ten security police for forty-eight hours and after a couple of days in the prison hospital, returned to the police cells. He was then transferred in the back of a Land Rover to Pretoria Central Prison, a distance of over 750 miles. Steve Biko died there on 12 September from blunt head injuries.

In her autobiography, Helen Suzman, who for many years was the sole anti-apartheid voice in the South African parliament, regards the behaviour of the two doctors involved as shameful: they took

their instructions from the security police, they accepted that Biko was shamming when clearly he was seriously injured, they failed to ensure that he be sent to a hospital and one of the doctors issued a misleading certificate and falsified another.

Two and a half years later, the disciplinary committee of the South African Medical and Dental Council decided there was no *prima facie* case against the doctors. Following court action in November 1984 by six prominent doctors and academics, the Council was ordered to review its decision. Eight months later the disciplinary committee found one of the doctors guilty of ten counts of misconduct and his name was removed from the register (it was restored six years later). The other doctor was found guilty on eight counts of improper conduct, cautioned and discharged.

Had they chosen to look, what formal guidance was available to these South African doctors in 1977? At the very least there was the Declaration of Geneva, adopted by the World Medical Association at its first assembly in 1948. The declaration is a modern version of the Hippocratic Oath and includes the following:

> At the time of being admitted as a Member of the Medical Profession, I solemnly pledge to consecrate my live to the service of humanity . . . The health of my patient will be my first consideration . . . I will not permit consideration of religion, nationality, race, party politics or social standing to intervene between my duty and my patients.

The Declaration was amplified in 1949 and published as an International Code of Medical Ethics to be observed in all countries, whether at peace or at war. It *was* applicable to the practice of medicine in South Africa, however, it did not influence the conduct of the two doctors involved in Steve Biko's death. They let him down and he died. They were probably not familiar with the Code (how many doctors are?) and, anyway, what difference would it have made if they had been?

It is interesting that the explosion of ethical codes (one for the 'gaming' industry was announced recently!) has been occurring hand-in-hand with severe criticism of the professions. Some view this proliferation as protecting the interests of the professions as much as those of the clients. The South African example highlights the difficulties confronting those wishing to enforce ethical standards. Some would maintain that the phraseology of the Declaration of Geneva is idealistic and not designed to be the basis of findings of wrongdoing in specific circumstances. If behaviour is serious enough to discourage and penalise it should be the subject of legislation.

Margaret Coady and Sidney Bloch, with a number of companions, have set out to untangle the issues arising from codes of ethics and the behaviour of professionals to whom they apply. The editors were involved in drawing up the code of ethics for the Royal Australian and New Zealand College of Psychiatrists. Their aim is to understand how codes work, what they can reasonably be expected to achieve and how. Along the way, contributors consider the place of codes in other professions – notably journalism and nursing with reference also to the legal profession.

The book is divided into five sections. The first explores the purpose of codes, the apparent conflict with ethical behaviour as existing in the personal domain and the relationship of codes with professional groupings. Margaret Coady begins by quoting from C S Lewis's *That Hideous Strength* where Mark Shaddock, amongst his colleagues sitting around a fire in the library, is asked for the first time, and agrees, to act in a criminal manner.

> But, for him, it all slipped past in a chatter of laughter between fellow professionals which of all earthly powers is strongest to make men do very bad things before they are yet, individually, very bad men.

Leaving aside families and friends, Coady imputes an inherently corrupting capacity to groups, and the professions are certainly no exception to this. When this capacity is added to the strong influence that roles have over their players, and the very special role played by doctors which exempts them from large slabs of ordinary morality (e.g. doctors do things which would be shocking assaults if done by others) then the potential for harm becomes real indeed. Coady exhorts us to retain and promote through codes the responsibility for moral deliberation by individuals and groups and not to entrench the notion that acting morally is simply obeying rules. It is in this way that a code becomes ethical rather than simply a means of control or of serving self interest.

The second part unwraps some of the mysteries of the professions including their origins and the influence of these on the development of the professions' values, and more recently their formal expression in codes. Ian Siggins believes codes have been an important means by which the professions have retained power and influence out of proportion to their numbers. Robert Fullinwider takes a more charitable view regarding codes as helpful in providing the vocabulary for moral understanding and hence criticism and reform of the profession.

Amanda Sinclair's chapter particularly interested this reviewer and deals with the potential clashes of organisational and professional values – an area of major contemporary significance for the medical profession today. The doctors in Steve Biko's case allowed the values of the state to override those of their profession. The current (and obviously less stark) Australian equivalent is doctors working in circumstances where corporate, institutional and group values are increasingly articulated (and enforced in employment contracts) and are eroding the traditional notion of ethics as a sphere of personal responsibility. Sinclair sees organisations growing stronger in this regard because their strengthening enforcement abilities are enhanced by the weakening capacities of the professions to support individual decision making by their members.

The third part of the book focuses on the legal and enforcement issues relating to codes. For Loane Skene, what she terms 'voluntary' regulation will only be effective if it incorporates a regime of enforcement at least as comprehensive as that of the legal system. Ian Freckleton canvasses a range of issues related to such enforcement.

The fourth part has chapters devoted to three professions: medicine, nursing and journalism. The one by Sidney Bloch and Russel Pargiter is about developing the code of ethics for the Royal Australian and New Zealand College of Psychiatrists and is valuable, derived as it is from experience. The code has proved to be of assistance to the College's Ethics Committee in providing formal guidance upon request from practising psychiatrists.

If codes of ethics were to be followed, especially by those in difficult circumstances (which, it seems to me, is where the codes should be shown to have an effect if they are to be considered worthwhile), this would be a notable achievement. In my own field I well recall a very sad Middle Eastern forensic pathologist. He confided to me that unless he certified natural causes in particular cases of bullet ridden bodies he was responsible for examining, he knew members of his family would start to disappear. Eventually he himself would be killed. If all forensic pathologists from his country were heroes and refused to falsely certify any death, then a serious blow against a totalitarian regime would be struck – the regime would lose its credibility and legitimacy in accounting for the deaths of its citizens. But what can reasonably be expected of an individual in isolated and unsupported circumstances? Does acting morally demand that we be heroes? CAJ Coady in the Afterword (Part Five) concludes:

> The best we can expect of codes is that they will make a contribution to improving behaviour in the areas they deal with, and they will only do this where certain conditions, discussed by the various contributors to this book, are met. This may be a more limited goal than some have envisaged but if it is achieved it will represent a considerable success.

Given the current proliferation of codes, the appearance of this book is timely. While some of the contributions overlap, together they map out the terrain. Plenty is left for future explorers, but at least they will have an idea of the topography before they set out. One regret of this reviewer was the absence of a discussion of codes in the international arena and how, if at all, they might be made to make a difference to all the present and future Steve Bikos of the world.

Stephen Cordner

Medical History Museum

Open 9-5 Weekdays Brownless Medical Library

Curator Prof Emer H D Attwood

Enquiries (03) 9344 5884

MORE EXHIBITIONS have been held in the Museum this year than in any previous year and a thousand visitors have come to see these.

Guest curated exhibitions were: *An Icon of Care – 150 years of the Royal Melbourne Hospital* curated by Gabby Haveaux and *From Vocation to Profession – An Exhibition to Commemorate the 75th Anniversary of the League of Former Trainees of the Royal Children's Hospital, Melbourne* curated by Mrs Margaret McInnes. Both attracted much media interest.

Internally curated and theme based were:

- *Snaps Shots of a Medical Student's Life.*
- *Early X-Rays of the Human Vascular System by Alfred George Fryett – Pioneer Radiographer.*
- *The Roseby Collection* which includes old apothecary jars, decorative, cut-glass pharmacy stoppers and Japanese *Inro* – small pill boxes.
- *Babies, Bottles and Breast-feeding – Curios and Equipment from the Museum's Collection Reflecting Over 100 Years of Infant Care.*

Individual items from the Museum's Collection were also displayed in the smaller cases.

As usual, conducted tours started in January when, under the Siemens Summer Science School, three groups of year ten students came to the museum to see something of the historical aspects of science.

Delegates to the RACS Conference and members of the Chapter of the History of Pharmacy also visited the museum and were shown round by the curator. As these visitors had both interest in and knowledge of the history of medicine lively discussions arose.

Curator's Long Service Leave

Much of the time was spent on leave, but several visits were made of interest to medical historians.

In France I visited the Montpellier Medical School founded in 738AD. Not surprisingly, little of the old buildings remain, but the School stands as it always did beside the fourteenth century Cathedral St Pierre. The large, impressive entrance hall to the Medical School contained many busts – including Galen, Paré, Morgagni, Cardin and Francois de la Peyronie.

The anatomy museum was closed because of building works. However, the doors were readily opened when I showed my University of Melbourne card and although no lights could be put on, it was easy to see the displays. The long, narrow room had a high ceiling and contained many cases of specimens – some quite old. A splendid, full-size, wax muscle man or *écorché* figure dominated centrally and there were other fine wax moulages.

I was particularly interested to see several models or specimens of Peyronie's disease although I could not determine whether these had been presented by the surgeon himself: Peyronie described the disease in 1743.

In America, after a visit to the battlefield of Gettysburg, where, in 1863, some 51 000 men were killed, wounded or lost in three days, I went on to Washington DC and visited the Armed Forces Institue of Pathology. The Institute's fine educational museum is open to the public and many school groups were there. A dominating exhibition was *The Patient is Abraham Lincoln* in which modern scientific evidence was put forward that he did not have Marfan's Syndrome.

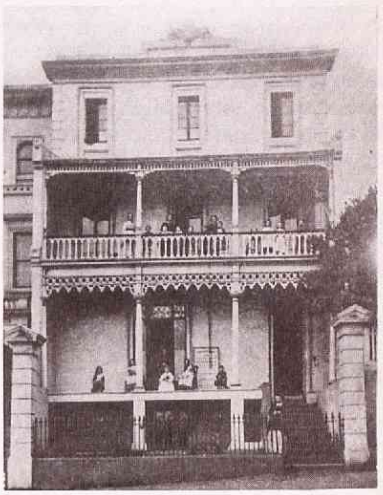
I was privileged to go into the storage areas where I saw some of the skeletal remains of soldiers killed at Gettysburg. A number of spines had Minié bullets lodged in them: designed by the French army Captain Claude Minié the bullets could be rammed down the rifle barrels and, because of their shape, penetrated tissues more easily than the musket balls.

Some of the American Universities or Colleges can be overwhelming. Vassar College (founded in 1878) was particularly impressive – 100 buildings scattered over 1000 acres for some 2000 students. The Thompson library building – a magnificent 'collegiate Gothic building opened in 1905 with an impressive stained-glass window depicting Elena Lucrezia Cornaro Piscopia who in 1678 was the first woman to receive a doctorate' and the tall 'Norman style' Chapel will stay in my memory.

Despite the many attractions it was grand to get back to Melbourne.

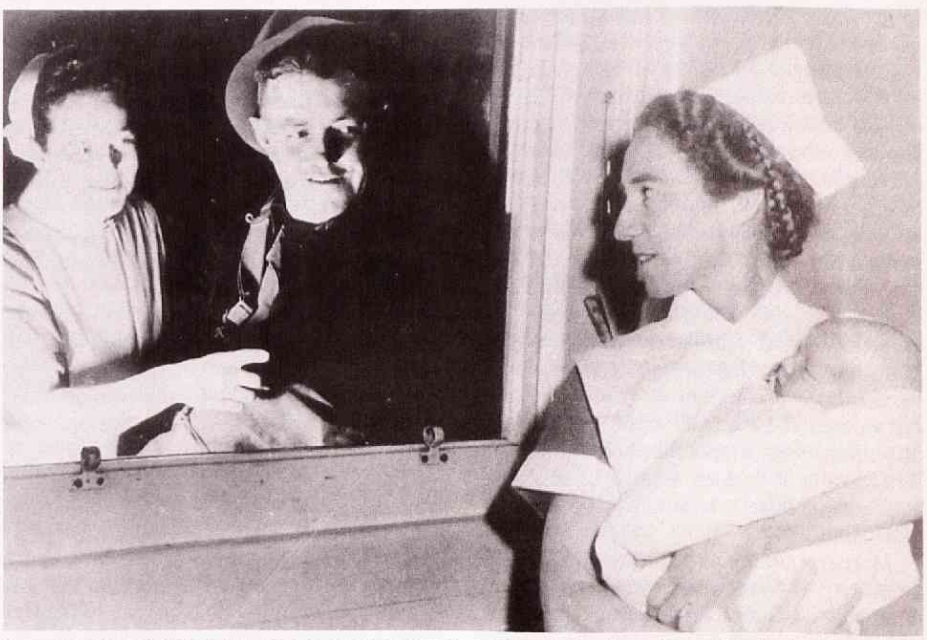
HA

Royal Children's Hospital History

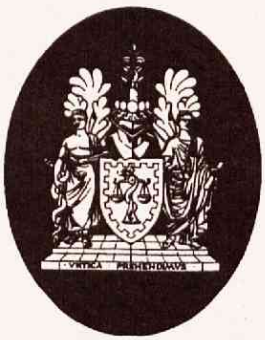


Historian Peter Yule is writing a major history of the Royal Children's Hospital in Melbourne. He intends it to be 'people-centred' rather than just a record of buildings and technological developments and is looking for stories about the Hospital from former staff and patients. Any stories – humorous, whimsical, tragic, poignant – will be received with gratitude. Any photographs relating in any way to the history of the hospital from its earliest days up to the present, particularly photographs of the old hospital in Carlton will also be useful to him.

Peter Yule can be contacted at the Hospital on 9345 5145.



A new father's only contact with his newborn child was viewing through the glass – Queen Victoria Memorial Hospital, Lonsdale Street, 1946. From the current exhibition at the Medical History Museum *Photographs, Memorabilia & Memories – The Queen Victoria Memorial Hospital Centenary Exhibition 1989-1996.*



THE MEDICAL DEFENCE ASSOCIATION OF VICTORIA
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CONTINUING MEDICAL EDUCATION

These courses are designed for medical practitioners and may also interest those working in associated health professions. Enquiries should be made to: Continuing Education and External Relations, Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Parkville, VIC 3052.

Psychiatry for Non-Psychiatrists
Friday & Saturday 21-22 March, Austin & Repatriation Medical Centre, Austin Campus
Directory: Professor Graham Burrows

Keeping Up-To-Date with Medical Information using Medline and the Internet
Saturday 10 May or 19 July, Brownless Medical Library
Director: Mrs Dorothea Rowse, Life Sciences Librarian

GP Refresher Course in Ophthalmology
Friday & Saturday 16-17 May, Royal Victorian Eye and Ear Hospital
Director: Dr Hector Maclean

ENT Problems and Procedures in General Practice
Friday & Saturday 23-24 May, Royal Victorian Eye and Ear Hospital
Director: Miss Anne Cass

Paediatrics for General Practitioners
Tuesday to Saturday 10-14 June, Royal Children's Hospital
Directors: Dr Hubert van Doorn and Dr Michael Marks

Radiography for General Practitioners
Monday to Friday 16-20 June, Essendon & District Memorial Hospital
Director: Professor Emeritus WSC Hare

An Introduction to Sleep Disorders and their Practical Management – A Course for General Practitioners
Friday & Saturday 27-28 June, Austin and Repatriation Medical Centre, Austin Campus
Directors: Dr Rob Pierce and Dr Don Campbell

Update in Obstetrics and Gynaecology for General Practitioners
Friday & Saturday 25-26 July, Royal Women's Hospital
Directors: Professor Roger Pepperell and Associate Professor Doris Young

The New Genetics – Medical and Community Implications
Friday & Saturday 29-30 August, Murdoch Institute, Royal Children's Hospital
Directors: Professor Bob Williamson and Professor Stephen Harrap

Update in Surgical Procedures for General Practitioners
Friday & Saturday 5-6 September, Western Hospital
Directors: Professor Robert Thomas and Miss Meron Pitcher

Update in Paediatric Dermatology for General Practitioners
Friday & Saturday 17-18 October, Royal Women's Hospital
Director: Dr George Varigos

DEAN'S LECTURE SERIES

The Dean's Lecture Series is designed to illustrate current research and topics of interest in the fields of Medicine, Dentistry and the Health Sciences. Lectures are held on Tuesdays at 5.30 pm in the Sunderland Lecture Theatre, ground floor of the medical building, the University of Melbourne. Graduates, students and members of the public are welcome. The lectures are free. For further information contact: Continuing Education and External Relations, Faculty of Medicine, Dentistry and Health Sciences, the University of Melbourne, Parkville, VIC 3052.

Cancer Control into the 21st Century
4 March – Professor Robert Burton, Director, Anti-Cancer Council of Victoria

63rd Beattie Smith Lecture
The Psychopathology of Child Sexual Abuse: Implications for Treatment and Adult Psychiatry
18 March – Professor Barry Nurcombe, Director of Child and Adolescent Psychiatry, the University of Queensland

Mapping Brain Chemistry and Function: New Insights in Health and Disease
8 April – Professor Fred Mendelsohn, Director, Howard Florey Institute of Experimental Phsiology and Medicine

Nursing in the 21st Century: Who Cares?
22 April – Professor Judith Parker, Professor of Nursing, School of Postgraduate Nursing

Problem-Based Learning – How to do it (and how not to do it)
6 May – Professor Michael Aldred, Professor of Dental Medicine, School of Dental Science

Regulating the Intracellular Circuitry of Cell Death
20 May – Professor Suzanne Cory, Director, Walter and Eliza Hall Institute of Medical Research

This will be followed at 6.30 pm by the Annual General Meeting of the University of Melbourne Medical Society.

Brain Tumor Therapies for the Next Millennium
10 June – Professor Andrew Kaye, James Stewart Professor of Surgery, Royal Melbourne Hospital

Major Histocompatability Complex in Medicine – A Molecular Genetic Postcard from Chromosome Six
24 June – Professor James McCluskey, Professor of Microbiology, Department of Microbiology and Immunology

Halford Oration
Pilgramage and Quest
1 July – Professor Emeritus John Coghlan, Former Director, Howard Florey Institute of Experimental Physiology and Medicine

The Scope for Early Intervention in Serious Mental Illness
15 July – Professor Patrick McGorry, Director, Young People's Mental Health, Royal Melbourne Hospital

DEAN'S LECTURE SERIES SEMINAR

HEALTH CARE IN A MULTICULTURAL SOCIETY

Convener – Professor Richard Smallwood

Friday 25 July 1997 – 2.00 pm to 5.00 pm