

# CHIRON

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Journal of the University of Melbourne Medical Society

# UMMS

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Medical Society  
As at 1 January 1986

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## Editorial



New Medical School buildings, Melbourne University.

### Editorial

In a publishing sense *Chiron* has come of age, although only four years old. The editorial committee feels that it has become something more than the newsletter it set out to be, and obviously no 'flash in the pan' as its continuing appearance and increased size clearly demonstrate. The time has come to change our subtitle (not *Chiron* however), to stake a modest claim as JUMMS, the Journal of the University of Melbourne Medical Society, and to identify the annual issue with a number; this is Number 4.

At this stage and for the foreseeable future there are no plans to publish more frequently, nor to add to the number of medical journals. Our prime objective remains unaltered: to build bridges between the Medical Faculty and those whom it claims, with considerable pride, as its offspring. In a medical world of divergent interests and an almost unmanageable variety of loyalties, hospitals, colleges and specialties, many medical graduates seem to have welcomed an earlier umbilical tie to their Alma Mater. UMMS is nearing a membership of 900, and is steadily increasing in both members and interest. Reunions

refresh or strengthen the special links which bind classmates, and a report on the 50 Year Graduates appears in this issue.

*Chiron* is also fortunate to be able to call upon the Dean's Lectures and the University's commemorative lectures, often the most up-to-date distillations published anywhere, and more speedily than more formal journals find it possible. The AIDS Seminar is a highlight of this issue, and contains the answers to questions many members of UMMS must be asking.

You will have already seen the excellent portrait of 'Syd' on the front cover, in full colour — a new departure for *Chiron*, and this gave us the opportunity to print in colour the promotion for the University of Melbourne Alumni tie and scarf. Among our projects for 1986 is an UMMS tie and scarf. The engraving of the medical school buildings (c.1888) in this issue is from a particularly attractive hand-tinted print. We will be exploring the possibility (and costs) of reproducing it as an UMMS Christmas-card, as a calendar (for 1987), or as a full-size print (in colour) suitable for framing. At least some of these should be available before the next issue of

*Chiron* goes to press. Incidentally, on behalf of all those involved in producing all the issues so far, may I express our thanks to Maggie Mackie whose command of typography and layout (and weeks of work) are responsible for the highly professional and much admired format and appearance of our Journal.

We hope you find this issue of *Chiron* well up to standard, interesting, instructive and nostalgic.

Peter Jones

## Annual General Meeting and Dean's Lecture Series

Members are asked to take special note of the Annual General Meeting of UMMS, to be held at 6.30 pm on Tuesday 6 May 1986. This promises to be the usual short meeting, but there are a number of important matters to resolve including the election of the new Executive Committee and the future relationships with the University's Alumni Association. See page 26 for more details.

The programme for the Dean's Lecture Series for 1986 is printed on the inside back cover of this issue of *Chiron*. Members will find that it offers a very interesting and varied series of lectures from a group of excellent speakers. Attendances were very good during 1985, and so it has been decided to retain for 1986 the 5.30-6.30 pm time-slot on Tuesdays.

Members will be interested that the Dean's Lecture immediately preceding the Annual General Meeting on 6 May 1986, includes our present Governor of Victoria, His Excellency Dr. Davis McCaughey, who will join Professor Emeritus Richard Lovell in a Seminar entitled 'Ethics at the Growing Edge of Medicine'. It promises to be an excellent occasion.

## UMMS and the Alumni Association — Special Offer!

The University has recently formed the Alumni Association, with the aim of promoting interaction between the University and its graduates from all faculties. Effectively, the Alumni Association will become the 'parent' body of all faculty-based graduate societies, although UMMS must have been conceived immaculately if its 'parent' was born later!

Following discussions with officers of the Alumni Association, it has been agreed that financial members of UMMS would automatically become members of the Alumni Association without an additional annual donation. UMMS would remit a small component of the UMMS donation to the Alumni Association, in return for

the additional benefits that UMMS members would receive.

At the Annual General Meeting of UMMS at 6.30 pm on Tuesday 6 May 1986, there will be discussion of these proposals. In the meantime, the Alumni Association has agreed that new UMMS members and all current UMMS members **who renew their membership before 30 June 1986**, will be offered an Alumni Association tie or an Alumni Association scarf at **half price**. Silk and polyester ties are offered for \$6.75 (regularly \$13.50), pure silk ties and scarves are \$12.50 (regularly \$25.00). Colour photographs of the tie and scarf are reproduced on the back cover. To take advantage of this special offer, as well as joint membership of UMMS and the Alumni Association, please return your UMMS membership renewal form (circulated with this issue of *Chiron*) as soon as possible, certainly before 30 June 1986. Please indicate on the form which tie or scarf you prefer. Honorary members (graduates of 50 years or more) do not need to make a donation but are asked to return the membership renewal form by 30 June 1986, if they wish to take advantage of the offer.

## Is an Alumni Association relevant to general practitioners?

About five years ago, the Australian Medical Association commissioned Salwick-Weller to inquire into attitudes held by medicos in this country to such things as politics, national health schemes and the relevance of a professional association. The A.M.A. hoped to discover any particular concerns of the profession, and to address them if possible. This inquiry was instigated because of concern as to the membership of the A.M.A. and a step in a recruiting drive by the Association for more members. Of course, no-one was surprised at the diversity of answers, the range of political opinions, or even attitudes held by particular disciplines within the profession on questions pertaining to the discipline. However, there was one discovery that surprised some, and that was the very strong sense of professional isolation felt by a large number of general practitioners.

Whilst the R.A.C.G.P. performs a role in professional contact and postgraduate education for G.P.s, the College is irrelevant to perhaps the majority of G.P.s in this country; and certainly, the College does not hold their allegiance in the same way that the R.A.C.P. does physicians, or the R.A.C.S. for surgeons. This would change overnight if membership of the College was a prerequisite to practice, or even if such membership allowed a differential fee structure to College members. This is not the case and, despite the wishes of some members of the College hierarchy, is unlikely to be so.

An alumni association may, however, provide a forum in which general practitioners can meet with colleagues from a broad spectrum of the profession, for both social and professional enjoyment. The nature of such associations is not threatening and the common bond of an Alma Mater is real, as shown all over the world. In my view, this bond is more keenly felt in the older practitioners, and a logical extension of that relationship between members of the same undergraduate year.

At Melbourne, it is planned to have low-key social gatherings occasionally, and the excellent Dean's Lecture Series held each year provides a professional stimulant. The increasing popularity of these lectures is the result of their ability to provide mental stimulation, occasionally of mind-stretching dimensions, and general practitioners can and do respond to such opportunities.

Finally, there is another aspect to an alumni association and that is its ability to influence the Faculty. At present, such an effect is minimal, but probably in the near future, universities will increasingly seek funds from their alumni for their continuing activities. If such funds are provided, the alumni will have a very definite influence on the Faculty and its aims. General practitioners should have a vital role in such activity, and in my view are capable of playing it. In fact, the influence of the alumni can only be enhanced by active general practitioner involvement.

*John F. Macdonald*

## UMMS Membership 1986

1 April 1986 — 31 March 1987

A membership application form has been circulated with this Journal together with the Notice of Annual General Meeting. To make sure that you are kept informed about the Society and the University, please register your membership as soon as possible. The 1986 membership donation fee is \$25.00. Those who have been graduates for 50 years or more will become honorary members but need to register their names by completing the membership application form. A special fee of \$10.00 for each of the first three years of membership will apply for first-year graduates who join in their internship year. Besides MB.BS (Melb) graduates, persons with a

substantial association with the Faculty or the University's affiliated institutions, for example, past and present academic staff members, may become members. In addition, legally qualified medical practitioners in the State of Victoria who do not qualify for automatic membership of UMMS may be considered for membership on nomination by two members of the Society. We would like to urge members to propose membership of persons who would be interested in being associated with the Society. All that is required is a joint letter together with the consenting signature of the recommended person.

## Cover Story

### The portrait of Sir Sydney Sunderland

On the cover of this issue of *Chiron* is a reproduction of the portrait of Professor Emeritus Sir Sydney Sunderland, Dean of the Faculty of Medicine from 1953 to 1971. He stands, in his Doctor of Science robes, in front of a blackboard that shows typical examples of his drawings for his neuro-anatomy lectures. A copy of his book *Nerves and Nerve Injuries* rests on the ledge. This excellent portrait, painted by Mr. Wes Walters, was commissioned by the Faculty of Medicine and was funded largely by donations from members of the University of Melbourne Medical Society. It was unveiled on 31 October 1985, at a ceremony in the Sanderson Room of the Medical Centre Building. It now hangs in 'The Sunderland Theatre' opposite the portrait of Professor Emeritus Richard (Dicky) Berry.

### Naming of major lecture theatres in Medical Centre building

At the same ceremony at which Sir Sydney Sunderland's portrait was unveiled, the major lecture theatres in the building were named. Lecture Theatre 1 (Anatomy) was named 'The Sunderland Theatre' in honour of Sir Sydney, and Lecture Theatre 2 (Physiology) was named 'The Wright Theatre' in honour of the Chancellor of the University, Professor Emeritus Sir Douglas Wright.

This was a marvellous occasion, enlivened by excellent, thoughtful and witty speeches by the then Dean, Professor David Penington, and Sir Sydney and Sir Douglas. On display in the Sanderson Room (and now on the wall in each Lecture Theatre) were plaques in honour of each man.

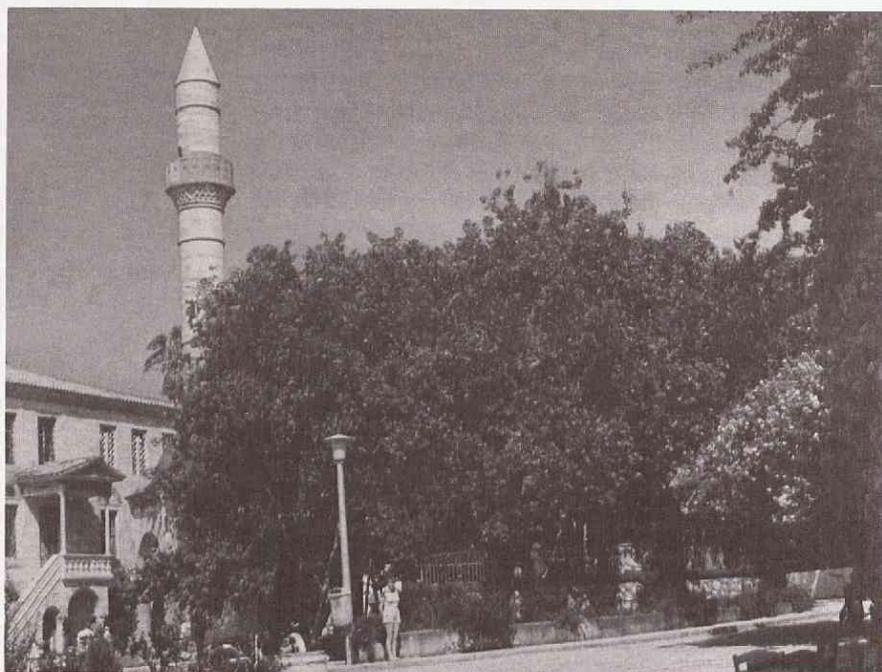
On the same occasion, Sir Douglas and Lady Wright generously donated the very handsome drawing of Sir Douglas that Wes Walters gave to the Wrights at the time he painted the official University portrait of Sir Douglas as Chancellor. This drawing now hangs in 'The Wright Theatre'.

During his speech, Sir Douglas presented to the Faculty of Medicine a wooden gavel originating from Hippocrates' 'teaching tree' on the Greek island of Cos. Legend has it that Hippocrates (c.460-357 B.C.) taught under a large plane tree on Cos. Today the same tree (or at least a large, very old, close relative of the same tree) is a prominent landmark in the old town of Cos.

The gavel came to Melbourne from Cos by a rather circuitous route. Professor W.C. Gibson, then Professor of History of Medicine and Science in Vancouver,



Professor Penington presents the gavel to Sir Douglas Wright.



The 'teaching tree' on the Greek Island of Cos.

visited Cos and took seeds from the 'teaching tree'. He planted them back in Vancouver and the result is a flourishing plane tree. The gavel was made from one of its branches. A colleague of Professor Gibson, Professor Leon Kraitz, Professor of Oral Biology at the University of British Columbia, visited the Howard Florey Institute in 1971 and became a friend of Sir Douglas. He sent the gavel to Sir Douglas a few weeks before the naming ceremony.

In presenting the gavel to Professor Penington, Sir Douglas urged him to 'use it to keep Faculty members awake'.

## **AIDS (Acquired Immune Deficiency Syndrome) and Its Implications for Medical Practice**

*This article is the edited transcript of the Seminar on AIDS which was presented on 12 November 1985 as a major evening function of the University of Melbourne Medical Society. The speakers were Dr. Ian Gust and Professor David Penington, and the Seminar was chaired by Professor Graeme Ryan. It was very well attended and led to very active discussion. Because a large amount of valuable and up-to-date scientific and sociological information was provided by these expert speakers, the text of the presentation and discussion is presented virtually unabridged.*

*Dr. Ian Gust is Director of the Virology Laboratory at Fairfield Hospital. He has gained an international reputation for his scientific work on Hepatitis B, and his laboratory has been designated as one of five international WHO Reference Centres for studies on AIDS, a tribute to his recent work in this field.*

*Professor David Penington, Dean of the Faculty of Medicine from 1978 to 1985 and Professor of Medicine at St Vincent's Hospital, has emerged as the leading medical spokesman and adviser on AIDS in Australia. As Chairman of the National AIDS Task Force, he has worked tirelessly to appropriately inform and educate the media and community about the risks and problems associated with AIDS.*

### **Dr. Ian Gust**

AIDS is certainly a disease which if not in everybody's mouth then is certainly on everybody's lips. Wherever one goes, whether it be in the United States, Europe, South America, or here in Australia, AIDS is a hot topic of conversation. It is in our newspapers, on the radio and on our television sets almost every day. What are the characteristics of this disease which make it so newsworthy? Firstly, it is a new infectious disease, certainly as far as Western society is concerned. Secondly, it is now widespread throughout the world. Thirdly, AIDS is a disease which appears to be spread largely by sexual contact and is characterized by a profound suppression of the cellular immune system. Finally, the disease appears to be invariably fatal.

AIDS was first recognized in the United States in the middle of 1981 in quite an interesting way. About June of that year two unusual groups of cases were observed: firstly a cluster of cases of pneumocystis carinii pneumonia and secondly a cluster of cases of Kaposi's sarcoma. When these outbreaks were investigated by the Centre for Disease Control it was noted that previously healthy young men — all were either homosexual or bisexual — all had a profound suppression of their cellular immune system, in particular an absolute depletion of their T4 lymphocytes. It was clear that something unusual was going on and the new syndrome was given a name, the Acquired Immune Deficiency Syndrome. The Centre for Disease Control (CDC) established a case definition which has stood largely unchanged until the present time. Acquired Immune Deficiency Syndrome is defined as the presence of a reliably diagnosed disease with features indicative of profound suppression in the cellular immune system in somebody who is under the age of 60 years. In general these people tend to present in one of two ways, either with life threatening infections, often due to Pneumocystis carinii, or with otherwise rare tumours, usually Kaposi's sarcoma. Once the case definition had been

established the disease was made notifiable in most States and it became possible to form a framework for considering the disease, to get some idea of its epidemiology, its spread and its natural history.

While the key features of the disease have been described in the United States the pattern is very similar in the rest of the developed world although there are some differences in Africa. This disease, first recognized in America, is now very widespread and there are more than 20,000 cases worldwide. Not only are North America and Canada involved, but many countries in Central and Southern America, sub-Saharan Africa, Western Europe, Scandinavia as well as Britain, Australia, New Zealand, Japan and some other countries in South-East Asia. In America from 1981 on, the number of cases notified to CDC approximately doubled each half-year until about the middle of 1983. Since that time the doubling time has been about every twelve months. There have been about 15,000 cases in the United States of whom almost half are now dead. An additional 15,000 cases are expected to occur next year.

In the developed world, AIDS has been largely restricted to major urban centres and there is a very great difference in the incidence of the disease in different cities. For example, in the United States the national incidence is 15 cases per million population per year; but in some cities such as New York and San Francisco the incidence is greater than 300 per million. These figures have become considerably greater in the last few months. AIDS is largely an adult disease, the majority of cases occurring in people between the ages of 20 and 50 years with the maximum number in the 30-39 year group. About 95% of the cases have been in men and, of those, about three-quarters have occurred in homosexual or bisexual men. The other group which is over-represented in the American figures is intravenous drug users who constitute about 17% of cases. The disease has also been

occasionally acquired by transfusion of blood or blood products, and a small proportion of cases have occurred in the regular female sexual partners of infected men or men known to be at increased risk of infection. Finally there remain a small number, about 4%, of cases in which no epidemiological factor has been recognized. About half of those are people in whom the epidemiological studies are incomplete; a significant number of the remainder are men who have had regular contact with prostitutes, suggesting that in some circumstances, heterosexual spread may be important.

Perhaps the most obvious feature of the disease is its high case fatality rate. At this point in time, in every country where the disease has been studied, about half of all those cases that have occurred have died. The three-year survival rate is less than 15%, the four-year survival rate is less and it would appear that, once acquired, this disease is invariably fatal.

The situation in Australia is very similar to the early stages of the epidemic in the United States. The first case occurred at the end of 1982, a few cases in 1983 and the disease really took off in 1984. The total number of cases now is in excess of 130 and there will probably be about 150 by the end of 1985 and something between 350 and 450 by the end of 1986. The majority of cases to date have occurred in New South Wales, with significant numbers in Victoria and Queensland.

The age distribution is similar to that in the United States, as is the case fatality rate. The major difference in the epidemiology in Australia is the over-representation of transfusion-associated cases, which probably reflects the fact that we have a voluntary blood donation system and that gay men have been over-represented in this, partly through reasons of altruism and partly because this has provided a mechanism for having regular serological tests for sexually transmitted diseases. In Australia, AIDS has not yet become a problem amongst intravenous drug users, although there are indications that infection is beginning to occur. This has serious potential consequences because of the association between intravenous drug use and street prostitution.

This is basically what we knew about the disease until about 18 months or two years ago. At that time there were numerous theories as to what was causing it. Some people thought it was due to immunological overload, others to immune suppression produced by deposition of sperm into the rectum and so on. But for those who had a background in infectious diseases or microbiology it seemed very likely that AIDS was a traditional infectious disease, probably due to a virus. In fact, there were many people who were prepared to take a reasonable punt that the aetiologic agent would turn out to be a retrovirus because this group of viruses produces diseases with some similarity to AIDS in animals. So a serious attempt was made to look for evidence of retroviral infection in man. At that time only two human retroviruses were recognized: these were known as HTLV-I and HTLV-II (human T cell leukemia viruses I and II) each of which had been identified in patients with extremely rare forms of human T cell leukemia. While it was possible to test for antibodies to both viruses, the test that was more widely available was for HTLV-I. So Max Essex at Harvard collected sera from patients with AIDS and patients with what was thought to be a lesser manifestation of infection (referred to as the lymphadenopathy syndrome — LAS) from haemophiliacs (who were known to be at increased risk of acquiring AIDS) and healthy controls and tested them for antibody to HTLV-I. To his delight he found antibody in about

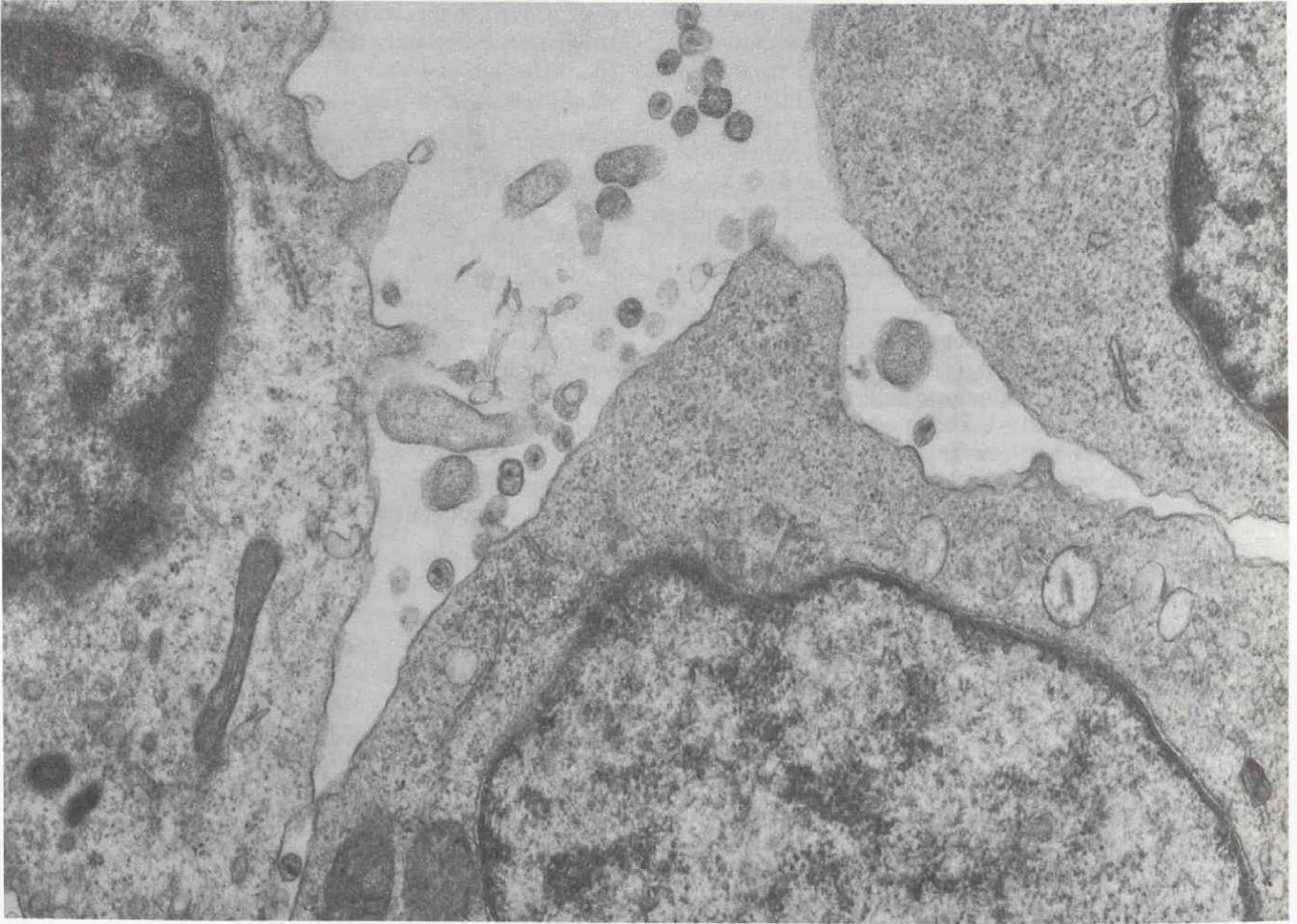
one-third of patients with AIDS, one-quarter of patients with lymphadenopathy and a similar proportion of haemophiliacs. His deduction was that AIDS was caused by a retrovirus which was antigenically related to HTLV-I.

On both sides of the Atlantic this finding sparked a great surge of work as a variety of groups began to search systematically for the aetiologic agent in tissue obtained from patients with AIDS and LAS. That race was won by Luke Montagnier and his colleagues at the Pasteur Institute in Paris, who identified retrovirus-like particles in tissue from patients with AIDS (see Figure 1) and called it LAV (lymphadenopathy associated virus). A morphologically and serologically similar agent was identified by Bob Gallo and his colleagues in American patients. Gallo named his strain HTLV-III, or human T cell lymphotropic virus III. There is now general agreement that both LAV and HTLV-III are the same virus although its final name and taxonomic position have not been determined.

The discovery of the virus represented a quantum leap in knowledge. Within a very short period convincing evidence was obtained that this virus was the aetiologic agent of AIDS. Within a few months it became possible to detect the presence of the virus and various components of the virus such as its nucleic acid, various viral antigens and reverse transcriptase. It also became possible to develop tests for the detection of total and class specific antibody.

The antibody tests turned out to be extremely important, not only for screening blood donors, but also for putting the whole debate about AIDS on a rational and scientific footing. The antibody assays have enabled us to answer the sort of questions that David Penington and the Task Force have been addressing on the basis of scientific data. We no longer have to guess. We no longer have to make decisions on the most intuitively reasonable solution. We are now able to answer questions such as the relative risk of infection of health care workers and sexual partners. We have data on the incubation period, on the significance of the presence of antibody, and on the risks that people who are infected will subsequently develop the disease. The antibody test has enabled us to determine when the virus arrived in Australia and what proportion of people are infected. The earliest studies that we carried out at Fairfield were on about 1500 gay men who volunteered to have the tests in November and December of 1984. The prevalence of antibody in that group was about 20%. A lot of people became very agitated at those figures thinking that that meant that 20% of homosexual or bisexual men in Victoria were infected and that very large numbers of cases could be expected in the future. I think that one has to be cautious about extrapolating from such data. It is a bit like watching a ladies' volleyball match and coming away with the conclusion that the average height of women is 6'7"! The men who presented in November and December of 1984 were probably atypical in that their sexual practices put them at greatest risk and hence they were most anxious to know whether they had been infected. If we look at the data that we have accumulated in the last year on a month by month basis, the prevalence of antibody detected in gay men presenting for the first time has gradually declined. The overall prevalence of anti-HTLV-III in the several thousand gay men that we have studied now is of the order of 10%.

There are about 1500 haemophiliacs in Australia, about one-third of whom show serological evidence of infection. The prevalence of antibody is higher in people with haemophilia A than in those with haemophilia B, and higher in patients with severe haemophilia than those with



Electron Micrograph of AIDS virus (HTLV-III)  
isolated at Fairfield Hospital in September 1985.

moderate or mild haemophilia. The good news for seronegative haemophiliacs is that Australian factor 8 and factor 9 are now heat treated by a method which has been demonstrated to destroy the infectivity of the virus. We have studied a number of other groups such as prostitutes, intravenous drug users and so forth and although we have looked at quite large numbers, infections are just beginning to occur. It is possible to date when HTLV infection was introduced into Australia by looking at stored sera from haemophiliacs and gay men. In both groups antibody is rare or absent in 1980 and begins to appear in 1981 and 1982.

I would like to say a few words about predictions I think we can reasonably make. Firstly, there is absolutely no doubt that there will be an increase in the number of cases. Because this disease has a long and variable incubation period, if all transmission ceased today a large number of people who have already been infected would still develop AIDS in the next few years. We do not know what proportion of infected people will eventually develop AIDS. But in those groups that have been followed for three to five years 5% to 15% have developed AIDS and an additional 25% to 35% have developed the lymphadenopathy syndrome. In a cohort of gay men in San Francisco who have been followed from 1979 to the present, when the first case of AIDS occurred the ratio of people with antibody to cases of AIDS was 800 to 1. When the group was studied last year the ratio was 24 to 1. When it is studied again this year it is likely to be of the order of 20 to 1 or slightly less.

It seems certain that we will see cases with longer incubation periods. The mean incubation period of the

transfusion-associated cases that we have seen to date is about three years but it must be remembered that we are only four years into the epidemic. Predictions made from computer models suggest that the mean incubation period of transfusion-associated cases will be about six to eight years with a range of one to 15 years. Since the incubation period of blood-borne infections is usually inversely proportional to the dose, it may be that people who acquire infection in other ways will have longer incubation periods. So clearly we will see cases with longer incubation periods. Because of the long incubation period of the disease there are probably sequelae that have not yet been recognized. These may include other forms of immunological disturbance, other rare tumours and perhaps chronic neurological sequelae such as we see with some of the animal diseases.

Finally, there are a number of things that I think we can be comforted about. I do not think there is any doubt that we will get better at treating patients, that better drugs will become available and that patients will survive longer. In general, those who are admitted with opportunistic infections die within twelve months of the onset of symptoms; those who present with tumours tend to survive for longer than twelve months.

There will undoubtedly be large and costly studies of antiviral chemotherapeutic agents. My personal opinion is that antiviral chemotherapeutic agents will probably not be effective in reversing the disease and their maximum benefit will be either as prophylactic agents or to suppress virus replication in people who have been recently infected so that they will have a reduced risk of developing long term sequelae.

A great deal of work is going on to try to produce safe and effective vaccines. The production of effective vaccines is more complicated than with other viruses. Because viral nucleic acid becomes integrated into the host cell genome, conventional approaches like the use of killed or live attenuated vaccine are not possible. In practice this means that AIDS vaccines will probably be produced by recombinant DNA technology. There have been tremendous advances in the last twelve months: the genome has been mapped, the genes coding for the surface antigens and the core antigens have been cloned and expressed, and it is possible now to immunize animals with some of this cloned material and determine whether they will be protected against challenge with the homologous and heterologous strains.

There are several other problems which may make production of a vaccine more difficult than we would like. Firstly, one of the major surface antigens of the virus shows a considerable degree of variability, which may or may not be epidemiologically important. Secondly, HTLV-III does not stimulate a very good level of protective antibody following natural infection. Finally, because AIDS has such a long incubation period, even if we were to develop a vaccine today, it would take a number of years before it would be possible to demonstrate that it was safe and effective and could be used widely in man.

**Question:** It particularly intrigues me with regard to your statement that it is a new infectious disease. How do you go about proving that HTLV-III is not a variant of an animal virus (such as 'green monkey'), a mutation of an existing virus or a new virus?

**Dr. Gust:** Well those are really two separate questions. Firstly, AIDS is a new infectious disease at least as far as Western society is concerned. The first patients were recognized in 1981 and if you review earlier case records there is no evidence of its existence previously. There is supporting evidence from antibody studies — a form of serological archaeology! If you test old stored sera from the groups in which the disease is now occurring, there is no evidence of this virus having been around prior to the late 1970s. The question of where the virus came from really hasn't been resolved. There is a good deal of epidemiological evidence to suggest that it may have originated in Africa, either from an isolated group of people or from an animal reservoir either directly or following a major mutation. You can certainly find brother and sister viruses amongst monkeys in Africa and those are quite closely related to the human virus. There is a great deal of work going on in Africa right now in attempting to isolate strains from animals that might have been the original hosts, looking at sera collected from human and animal populations over recent years, and I think we will probably have the answer to that kind of question within the next twelve months.

**Question:** Would you comment on the infectivity of blood and semen and any information that might be available on the number of infectious particles present?

**Dr. Gust:** Because the virus is difficult and expensive to grow and methods of quantitation are only just being developed we do not have much hard data. I suppose the best yardstick is to compare it with Hepatitis B for which we do have very good data and to look at it in a number of settings. One of the most thorough studies has sought to estimate the risk of transmission of infection to health care workers. To date more than 1000 health care workers have been involved in documented accidents with blood from antibody positive

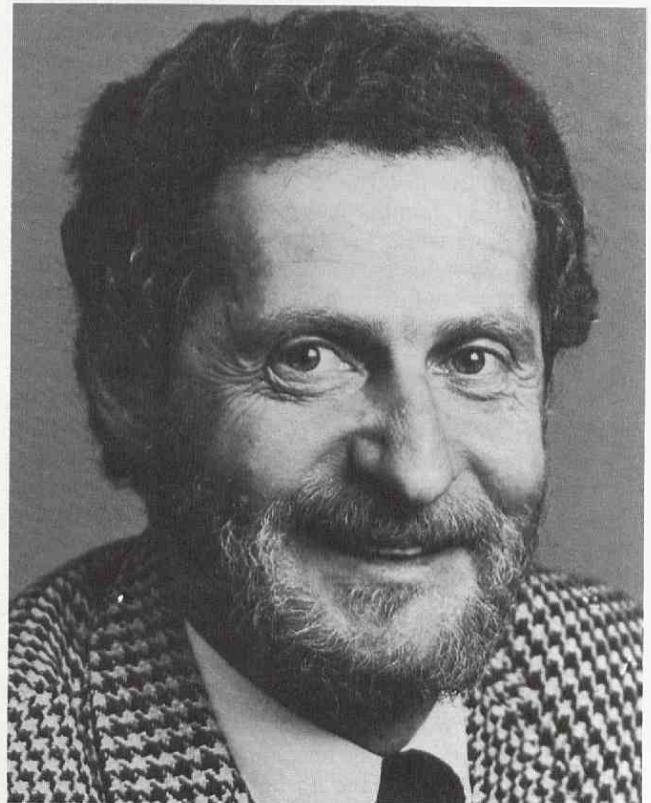
people and yet there are only two episodes in which one can be confident that infection has occurred and another two in which it is reasonable to suggest that transmission has occurred. By contrast, if these people had been exposed to the blood of patients with acute Hepatitis B we would have expected something in the order of 20% to have been infected. So it is clear that AIDS is much less infectious in those kinds of situations than Hepatitis B. The virus is present in seminal fluid, but not in the germ cells and it can be transmitted by both homosexual and heterosexual intercourse. There is a little evidence that it is more readily transmitted by homosexual intercourse than by heterosexual intercourse.

**Question:** What would be the most significant symptoms to indicate that the patient has developed AIDS and are these symptoms variable?

**Dr. Gust:** The presenting symptoms are variable but tend to fall into certain patterns in different parts of the world. In Australia, patients usually present in one of two ways, either with life threatening opportunistic infections (most commonly pneumonia due to *Pneumocystis carinii*) or with otherwise unusual tumours (such as Kaposi's sarcoma). In other parts of the world the types of opportunistic infection are different and the types of tumour sometimes differ as well.

**Question:** What is the relationship between AIDS and the lymphadenopathy syndrome?

**Dr. Gust:** The lymphadenopathy syndrome is another manifestation of infection with HTLV-III. After infection occurs, there are various possible outcomes. You may develop antibodies, become a carrier of the virus but remain quite well. You may develop a constellation of symptoms (fever, weight loss, lymphadenopathy, etc) which is referred to as the lymphadenopathy syndrome, or you may develop the severe and usually fatal disease we refer to as AIDS. Although the lymphadenopathy syndrome is sometimes a staging post on the way to AIDS, some people with lymphadenopathy



Dr. Ian Gust

syndrome have been observed for a number of years without progression. We will not know whether it is an inevitable step until people have been followed for a much longer period of time.



### **Professor David Penington**

I suppose if ten years ago an imaginative journalist or author, someone with the sort of foresight of H.G. Wells, had sat down to devise a story based on a disease which was going to cause havoc to society, a disease which would fill the community with fear, which would stir prejudices, would cause sensationalism in the press, which would strain health care resources to the limit, which would pose problems for medical science that would be extremely difficult to solve, he really could not have done any better than to have invented the AIDS-related virus. We have as a society become very complacent in the belief that infectious disease is not really a problem in Western countries, that most of the serious illnesses can be dealt with by antibiotics. Those of us as old as I, were familiar in childhood with young adults dying of lobar pneumonia which might have developed following getting wet and cold or as a complication of a simple infection. We knew a person could develop blood poisoning following an accident in the garden with a fork that pierced the skin. Fifty years ago, therefore, society accepted that taking steps to protect against infection was part of life and our responsibility. We now take the view as a society that it is the doctor's job to deal with infectious disease and people feel very threatened by a new disease for which there is no effective treatment, where people must fall back on looking at whatever steps must be taken to reduce the risk of its spread in the community. It is a role which doctors again have to address in terms of educating their patients and contributing to education in the community.

There is also a need for health care workers to learn to safeguard themselves in clinical practice. Not only does this disease evoke fear but it involves sex, and attitudes people have towards homosexuality. It involves emotions which are sometimes difficult to recognize and this makes the tasks all the more difficult to address objectively. We are used to dealing with things in terms of pathology and knowledge that we have been familiar with over many years, but this is a disease about which we are learning as we go; that in itself makes people less secure and more concerned because all of the facts are not there, and therefore they do not feel as secure as they are being told to be.

Another element causing difficulty is the fact that society has gone through great changes with 'sexual liberation' in the last twenty years with the pill and effective treatment for most of the sexually transmitted diseases. This has left tensions in our society. Many people feel uneasy with this rapid change and again religious, ethical and all manner of moral attitudes get confused with this. In discussions with medical groups, again and again I come up against people who have rigidly held views with totally irrational attitudes to AIDS. Because these emotions get stirred in many people, we as a profession have a particular commitment to keep perspective and balance, and to be sure that sick people get appropriate care. We must not say that an infected patient is not to be admitted to our hospital. We have never done so in the past, and we have no right to do that now; but yet those sorts of things are happening around Australia and in every other Western country.

In the middle of 1983 we first recognized this problem and I was asked to chair a working party for NH&MRC. At that time we had no certainty as to the mechanism of the disease except we knew that it had been transmitted by transfusion and to haemophiliacs in the United States, and therefore it was likely to be infective. Committees were established in every State and Territory so that governments and health care professionals would have information available to them as soon as it became available. Notices were placed at that time in every blood transfusion service in Australia requesting male homosexuals not to donate blood. In fact the reaction of most of the gay community was highly responsible, but in some there was antipathy: it was seen as discrimination against gays as there was no proof that the disease was transmitted by a virus. There was a demonstration outside the Blood Bank in Sydney by a group of homosexuals at that time.

In November 1984 there was a surge of public interest with the recognition that three babies in Queensland had died as a result of the AIDS infection. It became a political issue and a Health Ministers' Summit Conference on AIDS was called. They had to be shown to be doing something and one of the things was to change the Working Party's name to Task Force because it sounded better! They also made available additional funds for education and research. We had, in fact, already obtained research support from NH&MRC to develop methods for assessment of immune function and to prepare for any developments in the virological side. Indeed it was in early 1984, only 18 months ago, that Robert Gallo's paper was published in *Science* giving clear proof of isolation from a number of patients with AIDS of a new retrovirus and the detection of antibodies to it. Within nine months of that publication, two laboratories in Australia — Ian Gust's laboratory at Fairfield and Ron Penny's laboratory at St Vincent's, Sydney — had an antibody test up and running.

The United States government undertook a 'crash programme' to develop antibody testing kits for routine screening of blood in transfusion services. Work which would ordinarily have taken some three years, was compressed into twelve months. We had support from Dr Blewett to gain access to those kits even before they were approved by the Food and Drug Administration in the United States, and with Ian Gust's laboratory leading the way we were able to set up our own evaluation to see which were suitable for Australian conditions. Indeed we were able to introduce the testing of the antibody into Australian blood transfusion services simultaneously with their introduction in the United States. We had, by that time, introduced legal sanctions to back donor declaration forms to exclude people with a risk of carrying the infection. There were penalties for false declarations, which was the first and most important step in safeguarding the transfusion service. This was followed very rapidly by the testing kits. At the same time we were able to provide tests throughout Australia in government related laboratories so that there was no inducement for people in the risk groups to donate blood in order to find out whether they were all right. Those three moves, all in place by 1 May 1985, transformed the situation from a higher proportion of transfusion cases in Australia than in the United States, in 1984, to evidence of far fewer positive tests in blood donors in this country than in the United States. There were only seven confirmed positive donations out of 250,000 between 1 May and mid-July 1985. This was some 20 times fewer than the number of confirmed positives for the same size of population in the American blood transfusion services.

That has been good news. It was achieved with a tremendous effort on the part of collaborating laboratories in a number of States, in each of the Blood Banks and was led by the National Reference Laboratory under Ian Gust. There are, however, problems in screening.

Clearly screening works, and we can get answers quickly to decide whether or not a blood unit can be used. However, the antigen for that antibody test comes from lymphocytes which have been infected with the virus and it carries certain lymphocyte antigens with it. This means that some samples are positive because antibodies are present to lymphocyte antigens, not to the virus. In other words, there are false positives. The number of false positives is nearly 100 for each true positive to viral antigen in a blood donor population. These must be confirmed with a more elaborate test, the Western Blot, which involves a quite different technology which is not suitable for screening of large numbers. But all of those positive on screening, filter through to a Reference Laboratory for Western Blot tests or one of several others.

There are still issues relating to transfusion. There was of course enormous fear in the community and I still get telephone calls from medical people or from families asking is it really safe or "why can't we have blood from a relative?" We estimate that the risk of a unit of blood in this country now having the virus is less than one in a million. This is based on the evidence from tests since 1 May 1985. If you take the situation of relatives being asked to donate blood, there is no way that a father or an uncle or a cousin will admit in front of the family that they may have been exposed to the risk of this infection through homosexual activity. AIDS has been transmitted in the United States through blood from related donors. For this reason we do not recommend the use of related donors. Autotransfusion, however, is an option which is open if the procedure is elective and a person is fit enough to give two or three units of blood for storage over a period of several weeks. However, the stored blood must be of sufficient quantity to provide all the needs as it makes no sense to do all of that and then use transfused platelets or other blood from the blood bank. The Private Blood Bank in Sydney provides a service for frozen blood and I see absolutely nothing wrong with that except it is extremely expensive. However, if the Private Blood Bank gets into the business of donations from family, friends and relatives as a response to fears in the community, we do have big problems in store for us.

I shall not go through a list of all of the issues we have addressed but will mention just a few. Early on, we issued bulletins recommending precautions necessary to safeguard transmission of the disease by organ or tissue transplantation, including corneal transplants. Screening procedures were established and are now quite secure. We recommended that the same controls must be applied in artificial insemination with donor semen. It provoked quite a lot of criticism but sadly, since that time, there have been three women in Sydney who acquired the infection from a single donor, a donation made, of course, well before the restrictions were put in place; that donor was subsequently tested and found to be positive. We now know of two men who died following renal transplantation where the organ was from a donor known to the local doctor and to the family to be a male homosexual. This was before the problem was well recognized in the community, but six to nine months later both recipients died of pneumocystis pneumonia.

We moved to advise precautions to minimize transmission of the disease with dental procedures and dental equipment.

There are still some problems which will need to be resolved with re-design of equipment so that it can be readily sterilized, but again the dental profession has responded very positively and has introduced sensible precautions. We have had to give advice on the problems of first aid and resuscitation because of fears in the community. Fears surfaced which were quite ridiculous at times, such as the New South Wales police going on strike because of a supposed risk with handling breathalysers. We had to introduce additional safeguards because the virus has been detected in saliva, but it has never been shown to be transmitted by saliva. Nonetheless, people who may have to give mouth-to-mouth resuscitation such as ambulance drivers, nurses, police, firemen have understandable fears and want to avoid any possible risk or reduce to a minimal risk to make it negligible. Sensible precautions such as the use of masks for mouth-to-mouth resuscitation have now been introduced throughout Australia, even for groups like surf life saving clubs. To avoid over-reaction we have to point out that if those precautions are not available at any time there is no reason to withhold mouth-to-mouth resuscitation even if one knew that the patient was likely to carry the infection, because the risk is so negligible.

We have taken steps to point out the dangers associated with skin piercing procedures of any kind. This includes acupuncture, tattooing, ear piercing or even electrolysis by beauticians. The procedures required are simple and obvious but, nonetheless, steps needed to be taken to ensure that they were being followed. When we first issued a bulletin we had medical acupuncturists outraged that we would lump them together with others. In fact, many of these medical acupuncturists were not sterilizing their needles adequately and until that was so it was inappropriate for them to continue with acupuncture.

We prepared infection control guidelines which were released first in 1983 and have since been updated regularly. Fortunately the virus is one which is very easily destroyed. It requires a much larger dose of virus than with Hepatitis B to transmit the infection and each instance where skin prick injury has led to infection has been with a small injection of blood, rather than just the prick of the surface. Nonetheless, the disease can be transmitted in that way and it is beholden upon us to be sure that in every laboratory, in every autopsy room and every ward of every hospital that sensible procedures are followed.

The usual reaction is to say "Let's not have any of these patients with a positive antibody test in the ward because we might catch it." The fact of the matter is there will be patients with positive antibody tests in our wards and those will be people who carry the virus whether or not they have been tested. Therefore we have to follow procedures which will minimize any risk of spread of the infection with all patients. Certainly, added sensible precautions should be taken where it is known that a particular patient carries the infection. The procedures which apply for Hepatitis B are more than adequate to deal with the problem of the AIDS related virus. There are some very subtle differences. The AIDS related virus is very readily destroyed by sodium hypochlorite, by 1:10 dilution of household bleach in common language. It is destroyed by quite weak alcohol so that 70% alcohol is more than adequate. It is also rapidly destroyed by hydrogen peroxide, which is useful for dealing with lenses for ophthalmology. (As the virus has been recovered from tears there is concern as to whether fitting trial contact lenses might transmit the disease.) It happens that the virus is not as readily destroyed by dilute solutions of formalin as it is by glutaraldehyde or by paraformaldehyde

which are both very effective in very weak solution. One percent glutaraldehyde in a stabilized form is widely used in a solution called *Wavicide* and is good for disinfecting instruments, whereas hypochlorite unfortunately tarnishes chrome plate on many instruments. One percent glutaraldehyde is effective and does not discolour things.

The virus is destroyed by dry heat and by autoclaving. It is not destroyed rapidly just by sitting in a plate on the laboratory bench at room temperature. We therefore have to develop sensible guidelines for all types of staff to follow. It is very irresponsible for doctors to put needles in their wastepaper baskets that cleaners may pick up and prick themselves. We all ought to use rigid walled containers to dispose of needles. We should teach all of the people who work with us never to put the needle back in the plastic cap after drawing blood from a patient. That is when the skin prick injuries occur and surveys that have been done show that at least 30-50% of skin prick injuries are readily avoidable. We have to learn simple precautions so as to live with the disease.

Many people have called for screening of whole populations linked with notions of quarantine. We do not have a screening test which can effectively be applied to large populations because there will be many false positives and because the knowledge of a positive test may cause major social dislocation. You can imagine the disruption which would occur if a wife or a husband is called back because the test is believed to be positive. Only one in a hundred such tests in a low risk community may turn out to be a true positive. What do we do when we have a nurse with a positive test? Of course, we know there are some male homosexuals in the nurse workforce. The evidence is that it is perfectly safe for such people to continue to work except that they should, of course, not handle intravenous lines or things of this kind where there could be some added risk factor. We will have to work through these issues with our nursing colleagues. Maybe we can be 'holier than thou' in our attitude to such nurses, but what do we do about a medical colleague who is found to have a positive test? Particularly, what do we do if a surgeon finds that he has a positive test? These will be difficult problems to address, particularly when we have no effective treatment to offer.

There are many issues in the social field, such as prisons, where we know there is a high incidence of male homosexuality and a high frequency of intravenous drug abuse. What are we going to do with the problems of prostitutes with positive tests who continue to trade? What are the civil liberties and legal implications in dealing with such problems? Fear in the community makes a problem even of a child with haemophilia, once it is known in the school that that child has a positive test. You will have read of the enormous dislocation in one town in New South Wales where people are even trying to hound a family out of the community because of a child with a positive test due to transfusion!

The disease is difficult to spread except by sexual contact or by the blood of one person gaining entry into the circulation of another, not just by skin contact. Certainly we should avoid skin contact with blood, particularly if there are abrasions, and there should be procedures to avoid any such minimal risk. These must be part of the way of life for school teachers. Plastic gloves should be available to handle blood or excreta. These are the sort of issues that medical practitioners will be asked about and will have to learn to assess sensibly, unemotionally and objectively. We must be

ready to advise the patient with a positive test on all such matters when they need our support. We will have to learn a lot more about counselling, to learn to deal with patients with compassion rather than with fear or anger which many situations might understandably provoke. We have not had to deal with such problems for many years now — the need to treat patients where we may feel ourselves to be placed at some risk, even though it is small. We are going to have to rediscover those traditions of service which used to be strong in the profession in the days of the great epidemics.

**Question:** Many people are concerned about the chances of catching AIDS if there is the virus in the family, and especially in that case where a woman presumably passed it on to her baby either by the normal contact between mother and baby or by breastfeeding. What are the chances of a woman who has had it from a transfusion then passing it on to her husband and her older children?

**Professor Penington:** We can only give rough estimates at this stage but the evidence is good. Firstly, the family studies which have been completed in the United States and in this country so far, and there are over 200 of them, show not a single instance where the infection has been transmitted through normal social contact. Transmission within a family has all of it been sexual transmission or the one instance recorded in Sydney of a breastfeeding mother passing it to the baby. We must assume that every body fluid contains the virus. It has been demonstrated in a number now; we assume that it is also in faeces. However, given normal sanitation, it is perfectly safe for there to be physical contact with all of those fluids providing a person does not have open abrasions or wounds. There is one instance which is a cautionary tale. The story is from London of a woman in one of the poorer suburbs, who went to help a sick neighbour, a Ghanaian in his thirties. The woman was a not very bright lady in her forties; the next door neighbour was extremely ill with diarrhoea and he became unconscious in the course of a week. The neighbour came in and cleaned this man up and got her hands repeatedly soiled with excreta. The sad part is that she had severe exudative dermatitis. Her daughter got married that week and she arranged the roses in a vase and scratched all her hands and had bleeding hands but still continued to deal with this incontinent man. She had prolonged contact with excreta throughout the week. The man was admitted to hospital and died from a pneumocystis pneumonia and two years later the lady herself developed pneumocystis pneumonia and was shown to have AIDS. That is the only Western case of social contact transmission and the circumstances are such that, of course, it was virtually inevitable. The risk of sexual transmission is hard to quantify; it is not always transmitted. The evidence points to it being more readily transmitted by anal intercourse than by vaginal intercourse. There is clear evidence, however, that it is transmitted also by vaginal intercourse. Probably it is more readily transmitted from man to woman than from woman to man.

**Question:** Has there been any suggestion that vasectomy for practising homosexuals should be tried, and secondly the cyclosporin story — is there any more information than I read in the paper last week?

**Professor Penington:** The vasectomy is a good suggestion but the problem of course is that there are other secretions, such as prostatic secretion which will carry the infection. It is not just testicular secretions. Prostatic secretion would probably be more likely to be laden with cells which usually carry the virus. The question really is whether or not

intimate contact can be avoided with exchange of fluids in the male homosexual lifestyle. The use of condoms is the biggest factor which would reduce the risk. There is a very active campaign amongst male homosexuals to try to encourage the use of condoms. Whether that will really make a great difference to the spread of the disease only time will tell. At the moment there are some suggestions that it is not making a difference to seroconversion in groups who claim to be using them. The question of treatment, the cyclosporin story, is almost certainly a 'furfury'. It was disgraceful that the news was released by the French after only seven days experience of treatment of one patient and then some three days of experience of a group of some six other patients which showed a rise in the T4 cells with T6 markers. They were not even the normal T4 cells but immature cells released with very high doses of cyclosporin which is, of course, very strongly immunosuppressive. But the most surprising things sometimes do occur, so it needed to be checked. The principal patient has now died of his infection but two patients have in fact been given treatment, with their agreement, at a lower dosage in Australia. One of those stopped treatment after a week, there being no change in cells whatsoever. The other patient started later and is still on treatment but is being very carefully followed. It is not the answer. I am sure what was observed was just a 'compartment shift' of cells which probably came from the marrow. The other drug story is from the United States. They are trying drugs which are lecithin derivatives which Robert Gallo, who visited recently, is hopeful may interfere with uptake of the virus. There are also metabolic blockers of the DNA synthetic steps where the reverse transcriptase which reads the message of the virus into the genetic material of the cell. Some show great promise with quite dramatic improvement in several patients, but it is early days. It is likely that Ian Gust's laboratory and others will be looking at some trials in the near future to make a start with some existing drugs. There are, I think, reasons to be hopeful. Another interesting comment from Robert Gallo was that, using cDNA probes, it is only a very small proportion of the lymphocytes that carry the virus, only a very small proportion of the T4 lymphocytes. It could be that if there are only a few infected cells, if one can stop spread to other cells in the body, that the disease might in fact die out or at least be controlled. So it is not all black; there are real reasons to look with some hope for an effective treatment. There are a lot of difficulties in the way of developing a vaccine because of a changing coat of the virus that Ian Gust was talking about but so far there are common areas in each of the isolates so it may be feasible to produce a vaccine.

**Question:** Could you tell me how long it takes for seroconversion to occur after contact with the virus and does seroconversion necessarily imply the presence of virus in the patient?

**Professor Penington:** We know that in most cases seroconversion occurs in a period between four weeks and four months. There are indications that it can sometimes take longer. There are situations where positive antibody tests may become negative, presumably with immune complex deposition or immune failure but that is an uncommon situation. Generally speaking, the great majority will have seroconverted within three months. The question of the proportion of those with positive antibody tests who carry the virus depends on methods of virus isolation. Ian Gust may wish to comment on this.

**Dr. Gust:** I think from a public health point of view you should assume that everybody who is antibody positive is

infected with the virus. If you take 100 antibody positive people and try to isolate the virus from their blood you would expect to culture it from half to two-thirds. If you were to go back to those in whom you failed to culture virus and test them on second and third occasions it is possible to obtain virus from quite a high proportion. From the practical, public health point of view, I think you should assume that everybody who is antibody positive is potentially infectious.

**Question:** I would like to descend from the sublime to the gorbliney. A few comments from the caveman era, events more than 50 years ago in the 1920s in our time as medical students under control of wise old gentlemen who knew nothing about T cells but had enormous inbuilt computers in their vast experience. They could tell us lots of things about lobar pneumonias. We had medical wards full of them. Propped up in bed and sisters running from one to the other to see their pillows were right and pumping away and all of a sudden they would have a crisis and might perish. Others looking blue and miserable with their lobar pneumonias would get vast herpes sores all over their faces but the wise physician could go up and talk to them and say "Cheer up, old boy, you're going to get better!" — If he didn't get herpes he'd die! But those were the commonplace observations of the pre-scientific era. The other thing that has been mentioned in this discussion was Kaposi's sarcoma. We had no idea that there were homosexual communities. We saw the odd Kaposi sarcoma as an interesting rarity and they were always Jewish people of the middle European communities.

**Professor Penington:** Thank you very much for those comments. I think we are back on our uppers with this disease and we are going to be dependent on all sorts of clinical skills. The one comment that I would make in relation to Kaposi is that evidence suggests that the form of Kaposi which we are seeing now is different from the endemic Kaposi which has occurred mostly in elderly men in our community over many years; and indeed the endemic Kaposi in Africa is also different from the Kaposi that we are seeing associated with AIDS. All of the evidence points to this being a new disease rather than something that we had missed over all those years.

**Question:** In this morning's paper, *The Age*, there is a letter written by a person, Mrs. Babette Francis, who is very critical of the profession and particularly of those in the public health field. I wonder if Professor Penington thinks that we should be making more information available to the general public along the lines that you have talked of tonight. Has there been enough publicity in this field?

**Professor Penington:** Well I've not read Babette Francis' letter this morning for the reason that I was on the 7.00 am flight to Sydney to meet with Ita Buttrose and Neil Blewett to discuss the next phase of the educational programme! In fact we have put a tremendous amount of time and effort into trying to get the information through to the community. I spent some three hours at a meeting with Babette Francis, in a group called Women Who Want to be Women. They had very fixed views on the wickedness of everything that had led to this disease. Although I do not deny for one moment that the lifestyle of the male homosexuals is the soil in which this disease is developing, it is not, nonetheless, caused by those people. Her sort of postulate that if we stop all this wickedness everybody will be well again just does not add up. The fact of the matter is that society has changed in the last twenty years in terms of its sexual mores and young people will continue to have multiple partners. What we have to do is get those young people to understand the risks that they run and to take precautions to minimize the risk of

spread of this disease. We have got to make children in schools understand these realities. Conservative religious groups often feel such things should not be talked about in schools. They claim that the government has in fact been responsible for all of this sexual liberation. In fact, we must be sure that children understand the realities of the risks associated with even normal vaginal intercourse, with multiple sex partners but particularly the risks associated with anal sexual intercourse. All of that has to be understood by children, so that they grow up knowing the facts and can avoid the risks, or if they take them, they take them knowingly. We have to address the realities and to do whatever can be done to minimize the spread of the disease. In my view, and that of my colleagues in the Task Force, people need to know the facts. We have never at any time hidden or minimized the facts. We have been absolutely open in making those facts available to the press, to the public. The difficulty, of course, is that the facts get distorted because they are so salacious and people use them to appeal to emotions of fear or prejudice or whatever. The difficulty is to get people to look at things objectively.

**Question:** Professor Penington, as one of those people who has been doing some education in the community, one of the biggest difficulties we come across is what you mentioned before, the idea of a 'cover up'. Constantly, participants in courses say to us "We don't think you are telling us all the facts", or "You may think you are telling us all the facts but somebody up higher is covering it up for you."

**Professor Penington:** One of the causes of this problem is confusion over terminology. Inexperienced reporters sometimes make very misleading statements because they do not understand the facts; they do not want to check, in case they are shown to be wrong. It is difficult to get all of the community to understand the highly complex facts about this disease and its different stages. Initially with infection, there is no symptom. The next stage is a positive antibody test but that does not mean that they have AIDS. The next stage within three to five years is one in four or five will be people with one of the group of AIDS related complexes. In this period, which is the totality of our experience, one in ten will go on to AIDS. We release regularly every month the number of cases of AIDS in Australia. Every month or every two months some wretched reporter quotes the number of cases with positive antibody that he has got from somewhere as being cases of AIDS. In February 1984, the Task Force stated that there are many people who carry the infection in the community. We made that statement just before the Sydney Gay Mardi Gras because there would be gays and bisexual men from all over Australia going to Oxford Street to take part in all of those festivities. We wanted them to know the danger that they faced of acquiring infection and taking it back to Perth or Adelaide or wherever, or, for the bisexual men, the risk of infecting their wives. We stated that, in addition to those cases of AIDS, there were probably something of the order of 20,000-50,000 men who might have a positive antibody test. The next day the *Sydney Telegraph* had a banner headline "50,000 Cases of AIDS". That has only to be done once, and it does not matter what is said thereafter, "They're hiding it from us, it's not just 40, it's 50,000." And that sort of thing keeps happening. Sometimes it is a genuine error, sometimes it is a headline which will make it seem far worse than it is. These appeal to fears in the community, boost the circulation of that paper, or the rating of the television station. We have a constant battle and at every stage we have been absolutely open about our factual material.

**Dr. Gust:** In response to the suggestion that we are not doing enough: certainly you can always do more, but you have to look at what we are doing and what we have achieved in a proper context. If you look at the Australian response I think it has been absolutely remarkable. People overseas who have looked at the Australian response and compared it with other countries have been tremendously impressed. Australia is regarded by many as providing a model approach to the problem in that it has established an integrated program of in-patient and out-patient care, and is developing a major educational campaign. We have got the testing in place in blood banks and alternative test sites and kept the lid on hysteria in the country. It has been a remarkable achievement. Dennis Altman who has just returned to La Trobe from San Francisco and who is a leading gay activist has just written a book about AIDS. He has looked at the situation around the world and is convinced that the situation in Australia is better than in most countries and that the two cities in the world that have approached the problem most responsibly are San Francisco and Melbourne. So I think we have to see our response in perspective.

**Question:** My question might be along the same lines and it is again hypothetical. I was talking to someone of a rather draconian turn of thought and he pointed out that if AIDS had arrived in the 1880s the community would have demanded more quarantine and certainly would not have permitted the Gay Mardi Gras in New South Wales. Do you believe that if it had happened in 1880 and given the community's change in perceptions — which probably would not wear it now — if you had draconian quarantine powers would you use them for the advantage of controlling the disease more rapidly?

**Professor Penington:** What would have happened in 1880 is interesting to speculate. Of course there would have been no way of getting antibody tests done, so they would have been only the late cases identified — people who are going to die anyway. I have no doubt that in fact they would have been dealt with as lepers; they would have been isolated and they would have been left to die on their own, without people being willing to look after them but for a few particularly humane doctors and nurses of the kind who have always helped lepers. However, quarantine of late cases would have done absolutely nothing to stop spread.

Some of those with infection do not spread it and others do. The four women who acquired the infection by artificial insemination are interesting. All four have engaged since that time in unprotected vaginal intercourse with husbands and not one of those husbands is yet positive. Three of those have had babies by another donor subsequently, and not one of those babies is positive. So the disease is not necessarily even transmitted across the placenta or at the time of birth, although we know it can be. Presumably those are healthy women who have neutralizing antibodies which control the disease. Whether the virus will change as it evolves and changes its antigenic structure and escapes or whether they will lose their high level of immunity we do not know. There is some evidence to suggest that repeated antigenic challenge with further infection makes the disease spread within the body and activates spread from one lymphocyte to another. It is possible that the gays are much more at risk in that respect than others who have had just a single dose by 'clean means' as it were. The haemophiliacs, unfortunately, do not come into that category because many of those have non A non B hepatitis, cytomegalovirus and other infections of that kind so they will have constant antigenic challenge. We have to study the natural history

of the disease in different groups and we are getting funding for research of that kind. If you had to isolate all of these people for life, where are you going to put them? Really we do not have any firm knowledge of the number of people in the community with a positive antibody test at the moment as there is no way to sample the whole community. We do know the number must be in tens of thousands. They are spread all around. They are part of our community, we cannot identify them. These people live as an ordinary part of our community. We are a tolerant society. That is part of our culture, our way of life. We accept diversity and if we start going back to witch hunts to identify such people there are huge potential dangers to the fabric of our society. We see that occurring in all sorts of situations, with positive antibody people thrown out of work, or out of their lodgings, or even some thrown out by their families. This causes havoc. Particularly this is sad when it is known that there is no real danger of spread of the infection by normal social contact. What we have to do is focus on the actual means by which

the infection is spread, educate the people who have the infection and educate the rest of the community.

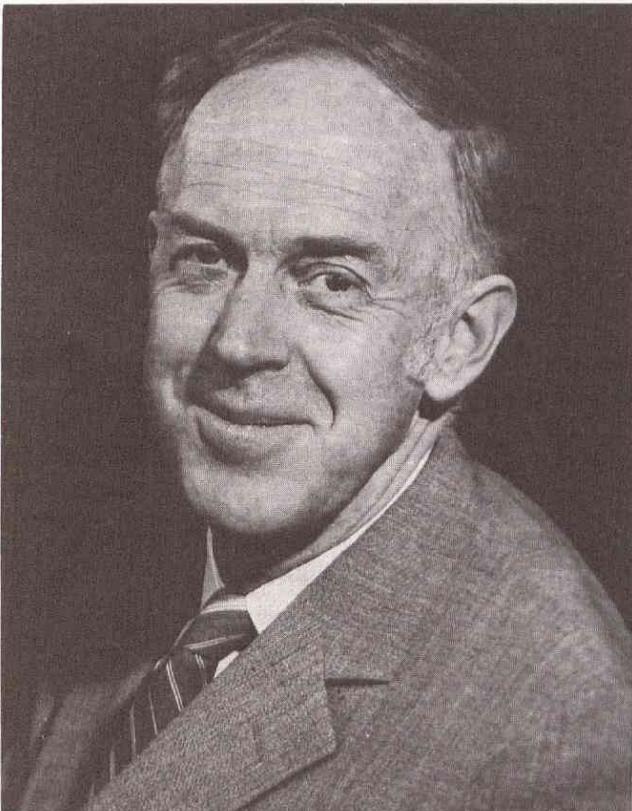
**Dr. Gust:** While I do not want to have the final word, I think I can see an evolving situation where a kind of natural quarantine will take place. If you are a member of a group that is at increased risk of infection, the most important way of ensuring that you do not get infected is not to have intercourse with an infected person. The notion of safe sex is a contradiction in terms. I think the only form of sex that is safe from the point of view of infection, is sex with oneself! Unless you believe in whole-body condoms, it is not possible to have sex with another person without there being some risk of transmission. In the long term what is likely to happen is that people at increased risk will take the test and those who are infected will hopefully restrict their sexual activities. Those who are susceptible and wish to remain free from infection will also restrict their sexual activities. This is a kind of natural quarantine.

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### Mathison Lecture 1985

## Double Helix — Double Joy

### Professor David M. Danks



Professor David Danks

Even from its infancy it was apparent that the double helix was going to change not only science, but also the community's image of science. Early in this phase a rather remarkable book appeared: James Watson's *The Double Helix* was very lively, very brash and full of statements which bordered on scandal. Never before had a scientist talked publicly in this way and from this time onwards science has been more visible to the public.

Over the next twenty years knowledge of the double helix grew steadily. Then, about 1975, came a tumultuous pubertal growth spurt based on the new recombinant DNA technology (genetic engineering, molecular genetics). This technical revolution depended upon several new discoveries. Firstly, DNA could be made as a copy of RNA using reverse transcriptase, an enzyme extracted from a class of tumour viruses called retroviruses. This was heresy, for the *central dogma* of Watson and Crick said that information flowed only from DNA to RNA and not in reverse. However, the new skill made it possible to create what are now known as cDNA copies of RNA.

The second crucial technique depended upon other enzymes extracted from bacteria — the restriction endonucleases. Each restriction endonuclease cuts DNA at a particular sequence of bases. Many cut one strand of the DNA at a different position to the other strand, leaving uneven, 'sticky ends' which can be used to join pieces of DNA together, to insert pieces of DNA into plasmids or other 'vectors' which can, in turn, be inserted into bacteria where 10 million copies of the gene can be made overnight.

The modern molecular geneticist has many other tricks he can use in manipulating DNA, but these two are the central ones. One must also mention the specific hybridization of one DNA strand to its complementary partner, or indeed, of a DNA strand to the messenger RNA molecule derived from it, or *vice versa*. This hybridization allows recognition of strands of DNA or RNA using cloned radioactively labelled strands as 'probes'.

The double helix, the subject under consideration, was first made visible to the public in a short paper in *Nature* in 1953. This paper, by Watson and Crick, changed the progress of biological science in a permanent way. Taking a paediatrician's developmental approach, one might say that this was the birth of the double helix. Its conception might be set as 1944 when Avery, McLeod and McCarthy showed that DNA was the genetic material of the pneumococcus.

During its phase of pubertal growth our subject has developed massive new muscles and strengths of which we never dreamed. It may also have developed urges which may need to be harnessed and channelled. For the remainder of this lecture I wish to examine some of these strengths and skills, some of the urges which may exist and others which are imagined to exist. Just as many parents are fearful of the new form and personality of their pubertal child, so society is anxious about this fledgling adult, genetic engineering.

The man we honour tonight would have been the first Director of the Walter and Eliza Hall Institute if he had survived the First World War. Two of his successors have had things to say about the subject we are discussing. The present Director uses the title *Reshaping Man* for his recent paperback on genetic engineering. His predecessor, Sir Macfarlane Burnet, wrote about *The Endurance of Life*. Do either of these phrases truly characterise what we can expect in the future as the result of genetic engineering?

### **New basic knowledge**

Before going on to the actual applications of genetic engineering in medicine and to mankind, I would like to pause for a moment to mention just a few of the new items of fundamental knowledge which have emerged from the application of these techniques. I do this not so much to teach you about molecular genetics, as to emphasize that new fundamental knowledge will prove to be the most important product of the molecular genetic revolution. This new fundamental knowledge is changing our ability to understand, treat and prevent all types of diseases, not just those which we call inherited diseases.

The Watson-Crick dictum that DNA produces messenger RNA and that messenger RNA produces proteins through the sequential processes of transcription and translation, had become known as *the central dogma of genetics*. When reverse transcription was discovered many claimed that the central dogma was shaken and crumbling. In fact, these new discoveries have merely embellished the central dogma.

It is true that information can flow from RNA to DNA and not just in the more usual direction from DNA to RNA. We have also learned that the messenger RNA molecule which is used in the cytoplasm to direct the synthesis of proteins is not used in just the form transcribed from the DNA, at least not in higher organisms that have nucleated cells (eukaryotes). (Direct transcription of DNA into messenger RNA does occur in prokaryotes, whose genes do not have introns.) We now know that the genes of higher organisms are composed of alternating coding sequences (exons) and non-coding intervening sequences (introns). The initial RNA transcript is a faithful copy of both exons and introns, but the introns are then edited out of the transcript before it becomes the functional messenger RNA molecule which is transported from the nucleus to the cytoplasm and directs protein synthesis.

This seems an unnecessarily complicated way of doing something which prokaryotes do more simply. However, we are learning that the exon/intron structure has been very important in evolution.

We used to believe that one gene coded for one polypeptide chain. We now know that one gene may code for a number of different polypeptide chains and that this is often achieved by differential splicing together of exons. For instance, if a gene contains four exons, several different messenger RNA molecules may be formed by splicing together three out of

the four exons. The enormous diversity of antibodies produced in the human body depends upon the more complex version of differential splicing of exons.

In evolution new genes have sometimes been formed by shuffling of exons, taking an exon which codes for a particular functional region of one protein and moving this exon into another gene, conferring a new property on that protein. For instance, two proteins might be synthesized in a cell under the control of two different genes. One of these genes might include an exon which codes for a sequence which allows the protein to be transported through the cell membrane and secreted outside the cell; the other protein may lack this sequence. A single gene rearrangement may add the exon coding for the membrane transport segment of the first protein to the second gene, allowing the second protein to be secreted from cells. It is clear that some of the bursts of evolutionary change in organisms which have been postulated may have been possible because of exon shuffling.

### **Applications of molecular genetics**

Now, let me summarize some of the great advantages that I see coming to mankind and to medicine because of molecular genetic technology. I will then discuss some of these in more detail.

We are starting to use DNA probes in the diagnosis of genetic diseases, especially in diagnosing the genetic diseases of late onset at a stage before symptoms have developed, and in diagnosing genetic diseases prenatally. We will see a great increase in the application of DNA probes in this diagnostic field. We will also see DNA probes used in rapid diagnosis of bacterial and viral infections.

Many of the pharmaceutical substances which we now extract from animal or human tissues will be produced by genetic engineering in the future. Insulin made in this way is already on the market. Growth hormone and Factor VIII for the treatment of haemophilia are eagerly awaited. The pressure for producing these two substances by genetic engineering has increased very greatly since the recognition that human growth hormone preparations can transfer the prion that causes Creutzfeld-Jakob disease and that the AIDS virus can be transferred in Factor VIII harvested from human blood.

Oil and other fuels may be made by genetic engineering in the future. Plants will be improved and the need for nitrogenous fertilizers may be removed by introducing genes for atmospheric nitrogen fixation into crop plants. Stock breeding is likely to be revolutionized.

Finally, we will see human genetic diseases treated by gene therapy in the future.

### **Science and society**

The relationship between science and the community is also changing. Science and industry are entering partnerships which will increase in the future. We have long behaved as though money inevitably corrupts science and scholarship. There was a stage when it was implied, or even stated, that many of the great scientific discoveries had occurred because the scientists worked with inadequate facilities. It might be true that Fleming's discovery of penicillin did depend on his having the window open so that spores could blow in, but most other discoveries which have been made under difficult conditions have been made despite these conditions, rather than because of them.

Science and industry need one another and those of us who are on the scientific side of this partnership must learn

how to make it work without giving away the important elements of independence and integrity of our previous situation. Scientists must be able to continue to choose research topics for their intrinsic interest and fundamental importance and must resist the temptation to become purely technical contractors who carry out technical development procedures for industry. We must convince industry, as we have been trying to convince government for decades, that, in the long run, the greatest benefit does truly come from letting a competent scientist *do his own thing*. There has always been pressure upon scientists to constrain their own interests in directions which society finds useful or acceptable, in order to win research grants. Hopefully, industry will learn that it pays to put up substantial risk money to support good basic scientists, knowing that a small proportion of the products of their ingenuity will prove very profitable to the industry concerned. The larger pharmaceutical companies have learned already that one or two *winners* can repay years of heavy unrewarded investment.

I think that there has also been a very important change in the relationship of science to the community. Despite the continual comments in the media about the secrecy of scientists, they are communicating with the general public much better than in the past. It is difficult to explain complex science to the general public *en masse*, but it can be done, and many scientists now are accepting this as part of their brief. It is also claimed that scientists never stop to think about the consequences to society of their discoveries. This is a very unreasonable accusation to level at molecular geneticists, for they voluntarily placed a moratorium on their work back in 1973 until thorough discussion had taken place about the possible hazards of the recombinant organisms that they were producing. Only after these discussions, and after developing strategies which would minimize these risks, did research proceed again. This research has proceeded under very close surveillance ever since. This surveillance was begun by the scientists themselves and only later handed over to government instrumentalities.

We are seeing the same process repeated again as human gene therapy comes on the horizon. The Human Genetics Society of Australasia has already pointed out the possibilities of gene therapy to the Department of Health, to the Department of Science, and other relevant organizations, and has asked for debate and for establishment of guidelines about human gene therapy. Hopefully, these will be in place well before anyone wants to carry out the first human gene therapy in Australia. Similar discussions have taken place in the United States and Britain. Of course, it is always impossible to control every individual in every part of our community. One scientist did rush ahead at his own initiative and try out gene therapy in two patients with thalassaemia ten years ago. He was severely chastised. No system can completely prevent such happenings, but a good system can diminish them.

## Diagnosis of genetic diseases

Before looking at the DNA approach to diagnosis, we must first think a little about the existing methods.

Many genetic diseases are diagnosed by the ordinary methods of clinical medicine. A clinician may be able to make a firm diagnosis by taking a history and examining the patient. Other diseases are diagnosed when ordinary laboratory investigations (X-rays, haematological studies and standard biochemical studies) are added to the clinical examination. Of course, most of the diseases diagnosed in this way are already causing symptoms. In some instances,

this is not a serious matter because treatment can still be effective at that stage or because there would be no treatment even if the disease was diagnosed earlier. However, in some diseases the inability to diagnose a condition before it is clinically apparent causes real problems for the families concerned. This is particularly true in serious degenerative diseases of late onset such as Huntington's disease and myotonic dystrophy, in which the children of the sufferer may have passed the reproductive age before one can determine whether they carry the gene which causes the disease.

Other genetic diseases are diagnosed by detecting particular metabolites in excessive amounts in the blood or urine. The classic example is phenylketonuria, which can now be diagnosed by measurement of the serum phenylalanine level on the third or fourth day of life, using a single drop of blood dried on a blotting paper and mailed to a central laboratory. This enables all children with PKU in the community to be diagnosed before any symptoms develop and to be treated so that the mental retardation that they would otherwise suffer is completely avoided. When we are looking at these metabolites we are moving one step up the chain of consequences which lead us from the gene to the disease (Figure 1).

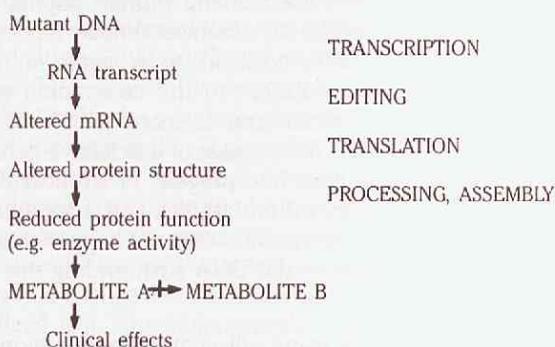


Figure 1  
Chain of consequences of mutant gene in genetic disease.

The next step up this chain is to diagnose genetic disease by measuring the function of the protein that the gene produces — this generally means measurement of enzyme activity. Many genetic diseases can be diagnosed in this way postnatally, or even prenatally using cells cultured from amniotic fluid or from a chorion villus sample.

The next level of sophistication involves examining the structure of the protein that is produced by the gene. This is the strategy used when we identify haemoglobin S in patients with sickle cell disease. It is a very reliable method, since the protein is the direct product of the gene.

Of course, the ultimate step is to diagnose a genetic disease by examining the gene itself. At first glance, this would seem the optimal method of diagnosing all genetic diseases, but a little more reflection leads one to have some reservations about this statement.

Even before the advent of gene cloning we had become aware that genetic diseases are remarkably heterogeneous. Many different mutations along the length of a gene are capable of altering the protein that the gene produces sufficiently to interfere with its function. All of these different mutations are likely to produce a very similar clinical disease because the clinical features depend on (for instance) loss

of enzyme activity, which may be similar in each mutation. Yet each mutation is seen as distinct and different by gene analysis. A test developed to pick up one particular gene mutation may be quite unable to identify another mutation at a different point in the same gene.

The advent of direct gene analysis has shown that the extent of heterogeneity within individual genetic diseases is even larger than we had realised with previous techniques.

There is no doubt that gene diagnostic tests will be very valuable for a small number of genetic diseases which are rather common and in which the same gene mutation is present in all patients with that disease. Sickle cell disease, the scourge of West Africa, is such a disease, yet even here the existing methods of recognition of the disease by haematological methods or by clinical examination of the haemoglobin, offer simple and reliable diagnosis. Direct gene analysis is not about to replace traditional methods of diagnosis in a wholesale fashion.

Molecular geneticists have another strategy which may yet see a DNA technique come out triumphant, at least in regard to prenatal and presymptomatic diagnosis within families. The DNA within introns and in the regions between genes is not so critical in the function of the organism and therefore a number of minor differences in the sequences of DNA in these regions have developed in the human population. These differences are sufficiently common to make it possible to differentiate the DNA adjacent to a gene on one chromosome from that adjacent to the companion gene (allele) on the other chromosome, in many people. When this is true one can trace the passage of a defective gene or its companion normal gene into progeny of an individual. This strategy works only within families and it sometimes fails because the parent in question may not happen to have recognizable differences in the DNA surrounding the two alleles.

This same strategy of using adjacent variable regions of DNA can actually be applied to diseases in which we do not yet understand what the gene that is at fault is actually doing or what has gone wrong with it. It is in this situation that we are going to see the first extensive use of DNA tests in presymptomatic and prenatal diagnosis in diseases like Huntington's disease, myotonic dystrophy and Duchenne muscular dystrophy.

Some people are perceiving substantial ethical problems with these techniques. I personally see no new ethical problems beyond those which already exist about termination of pregnancies because of proven abnormality in the fetus. There are many adults who are children of sufferers with Huntington's disease and have talked about wishing to know whether they do or do not have the gene that causes the disease so that they can know what to do about having children. They really want to know that they do not have the gene and may wish they had not been tested if the result is abnormal. These are difficult personal decisions, but they are not ethical issues involving the community in general. Generally people are better able to handle bad news that is definite, than to cope with uncertainty.

There may be an ethical issue of some degree in deciding whether parents have the right to request this type of testing for a young child or whether these tests should be done only on those old enough to request it themselves. Well balanced parents could help their children to adjust to the knowledge of the gene and its effects, but the information could be harmful if handled badly.

Another technical change is occurring at the moment. Until now most prenatal diagnoses have been made on cells obtained from amniotic fluid at 16 weeks gestation. A newer method involves sampling a fragment of the placental tissue through the cervix at 10 weeks — chorion villus biopsy. This technique is likely to replace amniocentesis for the majority of uses over the next few years. It will certainly diminish the emotional trauma for women who do end up terminating a pregnancy because of a fetal abnormality. DNA methods are particularly suited to use on these samples.

One might ask whether prenatal diagnosis will be taken back to the pre-implantation stage. Human eggs can be fertilized *in vitro* by a process which involves allowing these eggs to replicate a number of times to about a 16 cell stage before implantation. It may be possible to remove two or three of these cells and to have the embryo go on developing satisfactorily. This is known to be possible in sheep and cattle, and it is known not to work satisfactorily in mice. It is not yet clear which of these precedents is applicable to the human situation.

If the early human pregnancy will tolerate this manipulation then one could fertilize a number of eggs from a woman at risk of passing on a genetic disease with her husband's sperm, sample a few cells from each of these developing embryos and freeze the remaining cells pending the result of tests on the cells that were removed.

The next technical problem would be to develop a test for the faulty gene in the two or three cells that have been removed or to culture these two or three cells until they multiply to a large enough number to test. Present DNA techniques require about 100,000 cells so there is a large gap to straddle technically. One cannot predict whether this will prove achievable.

My own hunch would be that most couples would prefer a natural conception with a prenatal diagnostic test at 10 weeks and the one in four possibility of needing to terminate the pregnancy rather than *in vitro* fertilization with a selection of one of the three good embryos out of every four available for implantation. *In vitro* fertilization will need to become more simple and more certain of success before it is likely to be preferred.

## Gene therapy

Before considering gene therapy we need to think a little about the presently available methods of treating genetic diseases. These can be thought of as falling into several categories.

One small but special category involves those disorders affecting the production of red blood cells. These are currently treated by repeated blood transfusions. Thalassaemia is the most familiar example in Australia. The quality of life achieved is quite good but the method of treatment is costly and cumbersome and the eventual outcome is still an early death.

Insertion of a gene for the production of normal haemoglobin into bone marrow cells would be a very satisfactory one-time treatment of this disease if the gene could be inserted into a sufficient number of bone marrow cells. The strategy described above of removing bone marrow, inserting DNA in the laboratory and reinfusing the bone marrow could be applied, but the big problem is to get a sufficiently large number of cells expressing the gene in the bone marrow. The use of radiation to achieve expansion of the treated bone marrow population seems hardly justified. Probably viral

insertion into bone marrow cells would be preferable and it may be possible to find a genetically engineered virus which will specifically select bone marrow cells for insertion.

A second category includes those diseases in which the gene product acts in the circulation or is carried in the circulation to the organ in which it acts. Haemophilia is in the first of these sub-categories and growth hormone deficiency in the latter. At the moment we treat these conditions by administering the missing factor harvested from normal humans. Growth hormone treatments seemed very satisfactory until a few months ago because it was fairly easy to approximate the body's production of growth hormone by daily injections. However the recent discovery that some patients have been infected with the prion which causes Creutzfeld-Jakob disease is very alarming and will bring new pressure for gene therapy. The treatment of haemophilia by infusing normal factor VIII is much more cumbersome and not nearly so satisfactory as growth hormone administration so there is a greater pressure for a gene therapy solution to this disease especially now that transmission of the AIDS virus has become a serious problem.

It is probably not too crucial which cells in the body actually make you a substance like factor VIII. It is merely necessary to have the right amount made and released into the circulation. Growth hormone production does need to be controlled more precisely and probably it would be necessary to insert the gene into pituitary cells so that they are subject to the normal control mechanisms.

In a third group of diseases faulty metabolism in one organ leads to abnormal circulating levels of metabolites with toxic effect on other organs. Phenylketonuria (PKU) is an example. The present dietary treatment is very effective, but cumbersome. Insertion of the gene for phenylalanine hydroxylase into any body cells would probably allow the phenylalanine that is circulating through the tissue to be metabolized and would control the problem.

From a purely technical viewpoint, several of these diseases seem very suitable to choose for the first experiments in gene therapy. However, ethically, one must weigh the risks of a new form of treatment against the improvement in quality of life compared with that achieved with the existing forms of treatment. It would be very hard to justify making PKU one of the first diseases in which to try gene therapy since we have such an effective traditional treatment.

The group of diseases in which it is easiest to justify experimental gene therapy comprises those with very severe effects for which there is no satisfactory treatment. Many of these diseases fall into a fourth category in which the harmful effects of the faulty gene are experienced in the very cells in which the gene is working. This applies to a large number of the degenerative brain diseases. Therapy of these diseases with genes would require insertion of the correct gene into every brain cell. This may prove very difficult. On the other hand, with some of the viral factors it may not be so difficult and we may even see one of these become the first disease in which experimental gene therapy is used.

Experiments in animals have shown that it is easier to insert genes and to have them expressed than most scientists had expected. Specially designed viruses have been made which carry genes into cells, but cannot replicate to spread the genes or the virus to further cells. Greatest success is being achieved by injecting genes into the pronucleus of fertilized eggs of mice, which leads to expression of the genes

generally only in the appropriate body cells. However, successes are also being reported following insertion of genes postnatally using viral vectors.

These gene insertion experiments have been more successful than anticipated because the inserted gene seems able to function well without needing to be inserted at its correct position on the chromosome. Indeed, it seems to function regardless of where it is inserted and insertion seems to occur at random. The big problem is that the insertion of the gene may disrupt the function of a normal gene into which it is inserted, either stopping the function of the gene or activating a gene inappropriately.

Some have suggested that those with defects of the urea cycle causing lethal hyperammonaemia would be good candidates for gene therapy. I do not agree because I do not consider rapid neonatal death to be the worst thing that can happen to a baby and to a family. It can be much worse to have a child who lives for a number of years with gross brain damage than to lose a baby in the first week. This is the very situation that one might create with gene therapy of a rapidly lethal condition like hyperammonaemia if the therapy were only partly successful. I believe that gene therapy should first be used in those diseases that occasion the maximum burden — long term survival with gross disability.

Experimental gene therapy is already quite well advanced in mice by insertion of the gene into fertilized egg cells. One might suggest that this is the ultimate goal of gene therapy in humans because the correction of the gene fault would be effective for the new individual and for future generations. A little thought makes it clear that it is ridiculous to suggest gene therapy of fertilized human eggs. I have already mentioned that inserting of a gene carries some hazard of disrupting another gene into which the inserted DNA is introduced. One could not tolerate a system in which there was some chance that DNA was being inserted into a normal fertilized egg. The high genetic risks that exist for some couples are never greater than 50%, and are more often 25%. Consequently, if one were to fertilize just one egg of such a couple *in vitro* and insert DNA to correct the genetic disease present in the family, there would be a three out of four chance that one was meddling with a normal embryo and only a one out of four chance that one was correcting a defective one. It would therefore be necessary to have the ability to distinguish normal fertilized eggs from abnormal fertilized eggs before contemplating gene therapy at this stage of development. If one has this diagnostic skill why bother to correct the faulty egg? Why not merely use the normal one?

It is worth saying a few words about the results of gene insertion into mouse embryos and the production of transgenic mice. A series of experiments in the world's most expert laboratory involved attempting to insert the growth hormone gene into 2,000 eggs. Only 100 of these eggs developed into live mice and only 30 of these were actually expressing the gene that has been inserted; 23 of these mice grew more rapidly than normal. This is therefore a fairly inefficient process at the moment and would need to be a great deal more efficient before one would dream of using it in humans. The other important point from this experience is that five of the 30 mice that had the growth hormone gene expressed were proven to have suffered a gene disruption of significance, in that recessive lethal diseases occurred in their second generation offspring.

In my opinion, gene therapy of fertilized human eggs is not likely to be used to treat genetic diseases. However, we

may soon see very useful developments in the use of gene therapy in children born with genetic diseases.

One of the things that seem to worry the community is that some mad scientists may try to insert genes into the cells of developing human embryos in order to produce human beings which have particular characteristics like high intelligence, pleasing appearance, great athletic skills or certain political beliefs.

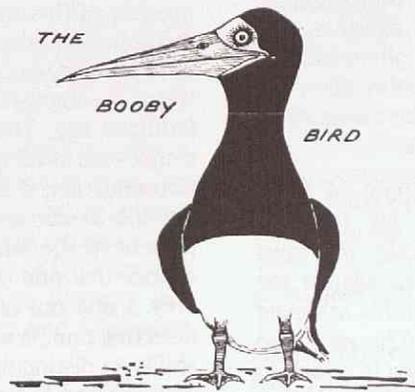
### Reshaping man

All that I have discussed so far relates to diseases caused by a fault within a single gene. We have not considered the way in which normal genes bring about normal characteristics. We do, however, know that each of the normal characteristics to which I have referred is influenced by a large number of genes. We know that characteristics like intelligence are determined by the interaction of hundreds, if not thousands, of genes. Normal intelligence requires the satisfactory functioning of all of these genes and the correct balance between them. A defect in any one of these genes may result in mental retardation. When that is the case it is possible that gene therapy may be able to restore intelligence to normal. It does not follow that providing an excess of the product of that gene will make a genius. Indeed, considering the importance of the correct balance, it is much

more likely that such an insertion would produce mental retardation just like a deficiency of the function of that gene does. Certainly, we know from the various chromosome disorders that mental retardation is always seen when a large number of genes are present in triple dose rather than double dose. I doubt that we will ever find ways of improving normal people by gene therapy even if we could agree about what we mean by improvement.

It may not be reassuring to a general public to be told that the things they fear will not happen merely because we do not know how to make them happen. I hope it may be more reassuring if one can convince them that it is not just a matter of finding out how to do these things, but rather that doing them is intrinsically impossible. I also believe that there is a much more responsible attitude amongst scientists than is widely believed, and that if anyone should ever learn how to alter humans in this way scientists are likely to be the first to put a moratorium on this research, just as they put a moratorium on the initial development of gene cloning in the early 1970s.

In summary, I do not believe that we are about to “reshape man”, nor do I believe that we have to “endure life”. We are going to reap immense benefits from our understanding of a double helix. My final message is: *double helix — double joy*.



### *The Booby*

You all have heard  
Of the Booby bird.  
Its name is taken from a word  
That means to “boob”, or be absurd.

The sailors of an older school  
Just called the Booby bird a fool.

I shall suspend my judgment till I can  
Find out what Boobies call the sailorman.

F. Wood Jones, *Sea Birds Simplified*,  
Edward Arnold & Co., London, 1934, p.30.

## In Search of a Sixteenth Century Physician: A Paper Chase

Peter Jones



An engraving published in 1624 as an illustration of Dr. Lopez's 'treason' in a book which catalogued all the attempts on the life of Queen Elizabeth I. Dr. Lopez, medical text in hand, asks "What will you give me?" of a Spaniard dressed in the height of Court fashion. Over the gallows in the background are the Latin words *Proditorum finis finis* — The rope is the end of traitors.

*Peter Jones returned as a 'mature age' postgraduate to the University of Melbourne in 1980, and is currently completing a Ph.D. thesis. The subject is Doctor Lopez and his downfall. The lecture was given to open the series of Dean's Lectures in 1985, the occasion of the Annual Meeting of the University of Melbourne Medical Society.*

At this moment you are perhaps wondering, as I am, at my temerity in stepping out of my usual field, and in hoping to arouse your interest in what has been for me something of a preoccupation in the last ten years. If things go terribly wrong I can always fall back on the assertion that I am here by invitation.

My search — or paper chase — is in a sense a detective story, which I propose to relate: the re-examination, almost exactly four hundred years later, of the evidence on which an Elizabethan doctor was found guilty of treason in offering, or pretending to be willing, to poison his royal patient, Elizabeth I. In a probably commendable, if in retrospect ingenuous attempt to find and re-examine all the original documentary sources, the inquiry turned into a 'paper chase', for which I found myself very poorly equipped.

The first step was to locate all the articles and published lectures about Dr. Lopez, some eight major accounts starting appropriately with *The Gentlemen's Magazine* of 1880. The copies of those articles presented the first problem: the references, as footnotes or endnotes. Instead of such familiar hieroglyphs of 'MJA', 'SG&O' or 'ANZJS', 'JAMA' or even Proc. Roy. Soc. Med., there were arcane abbreviations such as 'Cal. S.P. Spain' (the Calendar of Spanish State Papers relating to England) and 'APC' — perfectly safe for the kidneys — as

they turned out to be the 'Acts of the Privy Council'. 'S.P. Eliz. Dom.' are the State Papers of the Elizabethan Reign, Domestic Series; 'CCP Hatfield': Calendars of the Cecil Papers at Hatfield, and 'B.L. Cotton MS. Caligula', Vespasian, Galba, etc. The British Library acquired a collection of documents belonging to a Dr. Cotton who, centuries before the Dewey Decimal System, identified the cabinets by naming them for the bust of the Roman Emperor which stood above each set of books and bound documents in his library.

All the references were eventually deciphered, and with a beginner's enthusiasm I set out to re-examine some of the original surviving documents, a desirable starting point and one which was commended by the Department of History of the University of Melbourne. Thanks to the inestimable assistance of Mr. Patrick Singleton in the Bailleu Library, I sent off for the Xerox copies of the documents I had chosen, only to reveal too clearly my unpreparedness, and a need for additional skills, in palaeography and 'diplomatic'.

Several weeks later I had made some headway in recognizing a few words in a letter from a Thomas Jeffrey to Lord Burghley in 1594. Jeffrey was ostensibly a 'merchant'; today he would be called the British Consul, or in *Le Carré's* terminology, 'Head of Station', in Calais. The letter described the arrival of a Portuguese named Manuel Luis Tinoco who told Jeffrey that he had important information which had to be taken to England, and asked for a passport to travel to London. Burghley wrote one for him, including permission to come and, shrewdly, to return to Calais "if permitted". Permission to return was never given, and Tinoco was eventually executed, along with Lopez, as a spy working for Spain, which Tinoco certainly was. My problem was that it

took me so long to transcribe Jeffrey's letter that I was inclined to abandon the paper chase because the original documents were so daunting to a beginner. However, as always, help was at hand, and manuals and texts on palaeography solved most of the problems presented by 'the Elizabethan secretarial hand' in which 'h's have descenders instead of ascending loops, 'c's look like 'r's, and 'u's and 'v's the same, 'i's and 'j's interchangeable, 'f' and 's' almost identical, and conventions for contractions and abbreviations abound. All of them eventually emerged as a recognizable pattern and familiarity in this case bred recognition, and a rewarding sense of discovery when inserted words and phrases could be identified, in drafts of State Papers, as in the inimitable style of the indefatigable Lord Burghley, in a characteristic, spiky, Italianate hand, made with his steel pen, and individualistic abbreviations (he never wrote an 'm' or an 'n' if he could help it).

The paper chase became easier with experience, and I began to examine the Lopez letters. Seven have survived; three are signed 'Ruy Lopez' (Rui or Ruy being the diminutive of Rodrigo). Incidentally, locating the record of his graduation from the University of Coimbra was delayed for years by the fact that I didn't expect a diminutive would be used in the Archives. But there he was, as 'Rui' instead of Rodrigo, and they had to start all over again looking for Rui when they couldn't find Rodrigo.

All but one of Lopez's surviving letters are in the formal and courtly Italian in which he addressed Privy Councillors: the Earl of Leicester, Sir Francis Walsingham and Sir Robert Cecil. It is interesting to discover that the same man wrote, obviously with another pen, in a very different hand when he wrote in English. It is the easiest to read, and begins with: "Dear Mr. Harmer, By the last carrier I have made large unto you therefore I shall be brief." The letter was 'carried' by his brother Geironimo when he took Lopez's son Antony back to school at Winchester, with the letter addressed to the Headmaster of Winchester College, in October 1593. The letter shows that Lopez had already adopted the so-called *Renaissance* or *Italianate* script which educated people, and women, were using in the second half of the sixteenth century, and which, in the seventeenth century, largely replaced the *secretarial hand*.

The letter to Mr. Harmer also opens the door to another aspect of the study of ancient documents: the area of analysis known as 'diplomatic', which I had never heard of before I began this enquiry. 'Diplomatic' is the sceptical approach to a document: are the ink, the paper, and the handwriting all consistent with the time it was supposed to have been written? Is it authentic, or a forgery? The very triviality of the Harmer letter, in which Lopez complains of Antony's handwriting and knowledge of Latin, raises the question as to how such an innocuous and trivial letter came to be preserved among State Papers. What favoured its survival? Why is it in the Cecil Archives at Hatfield? Can its provenance be established? The answers are good examples of what 'diplomatic' analysis can produce. First, Mr. Harmer came upon Lopez's brother Geironimo Lopez in London, after Dr. Lopez had been arrested and imprisoned in the Tower. Recognizing Geironimo, Harmer spoke to him about his brother's arrest for treason. Perhaps not surprisingly, Geironimo denied any relationship, said it was just pure chance that they had the same name, and hurried away. Mr. Harmer went back to Winchester, found the letter from Dr. Lopez, and enclosed it in another which he wrote to Sir Robert Cecil, describing the whole incident, and asking whether Sir Robert was aware of the fact that a brother of an accused traitor was wandering the streets of London.

Burghley and Sir Robert were indeed aware; Geironimo had been arrested and interrogated, kept in *The Three Cranes*, a compter (lock-up) near the Vintry, for a week or so, and eventually released as it seemed he was not involved.

The letter Mr. Harmer wrote to Sir Robert Cecil contains the proof of the first letter's movements. When a copy of a document is obtained from Hatfield, both sides of the folio are copied, for the verso is, in fact, the envelope, and often contains important information such as the name of the sender and the addressee, with 'addorsements' indicating the date it arrived, sometimes the route it took, and who other than the recipient had examined it. The verso of this piece of paper contains dusty ridges which outline the shape and size (when folded) of the letter Lopez sent to Mr. Harmer. So we can be reasonably certain why and how the letter came to be preserved: that it travelled from Winchester to Hatfield, and wound up in a file of papers relevant to a State trial. In this case there is external 'physical' as well as internal verbal confirmation of its provenance.

One of Spain's most successful espionage agents in the second half of the sixteenth century was a Portuguese named Manuel Luis d'Andrade, a 'mole' in the household of Dom Antonio, the exiled pretender of the throne to Portugal, for more than ten years before the spy was uncovered. He was a man of linguistic skills and some education, with a well-developed, regular *transitional* hand. Having been uncovered and imprisoned, he was 'turned', and recruited in 1590 by Walsingham, with Lopez's assistance, and sent to Madrid, 'behind Spanish lines' as it were, with 'false' peace proposals. The astute 'triple' agent continued to work for Spain but, unfortunately for him, when coming back up the channel heading for Gravelines, then in Spanish hands, he was captured by a Huguenot patrol out of Dieppe, and taken into port where he was searched, and some twenty Spanish documents were found hidden in his clothing. They were sent over to England, separately, when d'Andrade was returned to London as a prisoner. One of the documents he carried, at considerable risk to himself and an indication of its persuasive value, is remarkable. It is a dictated minute, written in Spanish by the secretary of one of Philip II's ministers, in fact, a *consulta*. There is a three-inch margin on the left, leaving room for King Philip's scribbled comments and directives. It was the system by which he ran his vast possessions from a small, whitewashed room in the Escorial where he poured over digests of the affairs of an empire which extended from the Philippines to Acapulco, in both directions. The notations have been confirmed as Philip's own hand from comparisons with a holograph and a signature on a letter the King sent to the Duke of Medina Sedonia, the commander of the Armada, on the eve of its departure.

d'Andrade asks permission to write to the 'Cardinal Archbishop' (the Viceroy of Spanish-occupied Portugal) something of importance, in such a way as the 'paper will appear white', a slightly boastful and self-serving indication of his ability to use 'invisible ink', such as lemon juice, or milk.

In sharp contrast to the orderly *consulta*, is the chaos of Sir Edward Coke's working brief he used when Attorney-General and Prosecutor at Lopez's arraignment in February 1594. Blots and all, his spidery writing is peppered with Latin legalisms which seem to have come more easily to him than their English equivalents, perhaps befitting one of the greatest jurists of the Elizabethan and Jacobean periods. It is intriguing to be able to see exactly how he edited his own brief, polishing and sharpening his legal points, and

progressively heightening the level of the invective which was the essence of his hectoring style.

The bare bones of the Lopez story are that he was a Portuguese physician who came to England in 1559, shortly after Queen Elizabeth's succession. We don't know his date of birth, but it was probably between 1515 and 1520, and he was close to forty when he arrived in London. Within three years he had become a Fellow of the College of Physicians of London. A Coimbra MD was highly regarded, and within two or three years, probably in 1562, he was appointed as the first resident physician to St. Bartholomew's Hospital, and he married into one of the two or three Sephardi families longest resident in London.

In the course of nearly twenty years at Bart's Dr. Lopez became a successful physician, with the Earl of Leicester and Sir Francis Walsingham among his patients. The peak of his medical career was reached in 1586 with his appointment as one of the Queen's physicians-in-ordinary. He resigned from Bart's at a time when Dom Antonio, the pretender to the Portuguese throne, came to England in 1581 after Portugal was annexed by Spain in 1580. Lopez became Dom Antonio's personal physician, and soon afterwards his nominal 'ambassador' to the Elizabethan court. This close involvement in Portuguese affairs and in espionage, eventually led to Lopez's downfall. The surviving documents show that as early as 1570 he was active in counter-intelligence as an agent working for Leicester, and later for Sir Francis Walsingham. Walsingham was his patient from at least the 1560s, and in Walsingham's diary for 1570, he was visited in Paris by Dr. Lopez. Lopez was also concerned in gathering intelligence of England's projected campaigns in the Azores in 1582 and 1583, and in planning the English invasion of Portugal which formed part of the 'Counter-Armada' in 1589. Walsingham died in 1590, and the loss of his 'case officer' or 'control', was a most significant factor in Lopez's ultimate demise four years later.

From at least 1570 until 1593 — 23 years — Lopez pretended to be available as a poisoner, and thus discover who wanted whom poisoned and why; but, it seems, without ever intending to perform the task. There are no suspicious corpses to point to, but as one can imagine, it was an extremely dangerous gambit. Jews, doctors and foreigners, were all looked upon as adept poisoners; to be all three, was presumption of guilt and probably willingness to act. His role involved a risk which could only be taken with the knowledge and support of one or more of the Privy Councillors. With Leicester dead (in 1588) and Walsingham in 1590, Lopez was particularly vulnerable. In 1593 he seems to have taken a last fatal step in attempting 'to cozen the King of Spain', Philip II, out of 50,000 ducats (about 10,000 Elizabethan pounds) by offering to poison his royal patient, Queen Elizabeth I. It is no coincidence that that sum, 50,000 ducats, was exactly the amount Dom Antonio owed Dr. Lopez, and it may have represented the total of loans made to the pretender over nearly fifteen years, or Lopez's investment in Dom Antonio's attempt to recover the throne of Portugal in 1589.

It also probably represented the fruits of more than twenty years' successful practice at court. At about 74, as Lopez was in 1593, he could not have expected to live much longer, and he gambled on recovering his debts to provide a legacy for his wife and five children. Lopez made his offer to Spain through two Portuguese defectors who were in contact with the Spanish Council in the Low Countries, for after Bernardino de Mendoza retired from Paris in 1591, all Spanish espionage activities in England were conducted

through Brussels. Lopez carefully avoided writing any letters or offers in his own hand, acting through another Portuguese exile, Estevão Ferreira d Gama who, as his courier, made several trips to Brussels. While awaiting the acceptance, Lopez is said to have made several enquiries about 'a letter out of Spain'. Naturally, he asked for payment in advance, a forlorn hope; no evidence has been found, in any of the ten million documents in the Spanish archives in the Castle of Simancas, that Philip ever wished or intended to have Queen Elizabeth assassinated. There is good evidence to the contrary; in 1590 Philip rejected the idea of having Elizabeth murdered, preferring to see her humiliated as a prisoner in chains. In any event, Philip and his councillors were far too astute to pay Lopez in advance, and from their past experience, indeed with Lopez himself, there were good reasons for them to doubt that he would act. Lopez's reputation as a poisoner was somewhat threadbare after twenty years of promises without delivery.

The Earl of Essex was elevated to the Privy Council in 1592 and, cut off from information by his seniors, set up his own espionage department, run by Anthony Bacon, Francis Bacon's older brother. It was probably this network which first noted Ferreira's frequent and suspicious visits to Brussels. Worse still, Essex had personal grounds for animosity towards Lopez. After a bibulous dinner at Windsor in August 1593, Lopez revealed to Dom Antonio some discreditable medical details about Essex, who had presumably been Lopez's patient on his return from the Siege of Rouen in 1592. It seems likely that Essex had caught 'the pox' in France, that Lopez treated him, and was extremely unwise, as well as unethical, in revealing some of the anatomical details. Dom Antonio passed the indiscretions on to Essex, who 'swore to bring Lopez down'. Within two months Essex was presented with the means when Ferreira was captured, and Tinoco was arrested on his arrival in January 1594. Lopez was then arrested, despite the fact that Lord Burghley and his son Sir Robert Cecil, and almost certainly the Queen, believed him innocent.

By a round robin of ruthless interrogation during nearly four weeks in the Tower, probably with at least the threat of torture, all the details were finally extracted. Lopez was reported by his interrogators to have confessed that he had no intention to carry it out. In English treason law, absence of intent is almost irrelevant. The *Great Treason Statutes* of 1351, the grounds on which Lopez's indictment were drawn, required only that he did 'imagine and encompass the death' of the Sovereign: imagining, not even intending it, let alone achieving it.

The outcome of his treason trial at the Guild Hall on 'the last of February' (the 28th) 1594, was a foregone conclusion. Ferreira and Tinoco were tried a month later, and the execution for all three was set down for April 19th. To the dismay of the Chancellor and Privy Council, the Queen personally cancelled the executions, and sent instructions to the Lieutenant of the Tower that Essex was not to be permitted, on any pretext, to have Lopez removed from the Tower. We tend to think of the Tower as the anteroom to death, but in point of fact it could be a safe haven when in prison at the Queen's discretion. She had cancelled the execution at the last moment, so that the Commission of Oyer and Terminer had run out; execution of a prisoner in the Tower after that date, required the Queen's personal warrant over the Privy Seal, and she refused to sign.

There are good reasons to conclude that the Queen did not believe Lopez was guilty, which would account for her procrastination for another two months. Meanwhile, Essex,

not to be overborne, was probably bringing all the pressure he could to force the issue, by orchestrating a public clamour, probably by ballads and broadsheets, and by demonstrations put on by his large following in London. Finally the Queen gave in, a pragmatic, political decision in which she presumably overrode her personal wishes, but she apparently still steadfastly refused to sign a death warrant and an alternative would have to be found. The Chief Justice of the Queen's Bench, Sir John Popham, said to be a creature of Essex's but I have found no confirmation of that, had the means at his disposal: a writ of *a certiorari*, 'to make more certain', by which all cases and sentences could be called up before the Queen's Bench, the highest court of appeal, in this case to show cause why sentence should not be executed. A writ of *habeas corpus* to the Lieutenant of the Tower from the Queen's Bench was not to be denied, and the Queen may have connived at it, rather than sign a warrant herself. The writ was returned on June 7th and the Lieutenant brought out his three prisoners, but not through Traitor's Gate, because the tide was not right. The party went by land, upstream along Thames Street, and took a wherry at the 'Old Swan' above London Bridge, presumably because the lash under the Bridge was on the ebb, and dangerous or impassable.

In the echoing vastness of Westminster Hall the Lieutenant was 'discharged of his duty', which got him off the hook, and the prisoners entered the jurisdiction of the Court. Proceedings were soon concluded, and the three were handed over to the Marshall to be conveyed to the Gaol of the Queen's Bench. The procession set out, by water again, to Winchester Stairs, a small inlet in the south bank just above London Bridge, and still identifiable today. By way of Pepper Alley beside the great mass of St. Mary Overie (now Southwark Cathedral), they were taken around to the (Borough) High Street and handed over to the Sheriffs of London and Middlesex who were jointly responsible for State executions. In the road, they were placed on hurdles of withies, each drawn by a horse, and the cavalcade set out for the three mile journey, north over London Bridge up to Leadenhall, then due west to Tyburn (the origin of 'going west'), through a mob of exultant Londoners.

No-one doubted Lopez's guilt until Major Hume spent more than twenty years calendaring the Spanish State Papers relating to England. It must have been a daunting task, dusting off, arranging in chronological order, deciphering when in cipher (and most of them were), deciding who wrote which and to whom, and making three or four page extracts and translations which were published in the Calendars of Spanish State Papers. He found nothing in the voluminous despatches from London, Paris, or Brussels to indicate that there had been any plan for Elizabeth's assassination. Hume announced his findings in 1901, but Lopez's exoneration was only partial. True to their nineteenth century standards and mores, Hume and his contemporary historians could not forbear from condemning Lopez because he had been involved in espionage. To Victorians and Edwardians, espionage, like obstetrics, was no fit occupation for a gentleman. Certainly no-one questioned Lopez's guilt in the thirty or forty years following his execution, during which he became a byword for infamy in Elizabethan and Jacobean drama and literature. One intriguing possibility is that he contributed significantly to the character of Shakespeare's Shylock.

The perceptive but only partially literate theatre owner and manager, Philip Henslow, recorded in his diary for August 1594, two months after Lopez's execution, the first

performance of *The Venysion Comody*. A William Shakespeare was one of Henslow's 'play doctors' at the time, and he had already written the three parts of Henry VI, and the Sonnets in 1592-93 when the theatres were closed because of the plague. Across the river *the Jew of Malta* by Christopher Marlow had been revived that same August, to capitalize on Lopez's execution, and it is possible that *The Venysion Comody*, hurriedly written, was put into production to capitalize on the notorious event. It is probable, even likely, that it was later called *The Jew of Venice*, and finally *The Merchant of Venice*, registered with the Stationers' Company in 1596.

That same August in 1594, Lopez's widow Sarah sought the services of a professional scrivener to write a petition to the Queen, seeking the return of all her husband's possessions, automatically forfeited to the Crown with a verdict of treason. In March 1595 all her husband's possessions were returned to Sarah Lopez and her five children, excepting only a 'jewel'; 'a fair ruby beset with diamonds', which d'Andrade had brought back from Spain in 1590, apparently as payment for Lopez, who had probably told the Queen about it. Some said the Queen wore it at her waist for years, but whether as a memento of a trusted servant, or a fortunate escape, will never be known.

As an executed traitor there is no surviving portrait of Lopez, and his only likeness is in an engraving in Carlton's *A Thankful Remembrance of God's Providence* published in 1624 recounting and illustrating all the unsuccessful plots against the Queen's life during her reign. There is no means of discovering to what, if any, extent he resembled the engraving, but it seems strange that the only pejorative symbols it contains are a large bound book, presumably a medical text, a flat Elizabethan doctor's hat, and a long, sober, physician's gown and cloak.

The paper chase is almost complete, but there is still much to 'write up', and one historian has written that insights into the Elizabethan court usually sound like comments on one or other of Shakespeare's plays. The reverse, too, may hold, for a speech given to Cardinal Wolsey in Shakespeare's seldom read or produced *Henry VIII*, epitomises the rise and fall of Wolsey, Raleigh, Essex, Sir Francis Bacon and Sir Edward Coke and, no less appropriately, Dr. Lopez:

*This is the state of man: today he puts forth  
The tender leaves of hope; tomorrow blossoms,  
And bears his blushing honours thick upon him;  
The third day comes a frost, a killing frost,  
And, when he thinks, good easy man, full surely  
His greatness is a ripening, nips his root,  
And then he falls.*

William Shakespeare, *Henry VIII*,  
Act III, Sc.ii, 1. 351-358



Professor Richard Berry, painted by Justus Jorgensen, c.1927.

## Two of a Kind

The naming of the Wright and Sunderland theatres is an excellent gesture, giving recognition to the enormous contributions made by both men. In the Sunderland Theatre the portrait of Richard James Arthur Berry (1867-1962) is also displayed. 'Dicky' Berry and 'Syd' Sunderland form a remarkable pair and it is very appropriate that their portraits face one another.

The solemn portrait of Berry gazing fixedly at a skull obscures the fact that Dicky was an ebullient personality. Syd recently described him as 'smaller than I am and he bounced about like a rubber ball'. Ken Russell has written an excellent pen portrait of him in the *Russell Festschrift*, but Ken's reading of his paper at that symposium really brought Berry to life.

Berry was small with a grating voice, frizzy hair and a masterly knowledge of his subject which he was determined to pass on to his students. Berry's teaching of practical anatomy laid the foundation for the excellence of the Melbourne surgeons. His seemingly harsh way of subjecting a boxed frozen cadaver to be sliced by a band-saw produced his *Clinical Atlas of Sectional Anatomy* with views now duplicated by the CAT scanner.

Berry who, on his arrival in 1906, described the university buildings as 'Gothic architecture in stone and teratological deformities in cement', was appalled by the dissecting room which was too small and equipped with wooden tables and wooden slats. Although recently redecorated in his honour, the walls bore curious marks — remnants of previous 'meat fights'. By 1919 the number of students exceeded by almost three times the available accommodation. The committee selected to look into the problem was rather overwhelmed by the sight of the dissecting room, for every available student had crowded into 'our black hole of Calcutta' — some even accommodated on the shelves. The visitation is vividly described in *Speculum* of May 1919 and elsewhere by Berry himself. Berry eventually got his new building (now the Berry building) in 1923. Then considered too spacious and named 'Berry's Folly', it coped with the great increase in students after the 1939-45 war and does credit to Berry's foresight. Berry planned only the interior — the Gothic exterior was the architect's choice and disliked by Berry who questioned 'the peculiarities of the architectural mind which seems to imagine that shadows cast by Gothic columns of stone are an adequate substitute for light and that lavatories should be the most prominent feature of a main entrance'.

Berry also had the innovative idea to build a new medical school on the corner of Grattan Street and Royal Parade and fought hard for the transfer of the Royal Melbourne to its present site. Both ideas were thwarted by 'that b . . . Barrett' (Sir James Barrett). However, the corner site was designated for medical purposes and 'Syd's building' now graces 'Berry's site'.

Berry's resignation (1929) was unexpected but probably arose from many reasons, high amongst which must have been frustration. The students showed their appreciation by enlivening his last lecture with a jazz band led by Norman Cust. They also hired a bus and clad in white coats farewelled him at the pier.

The university treated him niggardly and did not immediately confer on him the title of Professor Emeritus. Bill Upjohn righted this wrong in 1959 by persuading Council to do so. Berry, then 92, replied in characteristic style thanking Council 'for this almost posthumous honour'.

Syd Sunderland's succession to the formidable Freddy Wood Jones was probably made easier by the knowledge that he was the chosen of the master. His abilities were also more generally appreciated. Peter MacCallum in *Speculum* (October 1940) stated,

"Professor Sunderland, while having to stand comparison with his brilliant predecessor and the strain of adjustments of staff due to wartime conditions, has already left his mark on the Anatomy School. A clear and vigorous presentation of the essentials of Anatomy, together with recent developments especially in Neuroanatomy, a readiness to answer questions and an ease of approach have stimulated once again the student's interest in what may so easily become in all senses of the term a dead subject."

Like his predecessor, Syd's lectures are remembered by many for their clarity of exposition and the delights of his blackboard drawings. His special interest in neuroanatomy led to his international reputation for his work *Nerve and Nerve Injuries* — by request he is now working on a supplement to the second edition of that text.

Dicky Berry was Dean from 1925 until he resigned in 1929. Syd Sunderland reigned supreme as Dean from 1953 until 1971 and his many achievements are elsewhere recorded. To an over-tall, gangling, recently appointed professor, this physically small man was curiously awe-inspiring. He was known to come in by the first morning tram from Toorak and was quite likely to have been regarded as a cobbler by the other mainly blue-collared workers on that tram. In his large book-lined office in Berry's building he skipped around in bedroom slippers or sat behind his desk on which he clasped and unclasped his hands. It was impossible not to become fascinated by the truncated digit — which regrettably he seems to be hiding in his portrait. His astuteness as Dean was generally well known and his successes on occasions created envious animosity in other faculties.

Syd is unique amongst all the Deans in having been quite wrongly declared dead — it was an 'exaggeration' as Mark Twain put it. Banner headlines appeared in the newspapers when Syd was found weary but otherwise unscathed after saving, single handedly, his home at Lorne from the ravages of the bushfires on Ash Wednesday, 1983. In some ways this too was an almost posthumous event.

The portraits in the Sunderland theatre represent 'two of a kind', but like so many portraits, can never fully portray the rich personalities of the men.

**Harold Attwood**

## Citations

The following citations provide brief outlines of the achievements of the two men after whom major lecture theatres in the Medical Centre have been named.

### ***Professor Emeritus Sir Sydney Sunderland***

Sydney Sunderland's enthusiasm and enormous capacity for work were apparent very early to his teachers in the University of Melbourne Medical School which he entered in 1931 after one year of Science at the University of Queensland. He greatly impressed Professor Wood Jones who offered him a position of Senior Lecturer in Anatomy immediately upon graduation in 1935. This position he held for two years, being at the same time Honorary Assistant Neurologist to the Alfred Hospital.

When Wood Jones left Melbourne at the end of 1937, Sunderland also left the University and proceeded to Oxford as Demonstrator in Anatomy, where he continued his research into the nervous system under the leadership of Professor Le Gros Clark. He was appointed to the Chair of Anatomy in this University in 1939 and returned to Melbourne at the end of that year. His heavy teaching duties did not deter him from his investigational work and from 1941 to 1945 he was Visiting Consultant in Injuries of the Peripheral Nervous System at 115 A.G.H.

The post-war years saw increased burdens placed on the University and his department, with a sudden growth in the number of students, but Sunderland still found time for intensive research into problems of the peripheral nervous system as well as the routine of teaching and administration. Throughout the years, he has continued with this interest, despite his many commitments, and his book *Nerves and Nerve Injuries* reflects his great love for this subject.

Sunderland's appointment as Dean of the Faculty of Medicine in 1953 focussed his attention on the broader fields of medical administration and university politics and his eighteen years of continuous service in that capacity saw a period of unparalleled growth of the faculty with an increase from seven to twenty-nine professors. The period of Sunderland's Deanship also saw the geographical shift of the medical school from its early position on the north-east corner of the university grounds to its present position adjacent to the Royal Melbourne Hospital. Clinical Sciences Buildings were also created at the major teaching hospitals

and, with the expansion of the undergraduate levels, the clinical school at the Austin Hospital was established.

Sunderland was a representative of the professors on the Council of the University from 1951 to 1967 and a member of the Committee of Management of the Royal Melbourne Hospital from 1963 to 1971. His other activities included the Deputy Chairmanship of the Mental Hygiene Authority, Chairmanship of the National Radiation Advisory Committee and membership of the Zoological Board of Victoria. It is impossible to list all the positions of advice and responsibility which he held but as an examiner and Chairman of the Board of Examiners of the Royal Australasian College of Surgeons and as Chairman of the Medical Research Advisory Committee of the National Health & Medical Research Council for several years, he exerted a powerful influence on medical training and research at all levels. His great interest in the wider sphere of university development is reflected in his membership of the Australian Universities' Commission from 1962 to 1975.

### ***Professor Emeritus Sir Douglas Wright***

Sixty years ago, Roy Douglas Wright came to Melbourne from Tasmania and entered the second year of the medical course in this University. He graduated in 1929 with many honours and prizes to his credit and took the degree of Master of Surgery in 1932, the year in which he was appointed as Stewart Lecturer in Pathology.

The preceding year, Wright had worked as an assistant to Dr. Tom Cherry who, after a long interest in academic and agricultural matters, was then working on problems of cancer in mice, and Wright's first publication from the Department of Pathology in 1933 dealt with *A Salmonella Infection in a Stock of Experimental Mice, with Observations on the Morbid Anatomy and Epidemiology*. Many other papers followed and led to the award of the Syme Prize for Research in 1937, three years after his appointment as Senior Lecturer in Pathology and as an Assistant Surgeon at the Austin Hospital, and two years after his appointment as Surgeon to Out-Patients at the Royal Melbourne Hospital.

It is not surprising Wright's interest in research developed so rapidly when his undergraduate years had been enriched by tutorials at Queen's College from Roy Cameron and when his associates included such people as Peter MacCallum, Edgar King, Leonard Cox, Rupert Willis and Eric Cooper. It was in this period that, in Peter MacCallum's words 'Small wonder either that Wright persuaded me that the time was ripe for the establishment of a Society of Pathology and Experimental Medicine. We circularized the right people and the Society has never looked back.'

Having worked in Oxford with Howard Florey for eighteen months, Wright was appointed to the Chair of Physiology in 1939 and, in the same year, Consulting Physiologist to the Royal Melbourne Hospital, St. Vincent's and Austin Hospitals.

The war years saw an active association between his department and the RAAF physiological unit, and he was a key member of committees set up to advise the armed services and the Prime Minister. With the end of the war he became, in 1946, Founding Councillor of the Australian National University, an association which continued until 1976. In 1947, he was a Founding Board Member of the Cancer Institute and Chairman of its Executive, and in 1968,

After 21 years as Professor of Anatomy, Sunderland transferred in 1961 to a new Chair of Experimental Neurology, a position which he held until his retirement in 1975. He was made Knight Bachelor in 1971.

Since his retirement, Sir Sydney has continued his work on peripheral nerves in the Department of Anatomy. He is an active contributor at international meetings. As a tribute to Sir Sydney, the international Peripheral Nerve Study Group, originally established in the U.S.A., has called itself The Sunderland Society.

The plaque in 'The Sunderland Theatre' reads:

Professor Emeritus Sir Sydney Sunderland Kt CMG  
Hon MD (Tas & Qld) Hon LLD (Monash & Melb) DSc  
MD BS FRACP Hon FRACS FAA.  
Professor of Anatomy 1940-61.  
Professor of Experimental Neurology 1961-75.  
Dean, Faculty of Medicine 1953-71.

Founding Director of the Australian Kidney Foundation and Chairman of its Medical and Scientific Committee.

There are many other activities, scientific and academic, with which Wright was associated and it is impossible to mention all of these. He was Dean of the Faculty of Medicine on two occasions, 1946-47 and 1951-52, a member of the Medical and Scientific Committee of the National Health and Medical Research Committee 1948-53, and he kept the dormant Faculty of Veterinary Science alive as its Dean from 1945 to 1962, being extremely active in its re-establishment in 1962. He also accepted the responsibilities of the Dean of the Faculty of Science and was a counsellor and supporter of the Dental Hospital whilst still attending to the responsibilities of his own department and as a professorial representative on the Council of the University.

His many interests in experimental medical and scientific research guided the evolution of the Howard Florey Institute of Experimental Physiology and Medicine, from a small group working under almost impossible conditions to fine laboratories which pay tribute in their name and their work to one of Wright's most distinguished colleagues. In themselves these laboratories stand as clear testimony to Wright's imagination and contribution to science and his university.

In 1971, after thirty-three years as Professor of Physiology, Wright became Medical Director of the Cancer Institute, Peter MacCallum Clinic, a position that he held until 1975. He then devoted his energies to his work as Consultant at the Howard Florey Institute and a Deputy Chancellor of the University, an appointment which he had accepted in 1972. In 1980, he became Chancellor of the University of Melbourne. He was honoured in 1983 by his election as a Knight in the Order of Australia.

The plaque in 'The Wright Theatre' reads:

Professor Emeritus Sir (Roy) Douglas Wright  
AK, MB MS, DSc (Melb & ANU), Hon LLD (ANU &  
Melb), FRACP.  
Professor of Physiology 1939-1971.  
Dean, Faculty of Medicine 1946-7, 1951-2.  
Chancellor of the University.



## Notice of Annual General Meeting 1986

The Annual General Meeting of the University of Melbourne Medical Society (UMMS) will be held at 6.30 pm in the Sunderland Theatre, ground level, Medical Centre Building, Grattan Street, on Tuesday 6 May 1986. This meeting is preceded at 5.30 pm by the Dean's Lecture when Professor Emeritus Richard Lovell (Chairman, Medical Research Ethics Committee of NH&MRC) and His Excellency Dr. Davis McCaughey, Governor of Victoria (and Member, Medical Research Ethics Committee of NH&MRC) will lead a seminar entitled *Ethics at the Growing Edge of Medicine*.

### Business

1. **Minutes of 1985 Annual General Meeting.**
2. **Chairman's Report.**
3. **Financial Report 1985-86.**
4. **Amendment of Constitution:**

Under section 16 of the Constitution, an amendment may be made at any General Meeting of UMMS "by resolution of which at least fourteen days prior written notice shall have been given if upon a show of hands a majority of not less than two-thirds of those members present and voting is in favour of the amendment".

Under Section 4.3 "donations shall be payable in the month of March in each year in respect of a year running from the following 1 May to 30 April ..."

The following resolution to amend the Constitution is proposed so that the membership year of UMMS can be brought into line with that for the University's Alumni Association and other Faculty Societies:

#### Resolution

That section 4.3 of the Constitution be amended by substituting the words "1 May to 30 April" by the words "1 April to 31 March".

Moved: Professor David Penington

Seconded: Dr Jeannine Paton

5. **Election of Committee 1986-88**

Nominations are called for the election of six (6) members of the Committee of UMMS for 1986-88 and close **on 29 April 1986**.

The following 5 retiring members of the Committee are eligible and available for reappointment, and under section 7.3 of the Constitution are proposed for re-election:

Dr John MacDonald  
Dr Jeannine Paton  
Professor Emeritus Sir Sydney Sunderland  
Dr David Westmore  
Mr Michael Wilson

The following member is proposed, under section 7.3 of the Constitution, for election and has consented to his nomination:

Dr Thomas Kay

In accordance with section 7.3, any two members may in writing, addressed to the Honorary Secretary **at least seven days before an Annual General Meeting**, nominate any other member or members to fill vacancies on the Committee. The consent of each person so nominated must be submitted in writing.

If more nominations than vacancies available are received, then an election will be held at the meeting.

6. **General Business**

## Annual General Meeting 1985

The Annual General Meeting of the University of Melbourne Medical Society (UMMS) was held at 6.30 pm on Tuesday, 2 April 1985 in Lecture Theatre 1, level 2 of the Medical Centre Building. The Chairman of UMMS, Professor D.G. Penington, chaired the meeting and opened by welcoming those present.

1. **Minutes of Annual General Meeting 1984**

The minutes of the 1984 meeting were approved.

2. **Chairman's Report**

The current membership of UMMS is 916. It was announced that the 1985 *Chiron* would be circulated only to registered members. Unfortunately because of the cost of printing, packaging and mailing it was beyond the financial capacity of the Society to send it to non-registered members as had been done in the two previous years.

The Dean's Lecture Series 1985 has been scheduled for Tuesdays at 5.30 pm and it is regretted that there is no one day or time which suits all those interested. The first lecture had preceded this meeting and Mr Peter Jones had attracted an audience of approximately 200 for his lecture 'In Search of a 16th Century Physician: A Paper Chase'. His dissertation had been most fascinating and had been complemented by many excellent photographs of valuable primary source documents.

The subscription is to remain at \$25.00. This will cover the cost of administering the Society and publication and posting of *Chiron*. Mr Peter Jones and Ms Maggie Mackie were thanked again for their excellent work in producing the 1985 issue.

3. **Financial Report 1984/85**

The financial report was presented by the Honorary Treasurer, Dr John MacDonald. This showed, at 28 February 1985, an income of \$27,986 in the UMMS account with expenditure of \$13,293 and outstanding debts of \$6,625. The report was received.

4. **General Business**

Members were reminded that help is available for arranging reunions and functions.

In 1982 Faculty instituted an annual B.Med.Sc. prize of \$250 to be awarded to the medical student whose research report is judged to have made the most important contribution to knowledge. The 1983 prize was awarded to Mr Stephen Wales for a report entitled 'Early Intervention in Alcoholism'. It was considered appropriate that UMMS should sponsor this award and it was proposed that the 1984 prize to be decided during this year would be awarded on this basis.

5. **Future Activities**

The Executive will meet and plan further activities for the 1985-6 period.

The Meeting closed at 6.45 pm.

## UMMS B.Med.Sc. Prize 1984

The one-year Bachelor of Medical Science degree programme offers the opportunity for the students with strong academic records to extend their studies in a particular field of medical science during their undergraduate medical course. In 1982 the Faculty of Medicine instituted an annual B.Med.Sc. prize of \$250 to be awarded to the medical student whose research report is judged to have made the most important contribution to knowledge.

At the 1985 Annual General Meeting of UMMS it was proposed that sponsorship by UMMS would be appropriate commencing with the next award of the *UMMS B.Med.Sc. Prize 1984*.

It is a pleasure to announce that the award has been made to Mr. Joseph Torresi for a research report entitled 'The Haemodynamic and Biochemical Mechanisms of Action of Nitroglycerine'. The following citation was prepared and reported to a meeting of the Faculty of Medicine last year.

"Mr. Joseph Torresi investigated the mechanism of the development of tolerance to the vasodilator action of nitroglycerine in coronary arteries and by studying coronary reactivity to nitroglycerine in patients undergoing diagnostic coronary artery catheterization.

He demonstrated that the tolerance to nitroglycerine which has been inferred from clinical studies could be demonstrated in isolated coronary artery rings and further showed that this could be reversed by using N-acetylcysteine. This provides a novel insight into both the mechanism of action of nitroglycerine and the way in which tolerance to nitroglycerine develops in clinical use.

It was concluded that the vasodilator action of nitroglycerine is due to its effect on specific sulphhydryl groups in vascular smooth muscle and that tolerance is due to depletion of these."

## Reunions

The UMMS Office can provide assistance to organizers of reunions by providing the latest known addresses of all graduates in particular years.

Because the UMMS Office receives enquiries from members about reunions, it would be helpful if organizers sent information about other reunions planned for 1986 to the office, in particular the name and address of the appropriate contact person.

Those who are planning reunions during 1987 should contact the UMMS Office before the end of 1986 if they wish information to be included in the 1987 issue of *Chiron*.

## The Class of '35 Graduates in Melbourne's Centenary Year — 50 years on

The seventy final year students who graduated in 1935 were, in some respects, a privileged group, for they were the first to begin and complete the medical course during the Great Depression. At that time there was no 'free' tertiary education (introduced by a Federal Labor Government in 1973), nor were there any Commonwealth Government Scholarships until after the Second World War. A few of those who started with us in 1930 had to drop out for economic reasons; a few of the brightest students had won State Senior Government Scholarships; a few supported themselves by part-time jobs, but the great majority were at the 'Shop' at their parents' not inconsiderable expense.

Entry was, apart from financial aspects, relatively easy as the School Leaving Certificate (year 11) led to University Matriculation. The only compulsory subject was Intermediate (year 10) Latin, or an Honour in English (year 12). Most entrants had not studied one or more of mathematics further than arithmetic, physics, chemistry or biology; and to many, statistics were and remain a closed book. Our education was far more broadly based than the modern Four A's in pure and applied, physics and chemistry with a pass (sometimes 'compensatory') in English.

Having graduated, we began to go our separate ways, some as far as Perth and Brisbane, then cities where medical schools were yet to be established. In the mid-thirties first year graduates were truly 'resident' and married residents virtually unknown. We moved out of our homes and into our hospitals, lock, stock and barrel. Theoretically we had two days 'off' a week — from 2 pm till midnight — at which time we again became personally responsible for our own patients.

Some Medical Superintendents arranged for the admission of surgical 'written for' patients on the R.M.O.'s afternoon off, and as they were mostly for operation next morning, they had to be written up before the resident could start his day off. We had only one weekend off in three — from midday Saturday until midnight Sunday. In some hospitals there were no holidays during the resident year, and it is no wonder that doctors of our vintage do not regard current first year graduates as truly 'resident'.

It is difficult today to realise how severely limited our pharmacopoeia was in 1935; aspirin, atropine, gastric antacids, digitalis, insulin, iron and 'liver' for anaemia, quinine for malaria, and emetine for amoebic dysentery were some which have persisted as well as a few anti-toxins and vaccines. It was, nevertheless, a watershed year: Howard Florey came to Melbourne in 1936, bringing with him the first sulphonamides, about which he lectured. And 1935 was the last year before the start of the dramatic (and gratifying) fall of 95% in the maternal mortality rate which occurred between 1936 and 1950.

Of our 70 classmates, 21 were appointed to the Senior Visiting Staff of one of the teaching hospitals, and all of them had retired from their Honorary appointments before the whole honorary system was abolished in 1975. It is a matter of great sadness for us to see today the medical and nursing professions pushed into the policy-making and administrative background in the progressive take-over and mismanagement of our public hospitals by politicians, accountants and trade unions; their first considerations seem to have become



*Standing:* W.R. Gayton, R. Shatin, R.J. Salts, H.K. Pawsey, N.V. Youngman, W.H. Milroy, K.F. Russell, G.R. Kurrle, T.R.B. Courtney, T.H. Steel, A.V. Jackson, J.P. Millar, C.P. Juttner.  
*Seated:* H.E. Williams, M.A. Mackie, G.R. Brosnan, F.E. Plarre, A.J. King, N. Lewis, D.J.M. Dunn, A.M. Wright.  
*On floor:* J. Smibert, S. Sunderland, R.R. Andrew, B.I. Taft.

money, wages and conditions — *not* the needs and welfare of patients.

In our day there were far fewer registrars and other more experienced supervisors of one kind or another. As R.M.O.s we had more contact with our chiefs, came to know them better and learn from them more directly than today's residents.

There were then very few biochemical or other laboratory tests which could be ordered; current technology such as ultrasound imaging and auto-analyzers were in the science-fiction class (if they were envisaged at all); our diagnosis and monitoring were essentially clinical, augmented by radiology and electrocardiography.

The Second World War, of course, drew heavily on the class of '35, and interrupted the postgraduate training of many of our classmates. Of 62 who were fit and able, 38 served in one or other medical branch of the armed forces, in Greece, North Africa, Western Europe, Malaya, New Guinea, the South West Pacific and Burma, or in less exciting spots such as West Africa. Those of us who served in the tropics, found ourselves in a situation for which we were not trained, in exotic diseases such as malaria, dysentery, cholera and small pox — sometimes under very primitive medical conditions in the jungle. One, Frank Lord, was killed on active service; 8 were P.O.W.s: Alan King (in Greece); Jack Woodward (Hong Kong); Bruce Anderson, Frank Cahill, Jock Frew, Colin Juttner and Glyn White (all in Singapore) and Brian Courtney (at Arnhem). All servicemen missed almost

six years of postgraduate training and experience as well as early family life. Many found themselves swotting and sitting for senior degrees and diplomas 12 to 13 years after Finals.

In all, 14 obtained an M.D., 2 an M.S. and 42 became Members or Fellows of various Colleges, while 14 acquired diplomas in other specialities. As well as those who became Honoraries at teaching hospitals, two (Alan Jackson and James Riddell) became full-time pathologists, and Geoff Kurrle radiotherapist and Medical Director of the Cancer Institute (Peter MacCallum Hospital). Four (Randell Champion, Edward Gallagher, John Nish and Henry Symons) were appointed to the Senior Staff of a large regional hospital in the British N.H.S., and a fifth (Scotty Campbell) in New Zealand. Two of our members can boast of service as Flying Doctors in their curricula vitae.

One remarkable aspect of the graduates of 1935 is that some of them were responsible in large measure for the training of the next generation of medical students in Victoria, for a quarter of a century. Syd Sunderland was Dean of the Faculty of Medicine at Melbourne University from 1953 to 1971, and Lance Townsend from 1971 to 1977, while Rod Andrew was a member of the Interim Council founding Monash University and Foundation Dean of the Medical School. One might say that he started with a paddock and created a medical school producing 160 new doctors annually by the time he retired in 1976.

Four of our year were appointed to University Chairs: Sydney Sunderland, Anatomy and Histology (1939-1961); E.R.

Trethewie in Experimental Medicine in Adelaide (1944-1950); Lance Townsend, Obstetrics and Gynaecology (1951-1977); Rod Andrew, Faculty of Medicine, Monash. Two were given Personal Chairs: Sydney Sunderland, Experimental Neurology (1961-1975), and Kenneth Russell, Anatomy and Medical History (1969-1976).

The University also conferred on Ken Russell its highest academic distinction: Doctor of Letters (the only medical graduate granted Litt. D) for his published works on the history of medicine in general and anatomy in particular. He also founded the Historical Section of the Brownless Library, and obtained for it the fittings of Savory and Moore's London Pharmacy, and all the stock, bottles and equipment from Hall's Pharmacy in Ballarat, complementary nineteenth century displays which, with several others, are uniquely attractive acquisitions for the Library, the University, and the Medical School.

E.R. ('Treth') Trethewie became a D.Sc., having published many papers in physiology, electrocardiology, snake and octopus venoms, chemical radiculitis and, *inter alia*, cigarette smoke. Syd Sunderland also obtained a D.Sc. for his work in neurology, particularly nerve injuries in battle casualties, and his book *Nerve and Nerve Injuries* (1968) is regarded as the world authority on the subject. A further tribute can be seen in the name of the Association of Plastic and Orthopaedic Surgeons dealing with nerve injuries — the Sunderland Society, as well as the Number One lecture theatre in the Melbourne Medical School — the Sunderland Theatre. The spirit and energy are still there when called for. On Ash Wednesday in 1983 he was at his holiday home north of Lorne when the bushfires struck; as he fought the blaze and consumed an Anginine tablet or two, one wonders if he thought to parody Kipling: 'If you can keep your house when all around you are losing theirs . . .' Syd and Lance were each awarded an LL.D. chiefly for their contributions as Deans of the Faculty of Medicine.

In the clinical field, 14 of our graduates became general practitioners, and one of them, D.J.M. (Mick) Dunn, was medical editor of the *Australian Family Physician* from 1977 to 1980 and another, Roman Shatin, has had more than 20 articles published in journals ranging from *The Lancet* to *Acta Rheum. Scandinav.* Several others spent some time in general practice before entering various specialities.

Of the specialists, 11 are surgeons — 6 general, 4 orthopaedic and one plastic (Randell Champion, the only member of the year to take out a D.L.O. — who had obtained his D.D.Sc. before beginning his medical course). Eight specialized in obstetrics and gynaecology, 5 in psychiatry, 3 in radiology, 2 in pathology, 2 in ophthalmology, one in dermatology and one in anaesthesia; 6 became physicians (3 of them paediatric physicians), 6 followed an academic career and 7 became bureaucrats (3 as physicians, one in school health).

One of the paediatricians, Howard Williams, was appointed as the first Director of the Clinical Research Unit at the Royal Children's Hospital in 1946, with a special interest in bronchiectasis, cystic fibrosis and asthma. He also founded the Department of Thoracic Medicine at the Hospital; he was one of the co-founders of the Australian Paediatric Association (1951) which evolved as the Australian College of Paediatrics, a co-founder of the Paediatric Research Society of Australia, and of the *Australian Paediatric Journal*. Since his retirement from the Hospital he has continued his many activities in 'community paediatrics', especially children of socially disadvantaged parents. With his unique combination of clinical percipience, fruitful research, persuasive and

compassionate teaching, no less than eight of his protégés have been appointed to Chairs of paediatrics or child health in Australia or overseas.

Three of our graduates became President or Chairman of Boards of Management of major hospitals: Jock Frew (R.M.H. and Freemasons), Lance Townsend (Austin) and Alison Mackie (St. Andrew's). Lance was also Chairman of the Australian Regional Council of the R.C.O.G. (forerunner of the R.A.C.O.G.), founded the Aust.N.Z.J. Obstetrics and Gynaecology, was first Chairman of the Maternal Mortality Committee of Victoria, and responsible for getting the Victorian Cytology Service off the ground. Meanwhile, he developed his department which consisted of himself and a secretary when he was appointed, to a busy department of 25 workers, medical, scientific and clerical.

Glyn White, as well as following a demanding career in neonatology, continued his interest in military matters and became D.D.M.S. Southern Command with the rank of Brigadier, and for good measure, Chairman of the Australian Red Cross Blood Transfusion Committee. Vin Youngman was President of the Queensland Branch Council of the A.M.A. (1962) and Bill Vorrath, President of the Family Planning Association of Victoria (1971-1974). Jock Frew was Censor in Chief from 1965, and President (1971-72) of the R.A.C.P.

Many of our classmates pursued extracurricular activities, no doubt more varied and more vigorously than revealed to your *rapporteur*, but two we know of are Lance Townsend's interest in Freemasonry, which led him to become Grand Master, and Garth May's achievements in photography. He was awarded *Excellence de la Federation Internationale de l'Art Photographie* and his obituary appeared in the photographic journal *Image*. Garth was also elected Queensland's Father of the Year, but one doubts whether his qualifications for the title equalled those of Alan King, who, after three daughters, fathered triplet sons (all surviving).

The following honours have been awarded to members of our year:

- A.O.: Rod Andrew and Howard Williams.
- Knighthood: Jock Frew, Sydney Sunderland, Lance Townsend.
- C.M.G.: Alison Mackie, Sydney Sunderland.
- C.B.E.: Glyn White.
- O.B.E.: Jock Frew.
- M.B.E.: Randell Champion, Jack Woodward.
- K.St.J.: Alan King.

As well as rewarding careers, even triumphs in some instances, we lost two of our members in tragic circumstances — Frank Lord during the Second World War and Andrew Russell (Ben) Murray who was shot dead in Brisbane by a deranged patient who then shot himself. Ironically, Ben had been involved in a shooting accident when a boy in Tasmania, and showed us all the meaning of courage and determination in overcoming a disability by playing cricket, football, tennis and other sports, despite a wooden leg; he even tried to join the R.A.M.C., and was only knocked back when the Army M.O. said, 'Drop your pants'.

In the past we have held reunions to celebrate our Silver Jubilee, at 40 years on, at 45 and 45 years. At our Jubilee Reunion on 27 November 1985, 27 of the known survivors were present, and we decided that it should become an annual event. The alphabetical list of graduates is appended.

*James Smibert*

1 Macfarlane, Gwyn, 1984, *Alexander Fleming, The Man and the Myth*, Chatto & Windus, p.168.

## The Class of '35 — The Year

J.R. Adam, B.H. Anderson, R.R. Andrew, T.C. Anthony, J.V. Ashburner, M.E. Avery, A.J. Beaumont, G.F. Beck, G. Brosnan, F.J. Cahill, A.J. Campbell, A.H.R. Champion, C.W. Clarke, T.R.B. Courtney, D.J.M. Dunn, E.F. Fitzpatrick, J.L. Frew, J.K. Gabriel, E.J. Gallagher, W.R. Gayton, J.L. Gorman, J.H. Hurt, A.V. Jackson, G.P. Jeffree, J.B.L. Johnston, A.T.H. Jolly, C.P. Juttner, M. Kaye, A.J. King, G.R. Kurrle, L. Langmore, N. Lewis, D.O. Longmuir, F.H. Lord, R.J. McAllister, F.R.T. Mabin, M.A. Mackie, A.D. Matheson, G.M.S. May, J.P. Millar, W.H. Milroy, B.W. Monahan, F.J.X. Mulcahy, A.R. Murray, V.M. Newbold, J.N. Nish, R.J. Parker, G. Pasquarelli, H.K. Pawsey, F.E. Plarre, R.J. Riddell, K.F. Russell, R.J. Salts, R. Shatin, D.B. Skewes, J. Smibert, T.H. Steel, S. Sunderland, H.M. Symons, B.I. Taft, S.L. Townsend, E.R. Trethewie, C.R. Trood, T.W. Vorrath, J. Watson, J.G.G. White, H.E. Williams, J.J. Woodward, A.M. Wright, N.V. Youngman.

### UMMS Membership as at 31 January 1986

*This listing was assembled from UMMS membership forms. Corrections to spelling and year of graduation will be gratefully received.*

#### University of Melbourne Graduates (MBBS)

- 1921**  
Dr R L Fulton  
Dr R Southby
- 1922**  
Dame Kate Campbell  
Dr W R D Griffiths
- 1923**  
Dr G B Bearham  
Dr J M Blair  
Dr J Blewett
- 1924**  
Dr A Horton  
Dr A Liebert
- 1925**  
Dr P. Goodman
- 1926**  
Dr W D Counsell  
Dr R J Long  
Dr J A McLean  
Sir Thomas Travers  
Dr L J Westacott
- 1928**  
Dr R J Farnbach  
Dr J Heath  
Dr R N Howard  
Dr E Sandner  
Dr W E Williams
- 1929**  
Dr W W Lempriere  
Dr G H Van Nooten  
Dr S Williams  
Prof Em Sir Douglas Wright
- 1930**  
Dr T D Hagger  
Mr M Perl  
Dr A Rowland  
Dr H T Tisdall
- 1931**  
Dr R J Cato  
Dr E H Green  
Dr F J Hayden  
Dr P T Wedlick
- 1932**  
Dr T E Lowe  
Mr D P Niall  
Dr E P Robinson
- 1933**  
Dr D M Gepp  
Mr J Hayward  
Dr A R Kelly  
Dr D A Kidd  
Dr L Lloyd-Green  
Dr S R Peters  
Dr A J Sinclair  
Dr R J D Turnbull
- 1934**  
Dr W T Agar  
Sir Edward Dunlop
- 1935**  
Em Prof R R Andrew  
Dr G Brosnan  
Dr F J Cahill  
Dr T R B Courtney  
Dr D J M Dunn
- Dr E J Gallagher  
Dr W R Gayton  
Dr J H Hurt  
Dr A V Jackson  
Dr C P Juttner  
Dr A J King  
Dr G R Kurrle  
Dr L Langmore  
Dr N Lewis  
Dr R J McAllister  
Dr F J Mabin  
Dr M A Mackie  
Dr A D Matheson  
Dr J P Millar  
Dr W H Milroy  
Dr F J X Mulcahy  
Dr H K Pawsey  
Dr F E Plarre  
Dr R J Riddell  
Prof Em K F Russell  
Dr R J Salts  
Dr R Shatin  
Dr D B Skewes  
Dr J Smibert  
Dr T H Steel  
Prof Em Sir Sydney Sunderland  
Dr B I Taft  
Dr C R Trood  
Dr J G White  
Dr H E Williams  
Dr A M Wright  
Dr N V Youngman
- 1936**  
Dr C K Churches  
Dr A S Ellis  
Lady Fitts
- 1937**  
Dr A Russell Hughes  
Dr D Leslie  
Dr L J T Murphy  
Dr N F Pescott
- 1938**  
Dr H B Kay  
Dr J O Lavarak  
Dr R E G MacLean  
Dr P J Parsons  
Sir William Refshauge
- 1939**  
Dr D A Alexander  
Dr A J Barnett  
Dr C R Laing  
Dr R F Lowe  
Dr E G Strahan  
Dr B Widmer
- 1940**  
Mr J L Bignell  
Dr J T Cahill  
Dr J R F England  
Dr F M Moore  
Dr E Turner  
Dr H N B Wettenhall
- 1941**  
Dr W M Barrett  
Dr M S Benson
- Mr J S Guest  
Mr I H McConchie  
Dr H S Moroney  
Dr I M Seward  
Dr W L Sloss  
Dr T V Walpole  
Mr A Worcester
- 1942**  
Dr G Bennett  
Dr R Chenoweth  
Dr E P Cordner  
Dr R J Fleming  
Dr G Hewitt  
Dr J Kremer  
Dr P Zerman
- 1943**  
Dr P R Brett  
Dr P R Bull  
Dr M Cockbill  
Dr D C Cowling  
Em Prof Sir Edward Hughes  
Dr O Logan  
Dr W S Rickards  
Dr A O Rosenhain
- 1944**  
Dr E L G Beavis  
Dr I B Brodrick  
Dr C J Craig  
Dr J L Howqua  
Prof J V Hurley  
Dr L L Morgenstern  
Dr N B Pinkus  
Dr J F Williams
- 1945**  
Dr J W Barrett  
Dr A G Bignell  
Mr W Etheridge  
Dr D C Foster  
Dr G S Gunter  
Dr P G Jones  
Dr B P McCloskey  
Dr G G McCloskey  
Dr G S Pestell  
Dr T P Rowan  
Dr R K Stevenson  
Dr R G Webb
- 1946**  
Dr J K Henderson  
Dr S W Hyland  
Dr D W Maginn  
Dr I A McDonald  
Dr S Troski  
Dr B Ungar
- 1947**  
Mr J K Clarebrough  
Dr T H Hurley  
Dr T Levick  
Dr M Maxwell  
Dr P Robertson  
Prof R W Webster
- 1948**  
Dr G W Cooper  
Dr P Ebeling  
Dr J A Forbes
- Dr F M C Forster  
Dr J Maxwell  
Mr B McC O'Brien  
Dr C W E Wilson
- 1949**  
Dr N P Bell  
Dr A G Bond  
Dr N Cass  
Dr J R E Fraser  
Dr J A Horton  
Dr W H Kitchen  
Dr C MacDonald  
Dr A D MacLean  
Dr C J K Pawsey
- 1950**  
Dr R M Aitchison  
Dr R Bennett  
Dr E B Collins  
Dr R K Doig  
Dr R Fowler  
Dr F J Grant  
Dr H D Irish  
Dr J James  
Dr A Liston  
Dr H C Newman  
Dr H H Stonnington  
Dr B F Stratford  
Dr L I Taft  
Dr A R Waterhouse
- 1951**  
Dr V G Balmer  
Dr F I Bishop  
Dr G W Briggs  
Dr O M Garson  
Dr J T Griffin  
Dr A F Hargrave  
Dr M de Laine  
Dr J H S Martin  
Dr R N Matthews  
Dr H K I McLachlan  
Dr J M McLeod  
Dr J W D Middleton  
Mr K W Mills  
Dr J E H Milne  
Dr G Pattison  
Dr P Sheil  
Dr B S Vanrenen  
Dr R C Webb  
Dr G R Wigley  
Dr A S Wood
- 1952**  
Dr L Baird  
Dr P Forsell  
Dr A J Murphy  
Dr M I Nissen  
Dr D O'Shaughnessy  
Dr H M Pannifex  
Dr I F Robertson  
Dr B M Wadhams  
Dr B W Walklate  
Dr J F Wiseman
- 1953**  
Dr R F Bullen  
Dr P E Campbell  
Dr O Mck Coltman

Dr L A Fennessy  
Dr R C Gutch  
Dr G S Hale  
Dr J S Hamilton  
Dr W C Heath  
Dr J W Hill  
Dr W C Lawrence  
Dr A Marshall  
Dr B R K McKeon  
Dr D M O'Sullivan  
Dr P J Ryan  
Dr R G Shaw  
Dr D J Shuter  
Dr S G Sloman  
Dr V K Spowart  
Dr J W McK Upjohn  
Dr J B Webb

#### 1954

Dr M C Canning  
Dr A J Caro  
Dr S H Chani  
Dr N W Cheshire  
Dr E M Craig  
Prof D M Danks  
Dr D P Gale  
Dr W H Koschade  
Dr Lee Wee Kit  
Dr C J Lewis  
Dr J F Macdonald  
Dr G R McLeish  
Dr P Pitt  
Dr L Simpson  
Dr F Wraight

#### 1955

Dr G L Buckwell  
Dr J E K Galbraith  
Dr D Gee  
Dr R D Glass  
Dr R L Godfrey  
Dr K J Green  
Dr R P S Gunter  
Dr R W Hill  
Dr J A Horgan  
Mr G J Little  
Dr A K Lowe  
Dr F J O'Rourke  
Dr A Owies  
Dr B Sawyer  
Dr M J West  
Dr M E Whisson

#### 1956

Dr W M Chin  
Dr J F Connelly  
Dr J K Dawborn  
Dr P Eisen  
Dr G Freed  
Dr R Gillies  
Dr P F Hart  
Dr D C Hodge  
Dr F C Jones  
Dr J Levin  
Dr R H Meyer  
Mr I C Ross  
Dr F B Webb

#### 1957

Mr J A Buntine  
Dr G H Capp  
Dr C I V Childs  
Mr B T Collopy  
Dr D Conroy  
Dr A Fortune  
Dr B S Gilligan  
Dr P Ironside  
Dr M A Kidson  
Prof G A Kune  
Dr J G Mackenzie  
A/Prof J E Mainland  
Dr J J McTeigue  
Dr S Moraitis  
Dr J G Nicholson  
Dr N V Niteckis  
Dr J E O'Donovan

Mr J P Royle  
Dr W B A Southwell  
Dr W G E Straffon  
Dr B Sweet  
Dr H Symons

#### 1958

Prof F A Billson  
Dr A S Bodey  
Dr C P Clarke  
Dr J T Cummins  
Dr W M Donoghue  
Prof K J Hardy  
Dr J Heinze  
Dr H P Hutton  
Dr R J Kelly  
Dr R B King  
Dr C H Mok  
Dr P A McKenna  
Dr J B Morley  
Dr C M Williams  
Dr J R Woods  
Dr B J Zerman

#### 1959

Dr D Bourke  
Dr P J Duggan  
Dr F Kopecek  
Dr R G Leeton  
Dr J M McNamara  
Dr G Medley  
Dr P Rogers  
Dr E H Shen

#### 1960

Dr R E Abud  
Prof J S G Biggs  
Dr J T Black  
Dr D C Burke  
Dr P J Campion  
Dr E R D Dammary  
Dr F Hirschfeld  
Dr M G James  
Dr W A Kemp  
Mr T M M Long  
Dr F B M Phillips  
Dr A J Varigos  
Dr A J Wall  
Dr J Wright-Smith  
Dr A P Yung

#### 1961

Dr R P Barkman  
Dr R C Bennett  
Dr R W Brown  
Dr J K C Chew  
Dr P J J Davies  
Mr M C Douglas  
Dr W F Heale  
Prof I McKenzie  
Dr R W Pattinson  
Dr J D Paull  
Dr W E M Renton-Power  
Dr G Richardson  
Mr D S Rosengarten  
Mr J Rush  
Prof G B Ryan  
Dr R Southby  
Dr A M Steiniger  
A/Prof J R Stockigt  
Dr F Weir

#### 1962

Dr R McM Adie  
Dr J J Anastasios  
Dr D L Bell  
Mr D Brownbill  
Dr R W Cowie  
Dr N C Diamond  
Dr G H Dreher  
Dr G L Gillam  
Dr R Hjorth  
Dr N R Johns  
Dr D G Johnson  
Dr H Kranz  
Prof D M de Kretser  
Dr S K Loh

Dr J H Maynard  
Mr W Mooney  
Dr J Paton  
Mr I Rechtman  
Dr C R F Richardson  
Dr A Rodda  
Dr B W Smith  
Dr G C Sutherland  
Dr J O Wilson

#### 1963

Dr G E Duigan  
Dr B L Guerin  
Dr I F Gunn  
Dr C Kibel  
Dr C P Lindsay  
Dr K Mackley  
Dr G G Smith  
Dr H G Standish  
Dr D I Stewart  
Dr J A Streeton  
Dr R A W Ward  
Mr D J Barriit

#### 1964

Dr F P Alford  
Dr B P Batagol  
Dr D G P Buist  
Dr B J Carroll  
Dr P E Clarke  
Dr I G E Cunningham  
Dr B B Davis  
Dr J T Dowling  
Mr F Incani  
Dr G W Jones  
Dr J F King  
Dr N Nicholas  
Dr J M O'Connell  
Dr R L C Sutcliffe  
Dr A G M Tymms  
Dr R W Wade

#### 1965

Dr D A Abell  
Dr G A Barker  
Dr M E Doyle  
Dr J W Funder  
Dr J E Hammond  
Dr P E F Harrison  
Dr P C Jackman  
Dr M G Korman  
Prof L I Landau  
Dr W Leung  
Dr H Manning  
Dr K M McBeth  
Dr F J Morgan  
Prof R J Pepperell  
Dr T J S Smith  
Dr T H Thia  
Dr V H Thomas  
Dr J D Vidovich  
Dr A Vines  
Dr D Wallace  
Dr K Waters  
Dr N D Yeomans

#### 1966

Dr G J Baker  
Dr M R C Brown  
Dr A R Clifford  
Dr C J Cox  
Dr T L Hee Datuk  
Dr J Davey  
Dr K J Fraser  
Mr G P Gay  
Prof R G Larkins  
Dr B Lauritz  
Dr W H Leadston  
Dr B J Lightfoot  
Dr J R Nave  
Dr S O'Loughlin  
Dr G M Patience  
Dr W F Ryan  
Dr J H Silver  
Dr A P Weldon  
Dr I C Wheatley

#### 1967

Dr J B Brennan  
Dr Y H Chin  
Dr B J Dawson  
Dr P C Dobson  
Dr J C Duggan  
Dr R L Eyres  
Dr P Fox  
Mr J W Glover  
Mr T Jones  
Dr Y K Liu  
Dr P M Loewy  
Dr M D Lush  
Dr M E Meldrum  
Dr G M Moran  
Dr P M Motteram  
Dr G C Mullins  
Dr R Ng Mong Hoo  
Dr J P Nettleton  
Dr A G Ostor  
Dr V Peers  
Dr J Rowe  
Dr B M Tress  
Dr S J B Williams

#### 1968

Dr J R Allsop  
Dr M Best  
Dr D Birks  
Dr K Birks  
Dr L Cleeve  
Dr M de Clifford  
Dr P J Collier  
Mr F P Denton  
Dr M E Kemp  
Dr G Kerr  
Dr T F Little  
Dr L Markman  
Dr R F W Moulds  
Dr L J Murton  
Dr L J Norton  
Dr J O'Day  
Dr N Phillips  
Dr R Rome  
Dr B R Speed  
Mr D W Stoney  
Dr V Syrmis  
Dr O Y M Wu  
Dr A Zimmerman

#### 1969

Dr A Babarczy  
Dr N Brinkley  
Mr G Fell  
Dr Z W Gruba  
Dr R W Harper  
Dr E Hendel  
Mr D J Kidman  
Dr N M Ludbey  
Dr M R Luxton  
Dr D Moss  
Dr J N Oats  
Dr H M Parker  
Dr A J Portelli  
Dr P M Rosenberg  
Dr S M Scott  
Dr D Steiner  
Dr M J Sullivan  
Mr D D Westmore  
Dr R J Whiting  
Dr A A Woodward  
Dr G P Young  
Dr R A Young

#### 1970

Dr N L Blair  
Dr J D Buchanan  
Dr E A Carew-Reid  
Dr L Dennerstein  
Dr M K Easton  
Dr M E Griggs  
Dr G D Grossbard  
Dr R Judson  
Dr D P Lewis

Dr M J Leyden  
Dr M J MacDonald  
Dr G Mendelson  
Dr R B Reid  
Dr I J Skelton  
Dr R M Snow  
Dr G A Thompson  
Dr H L Weaver  
Dr D J Wohlfahrt  
Dr C S Woodward  
Dr K V Woollard  
Dr R L Yewers  
Dr R Ziffer

#### 1971

Dr A I E Anderson  
Dr K W Anderson  
Dr C Calandra  
Dr D R A Cameron  
Dr J P Davis  
Dr E Dax  
Dr J S Goldbaum  
Dr B U Ihle  
Dr B Main  
Dr L Piterman  
Dr L J Roberts  
Dr G Taggart  
Dr K Tiedemann  
Dr G Varigos  
Dr J D Wark  
Mr R N Westh

#### 1972

Dr W M Beswick  
Dr L E Clemens  
Dr A J Costello  
Dr R J Crowe  
Dr S Davis  
Dr M G Dobson  
Dr R Drummond  
Dr P Fineberg  
Dr J Freeman  
Dr M Green  
Dr R A Harris  
Dr B-H Hong  
Dr P A Kelly  
Dr J H LaNauze  
Dr J R Lazdins  
Dr C J Meehan  
Dr A M Perlesz  
Dr G J Pribaz  
Dr L L Reti  
Dr R I Rex  
Dr M Rigoni  
Dr J Russell  
Dr M G Soccio  
Dr I S Szymansky  
Dr M W Verso  
Dr A D Winter

#### 1973

Dr P M Ashton  
Dr I G Bonwick  
Dr M Dalziel  
Dr N P Downes  
Dr N Eizenberg  
Dr H P Ewing  
Dr W C Fream  
Dr I K Giaprakis  
Dr P M Gibbs  
Dr S B Kay  
Dr A H Kaye  
Dr P Kelly  
Dr G K Knight  
Mr J D Leslie  
Dr G E Littlejohn  
Dr E A Livingstone-Muller  
Dr P Meese  
Dr J G Plenderleith  
Dr M J Plunkett  
Dr S Puryanitya  
Dr R J Stawell  
Dr A G Di Stefano  
Dr F A Walker  
Dr B Williamson

#### 1974

Dr G Brice  
Dr D Copolov  
Dr I Illes Cunningham  
Dr W J Hare  
Dr A W Heinze  
Dr M S Hirshorn  
Dr L Y Ho  
Dr I E Humphrey  
Dr R J Kringsman  
Dr B de Morton  
Dr M S Skinner  
Dr S Vaughan  
Dr L A Woollard

#### 1975

Dr G J Bromwich  
Dr D A Clifton  
Dr L M Cunningham  
Dr D Czarnecki  
Mr P D Danne  
Dr G A Easton  
Dr J M Flynn  
Dr A Gordon  
Dr H T Griffiths  
Dr C Hogan  
Dr A K Horwood  
Dr S W L Lau  
Dr R F Lim  
Dr A McCready  
Dr P Millington  
Dr L G Munro  
Dr A D Pattison  
Dr D J Warburton

#### 1976

Dr I S Beasley  
Dr W B Buckley  
Dr W G Cowell  
Dr N I Demediuk  
Dr R Fagan  
Dr A Glover  
Dr I Goater  
Dr R Hand  
Dr W Howson  
Dr J McEwen  
Dr L B McGrath  
Mr M Medownick  
Dr I Olver  
Dr C S Reeves  
Dr S Rodgers-Wilson  
Dr K C Rose  
Dr S A Schnall  
Dr A P Sheehan  
Dr M D Spillane  
Dr J Steel  
Mr C S Sutherland  
Dr A M Zagorski

#### 1977

Dr E D Bowman  
Dr A M V Brooks  
Dr P Brukner  
Dr L J Campbell  
Dr W D Capell  
Dr P L Champness  
Dr A J Chong  
Dr M J Cotter  
Dr D Dobriansky  
Mr N S I Gordon  
Dr H Grossman  
Dr J Heywood  
Dr L Hope  
Dr W J W Kelly  
Dr L J Kliman  
Dr D W Leembruggen  
Dr J Lichtblau  
Dr M Martakis  
Dr J H Olver  
Dr R F Peppard  
Dr J R Salkeld  
Dr R L Simpson  
Dr A Storti  
Dr K Wayne  
Dr B S Workman

#### 1978

Dr D F Eckel  
Dr N Fisher  
Dr R Herrmann  
Dr F K Judd  
Dr D J Kerr  
Dr E M Langenegger  
Dr I D Mathieson  
Dr K McCullough  
Dr S G Osman  
Dr J M Pyman  
Dr R J Simmie  
Dr M Watson

#### 1979

Dr M R Buckland  
Dr G D Campbell  
Dr N P Kafiris  
Dr B F Kay  
Dr P D Mark  
Dr G L Leber  
Dr D P Lowenstern  
Dr R Oei  
Dr R Puy  
Dr H A Royston  
Dr R J Searle  
Dr J W Serpell  
Dr H M Vokach-Brodsky  
Dr P R Werb

#### 1980

Dr J M Adams  
Dr A L Fisher  
Dr T A Dillon  
Dr R Dorey  
Dr J E T Gooley  
Dr T W H Kay  
Dr A H K Lou  
Dr G W Self  
Dr M Sosnin  
Dr W M Stevens  
Dr N F Strathmore  
Dr A C Street  
Dr R G Vine

#### 1981

Dr A Bendrups  
Dr D G Bolzonello  
Dr G J Campbell  
Dr A C Chenoweth  
Dr M J Christie  
Dr J G Churchman  
Dr M F Cole-Sinclair  
Dr M J Dodd  
Dr J E Elder  
Dr M C Fitzgerald  
Dr I Gartley  
Dr R Hemphill  
Dr W J McCormick  
Dr G M McInerney  
Dr L C Mollison  
Dr R C O'Brien  
Dr R Sheen  
Dr J A Smith  
Dr L J Smith  
Dr S A Tobin  
Dr B Tulloh  
Dr R L Wall  
Dr C L Wilson

#### 1982

Dr A D Cass  
Dr D Ernest  
Dr W R Fleming  
Dr M I McK Garwood  
Dr T J Kilpatrick  
Dr A P Lawrence  
Dr M W Lawry  
Dr I Mackay  
Dr C A McConnell  
Dr H McPherson  
Dr K H Tai  
Dr A M Walbran  
Dr O D Williamson

#### 1983

Dr J B Agnew

Dr W Anderson  
Dr P Barnett  
Dr R Basser  
Dr I Bastian  
Dr W Bissinger  
Dr A Buchanan  
Dr A H Bui  
Dr R G Doig  
Dr S Downes  
Dr G B Farrow  
Dr R Ferguson  
Dr P Francis  
Dr S Game  
Dr W Joshi  
Dr S C Lau  
Dr F Man-Kit Law  
Dr C J Nolan  
Dr M Pirotta  
Dr A Radovini  
Dr P Rehfish  
Dr C Reid  
Dr M A Shembrey  
Dr C A Silagy  
Dr J Tobin  
Dr P Wein  
Dr D Worsnop

#### 1984

Dr J H Altermatt  
Dr J L Bodycomb  
Dr R Bonwick  
Dr R Chan  
Dr J R Chenoweth  
Dr G Garra  
Dr R P Gerraty  
Dr L Kritharides  
Dr H G Mack  
Dr H E Malcolm  
Dr J L Newstead  
Dr P G Ragg  
Dr D A Ross  
Dr M Tellus  
Dr C Worsnop  
Dr A G Yappanis

#### Other Members

Prof H D Attwood  
Prof J R B Ball  
Dr C Bell  
Prof R C Bennett  
Prof G D Burrows  
Dr K Cameron  
Dr G R Campbell  
Prof G J A Clunie  
Miss D Colville  
Dr T R B Courtney  
Prof I Darian-Smith  
Dr D Tai Wai Fei  
Dr J Fidler  
Dr A Firestone  
Dr J R L Forsyth  
Dr L W Gregory  
Dr M Greenbaum  
Dr L I Hatherley  
Mr C S Haw  
Dr G C T Kenny  
Dr Z S Kiss  
Dr P M Lavoipierre  
Dr G P Leith  
Prof Em R R H Lovell  
Dr R A Melick  
Dr R Moodie  
Prof T Morgan  
Prof D G Penington  
Dr R M Robins-Browne  
Dr W H Sawyer  
Dr S L Skinner  
Dr J Stevenson  
Dr J Syme  
Dr J W G Tiller  
Prof M L Wahlqvist  
Dr R W Warne  
Dr M J Waters  
Prof D O White

# Faculty of Medicine

## **Message from the Dean** **General Review of 1985**

As well as the continuing expansion in research activity and the consolidation of the role of the Faculty in medical postgraduate education, a number of important events occurred in 1985. Of particular note were, first, the graduation of the first cohort of students to pass through the fully revised curriculum that commenced in 1980; secondly, the introduction of the first component of a Special Admissions programme to encourage access of socially and educationally disadvantaged students to the medical course; and thirdly, Professor David Penington's announcement of his decision to step down from his position as Dean of the Faculty at the end of 1985.

As outlined in the 'Minute of Appreciation' in this section of *Chiron*, the Faculty, the University and the medical profession have been extraordinarily well served by David Penington during his eight years as Dean. Of special interest to readers of *Chiron*, we should highlight his success in establishing better links with graduates of the Faculty through the formation of the University of Melbourne Medical Society (UMMS).

The Faculty thanks David Penington for his leadership and his outstanding and enduring achievements during the past eight years, and looks forward to his further involvement as the Faculty consolidates and develops the many initiatives that he introduced during his Deanship. UMMS thanks David for his work as Foundation Chairman of the UMMS Committee and for his continuing, very important role as a respected and influential spokesman for the profession.

### **Student Enrolments, Performance and Admission Policies**

Over the past few years there has been a progressive reduction in the intake of students into the medical course at the University of Melbourne. This reduction now totals 20%, the largest reduction of any medical school in Australia. The intake into the first year of the course was 182 students for 1985. This allows for the entry into second year of up to ten additional 'lateral entry' students, with appropriate tertiary science qualifications. The HSC cut-off score for selection into first year medicine rose from 338 in 1984 to 347 in 1985, an increase largely attributable to changes in HSC marking practices and policies. Included in the entry into first year were 13 overseas students (who required HSC scores of at least 372) and a small number of mature age students, selected on the basis of both HSC and tertiary studies.

In 1985 the Faculty participated in the University's Special Admissions Scheme in which up to ten applicants could be admitted to the medical course on the basis of academic performances judged to be up to 30 points lower than the normal cut-off figure, but which were considered to be adversely affected by socially disadvantaged educational opportunities. Four such students were admitted to the medical course in 1985; three of the students did well and are proceeding to second year, while the other student will sit a supplementary examination in one subject. This scheme will continue for at least 1986 and 1987 and will be carefully monitored at each stage.

A further six refugee medical students and medical graduates gained places in 1985 in the third year of the course after preparatory studies. A total of 11 refugee students were studying within the course during 1985, including one who graduated successfully at the end of the year.

Late in 1985, Faculty recommended the introduction in 1987 of an Extended Special Admissions Scheme which will provide for the selection of up to ten additional disadvantaged students whose academic performances are between the above Special Admissions cut-off and the cut-off score for entry to Science at this University. These students will be admitted to the second year of the medical course if they perform at a satisfactory level in prescribed science subjects for two years. It is the Faculty's view that this expanded range of opportunities for entry into the medical course, in addition to the well established 'lateral entry' programme, effectively counters those who assert that entry into Medicine is 'elitist'. In contrast with proposals that entry into Medicine should be based upon competitive performance in tertiary studies, the present selection system provides considerable flexibility while retaining the efficiency of providing optimal medical training in the minimum time for the large number of bright, well prepared students who now come directly from school and cope very well with the academic demands and objectives of the course.

With the revised curriculum, pass rates continue to be very high and the number of students who withdraw from the course is very low, attesting to the interest of the students in the course and their motivation to study Medicine. These findings refute the claims of those who suggest that students are not in a position to make valid career choices at the end of year 12 of school studies.

During 1985, eight students undertook a year of research towards the Bachelor of Medical Science degree, mostly after their third or fourth year of medical studies. This programme continues to offer excellent opportunities for students to carry out original work under the supervision of academic staff members in preclinical or clinical departments of the Faculty.

### **Course Changes**

The use of questionnaires has proved to be of special value in monitoring the success of the revised curriculum in meeting the Objectives of the Medical Course that were adopted by Faculty early in David Penington's Deanship. The questionnaire completed by the final year students at the end of 1985 indicated that although many of these objectives are being satisfactorily achieved by the medical course more work remains to be done to promote the understanding of human behaviour and social functioning, the capacity to communicate, and the understanding of the professional responsibility of the doctor in relation to individuals and the community.

During 1985 the Curriculum Review Committee instituted a review of the way in which individual departments of the Faculty were addressing the objectives of the course in their teaching programme. It is intended to use this process to replace what is seen by many as 'factual overload' by defining core material and promoting independent learning and problem solving approaches. The departments have shown very positive and encouraging early responses to these initiatives.

## Research

The Faculty continues to attract a bigger allocation of research funding from the National Health and Medical Research Council than any other medical school in Australia. For grants administered through the University, the total NH&MRC funding increased from \$4.7m in 1985 to \$5.5m in 1986, with funds being provided for a total of 80 Project Grants (including 33 new grants for 1986 compared with 25 in 1985) and five large Program Grants. If NH&MRC-funded projects administered through hospitals associated with the Faculty are included, the total allocation for 1986 is \$7.0m.

The St. Vincent's Institute of Medical Research became formally affiliated with the University in 1985. This is a welcome addition to the outstanding research institutes — the Walter and Eliza Hall Institute and the Howard Florey Institute — that already have such affiliation and contribute so much to the research vitality of the Faculty. Similar tribute must be made to the excellent research work carried out in conjunction with our Faculty departments by the many academic associates in our affiliated teaching hospitals.

## Staff Matters

Major new appointments in 1985 include Professor Richard Fox as Professor/Director of Haematology and Medical Oncology at the Royal Melbourne Hospital, Dr. James Wiley as Professorial Associate in the Department of Medicine, Austin Hospital and Repatriation General Hospital, and Dr. Eng Seong Tan as Professorial Associate in the Department of Psychiatry. In addition Professor Colin Johnston accepted appointment to the Chair of Medicine at the Austin Hospital, a position that he will take up early in 1986.

Retirements during 1985 include Professors A.E. Doyle, F.J. Hird and S.J. Leach. As the Foundation Professor and Chairman of the Department of Medicine at the Austin Hospital/Repatriation General Hospital Clinical School, Professor Doyle was highly regarded in generating a level and range of research activity that is unprecedented in any department of Medicine in Australia. Professor Hird's inimitable style in teaching biochemistry and in championing the individual research worker will be long remembered in the University, as will Professor Leach's high profile in promoting the research role of the Department of Biochemistry.

## UMMS Activities in 1985

There was very favourable feedback in response to the 1985 issue of *Chiron*. The editor, Peter Jones and his editorial team, in particular Maggie Mackie, deserve our congratulations and thanks for their excellent, very professional and dedicated work in this major enterprise for the Society.

The Dean's Lecture Series for 1985 was very well attended, especially by members of UMMS, and has fulfilled its promise as being an important showcase for the work of the Faculty. Many members of UMMS also took advantage of the Faculty's expanding Continuing Medical Education Program in 1985. A special evening function for UMMS members which was very well attended was the seminar on AIDS (featured in this issue of *Chiron*) by Ian Gust and David Penington on 12 November 1985. This was preceded by 'drinks and light refreshments' for UMMS members in the Pathology Museum. Many took advantage of this and enjoyed renewing friendships and gossiping with their co-graduates.

UMMS provides a prize of \$250 for the medical student who produces what is judged to be the best Bachelor of Medical Science research report. The UMMS Prize for the

best report of research carried out in 1984 was awarded in 1985 to Mr. Joseph Torresi for his work entitled *The Haemodynamics and Biochemical Mechanisms of Action of Nitroglycerine*.

Several reunion groups obtained assistance from the UMMS Office, including the 50th year reunion that was expertly organized by Dr. James Smibert (whose report appears on page ). We thank Mrs. Gyda Currie for her excellent administrative work in the UMMS Office, maintaining membership lists and helping with reunions. Please direct any enquiries about UMMS membership and reunions to: Mrs. Gyda Currie, UMMS Office, Faculty of Medicine, University of Melbourne, Parkville, 3052; telephone 344 5889.

Another occasion of special interest to UMMS members in 1985 was the ceremony for the unveiling of Sir Sydney Sunderland's portrait and the naming of The Sunderland Theatre and The Wright Theatre (see 'cover story'). Many UMMS members contributed to the portrait fund and greatly enjoyed the ceremony.

Following Professor Penington's announcement of his retirement as Dean at the end of 1985, I was nominated and appointed Dean for the period 1986-90. Professor Gordon Clunie was elected Deputy Dean, and Professor Ken Hardy was elected Assistant Dean (Clinical), with Professor John Hurley continuing in 1986 in his role as Assistant Dean (Preclinical). In taking up the Deanship, I also became Chairman of the UMMS Committee, and Gordon Clunie joins the Committee as Deputy Dean. In my new role I shall do all that I can to promote effective interaction between our medical school and our graduates.

For the continuing success of UMMS, it is important that we reach and involve as many of our graduates as possible. As well as renewing your membership, please read the current membership list and encourage your colleagues to join. It is important for us to develop a collegiate spirit amongst our graduate community, with a sense of pride in our University of Melbourne medical degree and in the continuing achievement and high standing of our Medical School.

Graeme B. Ryan  
Dean, Faculty of Medicine  
Chairman, UMMS Committee

## Minute of Appreciation

### Professor David Geoffrey Penington Dean, Faculty of Medicine, 1978-1985

When Professor David Penington accepted appointment as Dean in 1978, he had a series of objectives aimed at reshaping and promoting the educational, research and professional roles of the Faculty of Medicine. In his eight years as Dean, he achieved most of these objectives through the establishment of a series of major initiatives and reforms within the Faculty. During this period he also emerged as a leading figure within the University, a respected spokesman for the medical profession and an influential adviser to governments on a range of medical and public health issues.

As a basis for change he first redeveloped the administrative infrastructure of the Faculty with clear lines of responsibility and delegation of authority to representative

Faculty committees, aimed at minimizing wastage of academic time on administrative matters. These changes proved to be particularly important in the implementation of curriculum reform through the Curriculum Review Committee, and in the more open and effective allocation of resources through the Faculty Budgets Committee.

Major shifts were made in the allocation of resources to equitably match teaching workload and to promote more vigorous research activity, including research training, in the Faculty. Budgetary flexibility was achieved, despite steadily reducing University funding, to enable the support of new staff and new academic and research developments, initiatives that led, in turn, to a remarkable growth in external research funding within the Faculty during his period of Deanship. A component of his strategy was the introduction of a planned decrease in undergraduate student numbers, the first of any medical school in Australia, so as to permit expansion in the numbers of graduate students carrying out research towards higher degrees and the development of postgraduate professional education programmes.

A special priority throughout David Penington's Deanship was the development of new approaches to undergraduate medical education. He formulated educational objectives for the Faculty, aimed particularly at ensuring greater emphasis on instilling enthusiasm for independent learning and the application of scientific principles in problem solving; emphasis on relevance of preclinical studies to medical education; the introduction of some flexibility and choice in the course in small group study; improvement in education related to human behaviour and development of communication skills; and the maintenance and development of student interest in questions of professional and social responsibility.

Under his chairmanship, the work of the Curriculum Review Committee led to restructuring of all years of the course to facilitate implementation of these aims and to align teaching with the educational objectives. The extensive use of student questionnaires was of special value in identifying problems in the course and in convincing departments of the need to make further changes. Although additional work remains to be done, there has been a great improvement in the perception of students and teachers of the educational effectiveness of the course, as reflected in the dramatic fall in the number of students who fail or withdraw from the course.

During David Penington's Deanship, the Faculty has shown a capacity to respond positively to government and community concerns in providing access to the medical course for socially and educationally disadvantaged students. Schemes for disadvantaged Victorian applicants and programmes to prepare and admit refugee medical students, principally from Vietnam, have been successful new developments in this area.

Another major initiative of David Penington was to establish an important role for the Faculty in the professional postgraduate area, first in professional postgraduate education through the development of new Master's programmes to provide new training opportunities for both overseas and Australian medical graduates; secondly, in developing a vigorous Continuing Medical Education programme with well supported courses offered in most months of the year; and thirdly, in establishing better links with graduates of the Faculty to provide a vehicle for Faculty influence in the medical community and to interest graduates in the support of the Faculty. For graduates he instigated the formation of



Professor David Penington.

the University of Melbourne Medical Society (UMMS) which now has nearly 1000 members, a yearly journal (*Chiron*), and a range of regular activities. His Dean's Lecture Series has become a regular feature of the Faculty's calendar and provides a popular forum for those associated with the Faculty to tell graduates and others about their work.

With declining University resources, innovative approaches have been needed in recent years to promote academic activity in areas appropriate for teaching and research within the Faculty and its affiliated institutions. With this in mind, David Penington's initiatives have greatly expanded the influence and involvement of the University in the teaching hospitals, particularly with the development of the appointments of Professorial Associates with the title of Professor in various fields including Pathology (at the Royal Melbourne Hospital), Psychiatry (at St. Vincent's Hospital, Austin Hospital, and Royal Children's Hospital), Cancer Medicine (at the Cancer Institute) and Haematology and Medical Oncology (at the Royal Melbourne Hospital). Further proposals have been approved for such appointments in Rehabilitation Medicine, Clinical Virology at Fairfield Hospital, and the Burnet Clinical Research Unit at the Royal Melbourne Hospital in association with the Walter and Eliza Hall Institute. These developments are very valuable in supporting the environment of the teaching hospitals as centres of excellence in professional services and research. Also during David Penington's period as Dean, his support was crucially important in the success of Professor Ian McKenzie of the Department of Pathology in obtaining government funding for the Research Centre for Cancer and Transplantation, and in attracting the internationally prestigious Ludwig Institute for Cancer Research to set up a Melbourne Branch under the Directorship of Dr. Tony Burgess in the Royal Melbourne Hospital and in affiliation with the University of Melbourne.

From the time of his appointment as Professor of Medicine at St. Vincent's Hospital in 1970, David Penington has shown extraordinary dedication in working for the benefit of his department, the Faculty, the University and the medical profession. He became Assistant Dean (Clinical) in 1971 and was Deputy Dean in 1976-77, periods in which he laid the foundations for his Deanship. For many years he served as a member of the University Council (as an elected representative of the professors) and most major central committees, including Central Budgets Committee, Joint Committee on Policy, Committee on Staff, and Research and Graduate Studies Committee. Following his earlier service as Chairman of the Board of Social Studies, he was Chairman of the Joint

Committee's Overseas Students Sub-Committee and the Council Committee on Student Services. He was also elected as Deputy Vice-Chairman of the Academic Board during this period. Outside the University, he was appointed to membership of the Cancer Institute Board, the Board of the Walter and Eliza Hall Institute for Medical Research, the Committee of Management of the Mount Royal Institute for Gerontology and Geriatric Medicine, the National Health and Medical Research Council (including membership of the NH&MRC Medical Research Advisory Committee, Fellowships Committee, Medicine Advisory Committee, Committee to Review the Future of Council, and chairmanship of the Institute's Review Committee). He was Chairman of the National Blood Transfusion Committee, Australian Red Cross Society, from 1977 to 1983, a position that led to his currently important advisory and public relations role as Chairman of the National AIDS Task Force. In 1984 he chaired the

Committee of Inquiry into Rights of Private Practice in Public Hospitals, and was responsible for producing a report that was widely acclaimed as a landmark in the development of health policy in Australia. He has become a major adviser to both State and Commonwealth governments on health administration and policies.

In stepping aside from the Deanship, David Penington can look back with much satisfaction upon outstanding achievements during his leadership of the Faculty. We extend our thanks to him for his excellent and enduring service to the Faculty and the University. In terms of his achievements, his leadership, his personal style and the stature that he brought to the position within and outside the University, he will be remembered as a truly great Dean of Medicine.

*Graeme B. Ryan*  
Dean, Faculty of Medicine

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## **Universities and Professions: Institutions in the Firing Line**

### **Occasional Address — Conferring of Degrees**

**14 December 1985**

*Professor David Penington*

Graduation from this University will represent for you all a major milestone in your careers. To those looking from outside it marks the transition from the role of student to that of a person entering a profession or some other way of life; the change from carefree student days to the world of responsibilities, from the world of jeans and thongs to that of suits and ties for the majority even if not for all! However, the view that I want to put to you is different from this and I want to ask you to look at two issues with me. One is the place of universities in the life of the nation and the other is that of the nature of 'the professions'.

### ***What is the place of universities in Australian society?***

We live in a vigorous, secure and egalitarian society which accepts as axiomatic that tenet of Thomas Jefferson in the Declaration of Independence 'that all men are created equal and independent'. Australia in its short history has developed a culture in which scepticism of authority, 'knocking' of privilege and cutting down of tall poppies have all been honed to the finest of edges, probably more so than in any other western society. As it happens, I have no argument with this, but it is part of the climate in which universities exist and must strive for excellence.

Since the founding of the Universities of Sydney and Melbourne around 1850, closely followed by Adelaide some twenty years later, Australian universities have made very major contributions to the cultural and intellectual life of this country. Whilst we were late starters compared with universities such as Oxford, Cambridge and St. Andrews in the United Kingdom, and universities such as Padua, Liege or Gottenburg in continental Europe or even Harvard and Yale in the United States, we grew up at the same time as the great majority of British, continental European and American universities. In fact, our older schools of Law and Medicine have a longer tradition of scholarship than the great

majority in the United Kingdom. That curious phenomenon the 'colonial cringe' is, however, still firmly implanted in the minds of many in our community who believe that all that is worthwhile in scholarship, in science and technology come from abroad. Indeed when we look at the low level of investment by Australian industry in technological innovation and research and the commitment to simply import from overseas ideas, development and skills, let alone capital funds, we must admit with dismay that we still have a long hard haul ahead of us to get this country to the point where it can stand on its own feet. We have yet to develop the wherewithall to keep ourselves in the lavish style of life to which we became accustomed. It was easy through the hundred years or so when wealth came readily from our natural resources and from the produce of a bountiful countryside, but now we find it hard to compete when we must depend increasingly on our wits.

What we have forgotten, to our cost, is that Australia has never been short of outstanding men and women who have been innovative and energetic in the development of ideas, in contributions to culture, to science and technology. One only has to look back at a proud history of international achievement by musicians, artists, writers, engineers and scientists — including those in medical science — to be impressed by our human resources. However, it is sad to note that many of these great names achieved their fame overseas and carried much that they had to offer to other countries. In medical science, the field that I know best, there have been many great names, including such figures as Cameron, Florey, Cairns, Willis, Hamilton, Fairley, Paul Wood, Eccles and Burnet. Three of these gained Nobel Prizes for Physiology and Medicine, two of the three being graduates of this medical school as were others in that list. Australia's universities have had much to offer but we must, somehow, lock them more resolutely into the development of our society.

During the twenty-year period from the mid-1950s to the 1970s we saw unprecedented development of Australian universities both with the establishment of new institutions and developments within those of longer standing. With this growth went a period of optimism in looking to the future which was linked with buoyant development of scholarship and research. The economic downturn which began in the mid-1970s has affected all Western countries and the curbs which were imposed on public expenditure led to severe restraint in funding of all tertiary institutions. Universities must now operate in a very different climate.

Many of our universities have reacted very defensively with cries of anguish but we have to accept that our community will only back institutions which are so easily classed as 'elitist' if the public sees that such investment will enrich the life of the community, improve its services or its level of wellbeing; we face more than ever before a commitment to show the relevance of our activities to our community at large if we are then to persuade our political masters to add to our resources from the public purse.

### ***What has all this to do with new graduates?***

You must be our ambassadors both in your own careers and through keeping your university links.

I want briefly to come back to some questions as to what universities are about as a part of your lives. I will make particular comments for the medical graduates but really they relate to each of those groups entering professions who have received their degrees this evening.

Eight years ago, when I became Dean, we adopted a number of educational objectives and we introduced major changes to the undergraduate course to address these issues. The group graduating tonight is the first to have come through the six years of the revised curriculum and in passing I want to thank you all for the help you gave in identifying our problems and bringing further change.

Major emphases in these objectives were for students to acquire a capacity to apply their knowledge and skills in solving problems and also, most importantly, to acquire an enthusiasm for continuing independent learning. In addition to mastering a substantial body of knowledge and skills necessary for diagnosis and communication with patients and their relatives, we aimed that you should understand the commitment to professional responsibilities. From these I want to emphasize just two points: that commitment to continued learning and the problems of professional responsibility.

### ***The commitment to a lifetime of learning***

The greatest thing that a university can confer on an undergraduate student is an enthusiasm for discovering knowledge together with knowing how to go about finding it. If I look back over the last twenty years at the expansion of medical science I would have to agree with the statement by the wise old professor when addressing his students that 'in twenty years time, half of what I am telling you will be proved to be wrong and the other half will be right; the only problem is I can't tell you which is which!' Medical knowledge is expanding at a tremendous rate and will continue to expand. All we have been able to do is get you to the point where you understand principles and have a body of knowledge the importance of which you can now grasp. If in ten and twenty years you are to be able to give to your patients the best that medical science can offer, your learning has only just begun. You have a lifetime of scholarship ahead of you discovering new things with all of

the excitement and satisfaction which I hope mastering medicine over the last six years has given you. As you enter the profession, you will be joining a body of scholars which includes the Medical School of this University and the same is true of graduates in respect of every other faculty. I hope you will always regard yourselves as part of our academic community, will participate in its Graduate Associations and its continuing education programmes and that you will take with you into the community the message that learning does matter and that our University is still part of you as you seek to bring to your profession the very best of knowledge and skill that you can offer.

Moving with the growing edge of knowledge is vital to the Australian community in every walk of life. For us to come of age as a country, that old cultural attitude which brands 'intellectual' as a pejorative word must be defeated if we are to be able to compete with those vigorous Japanese, Singaporean and other vibrant economies to our north. The same message applies in commerce, or engineering as it does in medicine. Universities will play a critical role in this but they can only do so if they have the support of our community to make these sorts of contributions. A key element in gaining that support is through our graduates as they move out from the University taking its message with them.

### ***What are the characteristics of a professional? Is professionalism something of the past?***

Traditionally the older professions have all had their base within the major universities and have been strongly identified with scholarship, with learning throughout each person's career, with a commitment to teach those entering the profession and a commitment to high ethical standards linked with service to the client so as to ensure that the standing of the profession itself is not jeopardized by shoddy service. This group of characteristics has been seen by those within the professions as distinguishing them from the mores of the business world where the governing ethic is that of making a profit. Whilst the professions have traditionally provided good incomes in reward for long years of study and hard work, remuneration has never been accepted as the primary consideration as to what a profession is about. Linked with this has been their high standing in the community, as the clients' interests come first.

In the last twenty years we have seen the standing of many professions under threat in Australia. Medicine, perhaps even more than any other has suffered through the effects of conflict with government. Without wishing to apportion blame, I personally believe that much blame attaches to both sides in the confrontations we have seen in the past twelve years. The professions still command great respect in our community but medicine, in particular, is now under further threat both from within and from outside. Those of you graduating in medicine tonight will have to face some very difficult issues in the next few years and I want canvass one or two.

We now have a health care system which represents an open cheque in terms of funding from the public purse for virtually any services which patients may request or medical people may advise as desirable or necessary. There are virtually no effective controls. Growth in expenditure is accelerating at a time when the funding of the public system is being steadily squeezed and our public hospitals are wracked by the effects of industrial action with competing pressure groups seeking an ever-larger measure of remunera-

tion and influence to control their own destinies. A sick public system with growing waiting lists is the sector of health services which should be providing the support for those who most need it — not only the poor and the elderly but those with diseases presenting complex problems requiring high technology and research based resources. It is the sector which is the base for our medical education and the sector which should at the same time be developing major commitments in preventive care, in rehabilitation and in community health education.

The area where public expenditure is growing without controls is that which addresses sickness rather than health, where the reward is greatest if the doctor consults very briefly but orders a wide range of investigative tests as a means of reassuring a patient or prescribes like a scattergun. The alternative of sitting talking with the patient to analyze the causes of the problem, perhaps with no need either to investigate or to prescribe treatment attracts less recognition. All the rewards are for a style of medicine which runs counter

to all the ideals of the profession. It is only these ideals which stand as a barrier against insolvency of the whole Medicare system.

I believe the present structure of our health care system is leading rapidly to a situation of crisis and that radical changes will need to come. In the past, medical people have too often left it to politicians to make all of these decisions but we as a profession must accept that broader responsibility to our community so as to ensure that the changes which must come will provide better health care. To do this we must ourselves talk with our patients, with our community through the media and with political leaders in all parties. We must all accept that wider responsibility to our community.

Life will be full of challenges and opportunities. Your career should offer you both pleasure and fulfilment. Ideals are still worthwhile and helping to fulfil them will bring great satisfaction. I wish you all well for the future.

## Faculty of Medicine Final Year MB.BS 1985

### Top Final Year Student, 1985



Geoffrey Stuart Hebbard came to the University of Melbourne from Canberra and Phillip College, a State school there. For the first three years of the course he was at Trinity College. He then spent a year with Professor Sir Gustav Nossal working on the response of B cells to T cell-dependent antigens for the degree of Bachelor of Medical Science. He was awarded the Faculty Prize for the best B.Med.Sci. report of 1982. He spent the

clinical years of the course at The Royal Melbourne Hospital Clinical School. In 1985, for the first time, the aggregate mark was based on marks obtained from second year onwards. Thus Geoff was the top student for the course and not just for the final exams. Interestingly, he shared a house with Grant MacArthur who was top of the Monash medical course in 1985. Geoff's hobbies are skiing, bushwalking (especially in the Snowy Mountains) and, more recently, windsurfing. He thinks his future lies more in medicine than surgery.

#### Australian Medical Association Prize

HEBBARD, Geoffrey S. RMH

#### Medicine

##### Keith Levi Memorial Scholarship in Medicine

LOGIUDICE, Dina C. SVH

##### Robert Gartly Healy Prize in Medicine

LOGIUDICE, Dina C. SVH

##### Jamieson Prize in Clinical Medicine

LIM, Su-Wei Sylvia RMH

##### Upjohn Award in Clinical Pharmacology and Therapeutics

CHEN, Hooi Mien Joycelyn RMH  
REDGRAVE, Nicholas

#### Surgery

##### Beany Scholarship in Surgery

MANN, Gregory B. RMH

##### Robert Gartly Healy Prize in Surgery

MANN, Gregory B. RMH

##### Proxime Accessit Prize in Surgery

KRISHNA-MOORTHY, Shanti RMH

##### Ryan Prizes in Surgery (R.A.C.S.) (RMH/SVH)

MANN, Gregory B. RMH

HONG, Thin Foo SVH

##### Smith & Nephew Prize in Surgery (AH/RGH)

SILBERBERG, Judy A. AH/RGH

SPAIN, Brian T.

##### E.H. Embley Prize in Anaesthetics

BAKER, Caroline B. RMH

##### Neil Bromberger Prize in Orthopaedics (AH/RGH)

NUNN, Brendan J. AH/RGH

#### Obstetrics & Gynaecology

##### Fulton Scholarship in Obstetrics & Gynaecology

SPAIN, Brian T. A/RGH

##### Robert Gartly Healy Prize in Obstetrics

DOWD, Jennifer R. A/RGH

##### Hubert Sydney Jacobs Prize in Clinical Gynaecology

BOLTON, Damien M. SVH

##### Kate Campbell Prize in Neo-Natal Paediatrics

CLARKE, Julie R. SVH

##### Alfred Edward Rowden White Prize in Clinical Obstetrics

SPAIN, Brian T. A/RGH

##### Edgar & Mabel Coles Prize in Obstetrics (RMH/SVH)

CAVALLO, Andrew V. SVH

##### Max Kohane Prize in Obstetrics & Gynaecology (AH/RGH)

SPAIN, Brian T. A/RGH

## Paediatrics

### Howard E. Williams Prize in Paediatrics

JOHNSTONE, Lillian M. RMH

### Child Growth & Development Study – Nursing

**Mothers' Association Prize in Paediatrics**  
BOLTON, Damien M. SVH

### Clara Myers Prize in Surgical Paediatrics

BAIRD, Alison E. A/RGH

## Psychiatry

### John Adey Prize in Psychiatry

Cailes, Jeremy B. RMH

### John Cade Memorial Medal in Clinical Psychiatry

NEATE, Sandra L. A/RGH

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## Bachelor of Medicine (1862) and Bachelor of Surgery (1879)

Timothy James Akhurst, Stephen Inglis Alexander,  
Geoffrey Roy Allen, Alison Elizabeth Baird,  
Alexander James Baker, Caroline Blanche Baker,  
Frank Anthony Basile, Bernd Becker, Terry Alexander Bisas,  
Michael Randall Bishop, Damien Michael Bolton,  
Anthony Lowden Brown, Jennifer Jean Heritage Brownless,  
Jeremy Bruce Cailes, Adrian Gerard Cain,  
Stephen Ronald Carbone, Jennifer Ramsay Carden,  
Annette Margaret Carless, Andrew Vincent Herm Cavallo,  
Bobby Cho-Him Chan, Robert Ka Ming Chan,  
Jocelyn Chen Hooi Mien, David Cheung,  
Robert Bartolo Cincotta, Julie Robyn Clarke,  
Noel Johann Colin-Thome, Paul Vincent Connell,  
Helen Cooley, John Anthony Cooper,  
Glenn Andrew Lovelock Davies, Jennifer Laurice Davis,  
Paul Michael Denborough, Christopher Denis Dirckze,  
Jennifer Roselind Dowd, Joseph Drentin,  
Jeremy Leonard Druce, Thomas Andrew Edgley,  
Jonathan Harry Erlich, Stephen John Esler,  
Rosemary Margaret Fethers, Eve Finkelstein,  
Voola Fourlanos, Lachlan Clyde Fraser, Susan Mary Gibb,  
Christopher Ross Grant, Sylvia Maria Regina Grauer,  
Jeanette Catherine Greer, Geoffrey Stuart Hebbard,  
Eva Edit Herold, Michael Andrew Hewson,  
Ho Yuk Yin Philip, Christopher John Hogan,  
Ian William Richard Holten, Thin Foo Hong,  
Susan Joanna Hookey, Jane Catherine Hopper,  
Karl William Horsburgh, Catherine Horton,  
Robert William Hosking, Hoan-y How,  
Robert Jeffrey Howells, Nancy Pi-Ting Huang,  
Robin Ann Hunter, Mark Rupert Hurley,  
Stephen Carroll Hyde, Rodney Jacobs,  
James Conway Jamieson, Ross Douglas Jeffery,  
Jessie Ena Johnston, Lillian Mary Johnstone,  
Nicolas Kartos, Omeros Kefaladelis, Paul Joseph Kennedy,  
Vincent Khoo Soo Beng, Andrew John Kinsella, Eva Kipen,  
Evangelos Klonis, Martin Robert Kluckow,  
Dennis Ket Ming Kong, Shanti Krishna-Moorthy,  
Susan Brooker Lacey, James Bruce Langley,  
Lau Kwok Pan Kenneth, Yasmine Anastasia Layher,  
Huyen Khanh Le, Antony Stuart Leaver, Lee Ei Leen,  
Lee See Chung, Heather Valerie Leslie, Hugh Stuart Leslie,  
Katherine Leslie, Ann Leung, John Thomas Leung,  
Sylvia Lim Su-Wei, Anna Hung-Ngo Ling, John Lioufas,  
Dina Concetta LoGiudice, Loke Kwok Loon,  
Michael Joseph Love, Mark Edmund Lovelock,  
Bernard Matthew Lynch, Barbara Joan Malmgren,  
Gregory Bruce Mann, Bruce Graeme Marks, Karen Martens,  
Rex Rowan Martin, Peter John McAllister,  
Geoffrey John McColl, Niall Adam McConchie,

Mary Therese McCormack, Andrew Robert McDonald,  
Andrew Stewart McDonald, Daniel Michael McGannon,  
Isabel Margaret McLean, Elizabeth Jane McLeod,  
Bruce Horsley Mitchell, Rohan John Molenaar,  
Patricia Denise Molloy, Suzanne Elizabeth Moore,  
Gary John Morgan, Anna Ngaire Morton,  
Francine Mary Moss, Anthony Darren Mounkley,  
Paul Geoffrey Mulkearns, Wendy Johanna Munckhof,  
Craig Andrew Murphy, Marco Musolino,  
Andrew Shujiro Narita, Sandra Leanne Neate,  
Deborah Elizabeth Neesham, Idmon Ki Chong Ng,  
Alexander Nirenberg, Brian William Nolan,  
Mark Anthony Norden, Brendan James Nunn,  
Jane Louise O'Brien, Christopher James O'Callaghan,  
David Jerome O'Callaghan, Helen Elizabeth O'Connell,  
Stephen John O'Leary, Caroline Ong Gaik Gim,  
Ming Chong Ong, Jacinta Mary Opie, Timothy Simon Owen,  
Meenakshi Padmanabhan, Merran Shuk-Ling Pang,  
Kevin Robert Parker, Jennifer Sue Parsons,  
Anthony John Penington, Anna Veronica Pienkos,  
Leslie Anthony Pinto, Cameron Richard Profit, Pitt,  
Philippa Anne Ramsay, Timothy Richard Hampden Read,  
Nicholas Gordon Redgrave, Douglas Alexander Redpath,  
Amanda Jane Robertson, Anne Rosamilia,  
Alistair George Royse, John Michael Salmon,  
Mark Louis Santini, Anthony Corry Sasse,  
Susan Melva Savage, Susan Margaret Sawyer,  
Stephen Michael Schlicht, Lynn Maree Scoles,  
Peter Owen Sharp, Ian James Sharrock,  
Robert Bruce Shields, Darryl Shnier,  
Sine-Hwong Martin Sia, Judy Alexandra Silberberg,  
Paul James Sitzler, Brian Thomas Spain,  
Douglas Andrew Spence, John Anthony Stekelenburg,  
Ruth Alison Stewart, Elizabeth Vivian Stringer,  
Lidija Suntesic, Tai Keen Cheng, Tai Keen Sang,  
Tan Swee Thong, Andrew Wai-Weng Tang,  
Edward Theologis, Andrew Alexander Thomson,  
Vincent Thong Chan Heng, James Darley Tilleard,  
Tamsin Mary Murison Travers, Rodney Paul Trevena,  
Jim Tsaltas, Edwina Helen Louise Vance,  
Michelle Leanne vanden Driesen,  
Louise Frances Van Geyzel, Friederike Charlotte Maria Veit,  
Mark George Knox Veitch, Dennis Velakoulis,  
John Voukelatos, Sharon Louise Wallace,  
Christine Margaret Waller, Alistair Richard Walpole,  
Caroline De-Ming Wan, Christopher Roger Webb,  
Graeme Stuart Webster, Michael John Williams,  
Stephen Charles Williams, James Wong,  
Rosemary Wong, Yeap Yang Soon, Yeoh Mun Teng,  
Michael Winston Yung, Shaun Colin Zail.

## Departments

### Department of Microbiology



Dr. Mike Dyall-Smith and Dr. Ian Holmes study the sequence of a rotavirus gene which they have identified as important in immunity to infantile gastroenteritis.

Readers over the age of forty will hold fond memories of the old Bugs School in Swanston Street, centring around the legendary Syd Rubbo. Some of you contributed to the Appeal that followed his untimely death in 1969 which led to the establishment of the annual Rubbo Memorial Oration as well as the striking abstract sculpture which stands outside the new building and is dedicated to his memory. Under Rubbo's chairmanship the department had developed as one of the most broadly based in Australia, with teaching commitments to four faculties — Medicine, Science, Dentistry and Agriculture — and also providing good coverage of several sub-disciplines including Immunology, Microbial Genetics, and Industrial Microbiology. Since Syd's death in 1969, many changes have occurred but we have tried to preserve the essence of his aims and spirit. The Bugs School remains a happy place in which to teach and learn — a matter of some significance to the students.

One of the last of Rubbo's dreams to be realized was the construction of a fine building in the new Medical Precinct on Royal Parade in the southwest corner of the campus — the one with the striking lecture theatre projecting out from the north side. The decision of the Universities Commission in the early 1960s to increase the medical student intake at the University of Melbourne to 240 per annum carried with it the very timely allocation of further funds to add two more

floors to the Microbiology building already on the drawing boards. Thus a fine six-storey building materialized, under the guidance of the well-known firm of architects, Grounds, Romberg and Boyd. We took possession in 1965, with Pharmacology being allocated temporary accommodation on the top two floors — they are still there! And we are as crowded as ever — although it must be said that the laboratories are very functional and teaching areas are much better designed for student comfort.

The expansion in intake of medical students was also accompanied by the creation of an additional Clinical School. New Chairs in Microbiology and Pathology, as well as Medicine and Surgery were established at the Austin Hospital, and David Gray was appointed to the Microbiology Chair in 1966, with Joan Schiavone as Senior Lecturer and Val Asche as Senior Tutor. Though successful in many ways, the experiment was expensive, and there was never any likelihood of establishing comparable sub-departments of Microbiology and Pathology at our other two general teaching hospitals, the Royal Melbourne and St. Vincent's. Thus, when the decision was taken in the early 1970s to move the teaching of Medical Microbiology back from the fourth year to the third year of the medical course, the University determined to close the Austin Hospital branch of the Microbiology Department upon Professor Gray's retirement

in 1974. Joan Schiavone, whom many of you will remember for her dedicated teaching, continued as a member of staff for a further couple of years until her untimely death from cancer.

A number of staff members were appointed to Chairs in the late 1960s — a tribute to Rubbo's recruiting in earlier years. In 1966, Frank Gibson became Professor of Biochemistry at the Australian National University, and in 1967 David White was appointed to a second Chair in the Department at Melbourne. Then in 1968 Bruce Holloway moved to become Professor of Genetics at Monash, and Geoff Cooper to be Professor of Medical Microbiology at the University of New South Wales. Following Rubbo's death, Jim Pittard was appointed to fill his Chair and David White became Chairman of Department. Since 1970 Jim and David have alternated as Chairman.

As luck would have it, we were able to make some outstanding appointments to replace the staff we lost during this period. Doris Graham, whose research focuses on Chlamydia, commenced with the Department in 1966. Jos Forsyth, recruited from Monash (previously South Africa), arrived in 1968 and became Director of Microbiological Diagnostic Unit (previously known as the Public Health Laboratory), a diagnostic facility run by the Department of Microbiology on behalf of the Victorian Health Department. Russ Wilkinson, a bacterial geneticist with an interest in anaerobes, joined us at about the same time, then Bill Boyle arrived from Duke University, USA (ex Scotland) as Reader in Immunology in 1970, Christina Cheers from the Hall Institute (ex this department and the UK) as Lecturer in Immunology in 1972, and Brian Hodgson (ex Manchester and Leeds) also in 1972. Lyn Gilbert made a most useful contribution to the reshaping of our medical teaching during the late 1970s, before leaving to take up appointments as Director of Microbiology, first at the Royal Women's and now at the Royal Children's Hospital. Her replacement in 1982 was Roy Robins-Browne, who relinquished a Chair at the University of Natal to accept a Readership in Medical Microbiology here. Ian Holmes, a distinguished virologist, was elevated to a Readership in 1975 and Nancy Millis to a Personal Chair in 1982 in recognition of her outstanding contributions to industrial microbiology.

From 1965-1979 we also had the great privilege of providing accommodation in the Department for Sir Macfarlane Burnet. During the fourteen years following his 'retirement' he wrote as many books in a large office which we have now converted to a tutorial room, named in his honour. Readers will be aware of the death of this great man from cancer at the age of 85 on 31 August 1985.

Of course, there have been dramatic changes in the science of microbiology in recent years — in chemotherapy, immunology, virology and genetic engineering — just to name a few. There have also been changes in the way in which we teach the subject. We have moved progressively away from the rote learning of increasing detail, and further towards the acquisition of problem-solving skills based on real understanding of basic principles. Much use is made of case-studies of real-life medical problems, seminars and tutorials with maximum student participation, self-instructional material and weekly revision in the Merrifield Display Area. Students also make maximum use of our excellent Heather Jenkin Research Library, founded and generously supported by Lady Burnet (previously Mrs. Hazel Jenkin). Core knowledge obtained during the third year course on campus is reinforced during the clinical years in the hospitals, where the Directors of Microbiology, who are

honorary Senior Associates of the campus Department, present microbiologically instructive cases. In addition, all students spend two weeks full-time at Fairfield Hospital during their fifth year.

Medical graduates will appreciate — although they may have been blissfully unaware of the fact as students — that in addition to our 200 third year medical students each year this Department also has responsibility for over 200 Science students (approximately 100 in our second year course, nearly 100 in our various third year courses, and 10-20 in our B.Sc. Hons. course in fourth year), 70 third year Agricultural Science students and 50 third year Dental Science students. We need traffic lights in peak periods. As the professional orientation of these students is quite different, the several courses are absolutely distinct and many of them are taught by staff members with whom readers of this publication will have had little contact. Nevertheless, the cross-fertilization provided by continuous daily contact between all staff members is of incalculable benefit to both our teaching and our research in all these disparate disciplines.

It is of course imperative that a top university department remains at the forefront of developments in the major disciplines for which it is responsible. For instance, the last couple of decades have witnessed dramatic progress in the fields of virology, then immunology, and most recently molecular biology. The latter area, which can loosely be regarded as the meeting ground of microbiology, biochemistry and genetics, has spawned the exciting new discipline variously known as recombinant DNA technology or genetic engineering. It is fortunate that two of the senior members of the Department, Professor Pittard (a microbial geneticist) and Professor Millis (a biotechnologist) were able to move quickly into this field, both in their research and in their teaching of our science courses in industrial microbiology and in microbial genetics. Similarly, the teaching of immunology was greatly expanded in 1984 with the introduction of several new science units in a joint venture with the Department of Pathology.

Perhaps the most striking single change in the Department since Syd Rubbo's day has been the great increase in the number of Postdoctoral Research Fellows (currently ten, supported by outside research grants), Ph.D. students (currently about twenty), and B.Sc. Hons. students (usually 10-20). These keen young people constitute the nucleus of our research effort, which must of course keep moving forward even when their supervisors are otherwise engaged in teaching undergraduates.

The research effort of the Department is well supported by NH&MRC. Professor White recently received a five-year grant for his work on the immunogenicity of viral peptides with particular reference to influenza. Dr. Holmes who co-discovered rotavirus, a major cause of infantile gastroenteritis, continues with fundamental studies on the molecular biology of the virus and with more applied work which is directed towards producing an effective vaccine. During the last few years he has been very active internationally for W.H.O. in many training courses and planning meetings concerned with the global problems of diarrhoeal disease. Dr. Robins-Browne has collaborated with Dr. S. Tzipori in the study of the pathogenesis of *Yersinia enterocolitica* and the purification and characterization of heat-stable enterotoxins.

Dr. Forsyth and Dr. Peel of the Diagnostic Unit have taken a special interest in the gonococci and in the meningococci. The MDU has recently been approved to carry out some of

the diagnostic work for AIDS. Dr. Boyle's work on graft rejection continues to be well supported as does Dr. Cheers' study of the role of intracellular bacteria in chronic infections. Professor Pittard's group is well supported by ARGC for studies of the regulation of gene expression and by NH&MRC for the study of the molecular basis of antibiotic resistance with particular reference to the plasmids which invariably carry and transmit the resistance genes between bacteria. Dr. Gardner who retired in 1984 has now published, with Dr. Peel, her long awaited book on *Sterilization and Disinfection* which promises to be a great source of

information to many people involved in health care. She has been replaced in the department by Dr. Dyall-Smith who is also involved in research on rotavirus. Professor White has just finished revising the third edition of *Medical Virology* (with Fenner of the ANU) and managed to write five other books over the past fifteen years. The intellectual life of the Department is not at all bad considering the steadily increasing median age of its staff members. It retains a strong commitment to both research and teaching and remains one of the very best microbiology departments in Australia.

## Department of Medicine, Royal Melbourne Hospital

The foundation James Stewart Professor of Medicine, Richard Lovell, supervised an enormous expansion of academic medical activity within the Royal Melbourne Hospital between 1956 and his retirement in 1983. From a single room in the main hospital block in 1956, the Department moved in 1965 to two floors of the newly built Clinical Sciences Building, and in 1983, its epidemiologic activity overflowed into quarters provided by the Faculty of Medicine in Barry Street. As any visitor to the Department will attest, even with this extra space, the Department is desperately crowded and impatiently awaits the extra space becoming available in the vacated old W.E.H.I. building. Professor Lovell retired in 1983 and was succeeded by Professor Richard Larkins.

More important than the physical occupation of space is the contribution that the Department makes in its traditional roles of medical education, research and clinical activity. From its inception, the Department has combined with the visiting and full-time Hospital staff to provide clinical teaching to the 80 or so students at the Hospital in each of the three clinical years of the course. The traditional approach of clinical clerkship and practical bedside tuition in small groups remains. The Department's emphasis is on teaching the students to apply the knowledge of the preclinical sciences to the clinical area, and endeavouring to develop their powers of critical evaluation and problem solving. Despite criticism that medical education is too technical and didactic, a major emphasis is on communication skills and social aspects of medicine. We are encouraged to find that medical students entering the fourth year of their course remain as idealistic and committed as ever, and we endeavour to preserve and develop these characteristics over the final years of their course. Dr. Roger Melick, a reader in the Department, was appointed the Associate Dean (Clinical) in 1979, a position he fills with distinction. At the postgraduate level also the Department is deeply involved in education, both at the clinical and research levels. There are currently 24 doctoral students in the Department. The clinical members of the Department also play an active role in specialist tutorials and clinical teaching for candidates for the FRACP examination and in continuing postgraduate education in the medical and scientific community outside the Hospital.

The research activities of the Department have expanded enormously in recent years. About one hundred people now work in the Department, four-fifths being employed by research funds attracted by individuals within the Department. In 1986, over \$1,000,000 of NH&MRC funds will be directed to the Department, and this is matched by an

equal amount from other funding sources outside the University. Roughly one hundred publications in refereed journals emanate from the Department each year. Major research areas include diabetes and endocrinology, nephrology, rheumatology, epidemiology, Aboriginal health, vascular disease, clinical pharmacology, gastroenterology, oncology and neurology. The Department enjoys close research links with the Hospital Departments of Diabetes and Endocrinology (whose Physician-in-charge, Dr. F.I.R. Martin, and Director of the Endocrinology Laboratory, Dr. L.C. Harrison, are both Professorial Associates in the Department) and has recently welcomed Professor Richard Fox, the Professor-Director of the Hospital Department of Haematology and Medical Oncology. Research collaborations exist with all the other Hospital Departments, and with the Walter and Eliza Hall Institute, Ludwig Institute, Howard Florey Institute and the preclinical University Departments, as well as with the Department of Medicine at the Repatriation General Hospital and several other universities and institutions in Australia and overseas.

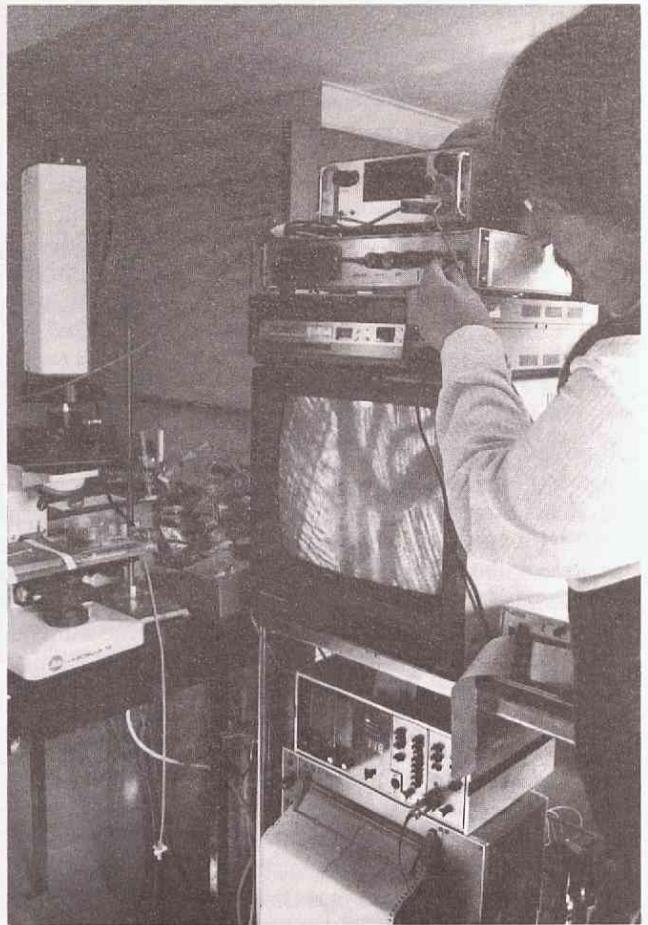
In the clinical area, the Department has been responsible for staffing two of the seven general medical units in the Hospital. These are headed by Professor Larkins and Dr. Bob Fraser. In addition, full-time members of the Department head several specialist units within the Hospital including Rheumatology (Dr. Ken Muirden), Nephrology (Professor Priscilla Kincaid-Smith) and Clinical Pharmacology (Dr. Robert Moulds). Other members of the Department have active clinical roles in many other specialist departments including Diabetes and Endocrinology, Gastroenterology, Neurology and Cardiology. The Department is delighted that Professor Kincaid-Smith has been elected President of the Royal Australasian College of Physicians, to take office in May 1986. Dr. Muirden is the current President of the International League Against Rheumatism and Professor Larkins is the President of the Endocrine Society of Australia.

Now is no time to rest on past or present glories. The challenges facing clinical academic departments throughout the country (and indeed throughout the world) are greater than at any time since it was first accepted (with varying degrees of enthusiasm) that the universities have a role in teaching hospitals. These challenges relate to every area of the Department's activities, and they will be briefly described, together with the conceptual approach to meeting the challenges.

In the undergraduate teaching area, the challenges derive from the evolving role of the Royal Melbourne Hospital as

a tertiary referral hospital rather than as a community hospital. This, allied with the current industrial disputes and nursing shortages, has reduced the amount of appropriate clinical material for student teaching, and the situation will probably worsen with time and greater specialization of the Hospital. There is an urgent need to develop a significant link with a large suburban community hospital, in the Royal Melbourne Hospital's region, with appropriate interchange of teaching staff and students. The concept of regionalization of health services currently being embraced by the Victorian Department of Health must be extended to include medical education. The second major challenge relates to the technological revolution which has occurred in medical science over the last decade. No longer can clinical academic departments concentrate solely on clinical observations or even carefully conducted physiological experiments in man and animals in their research activities. If they are to fulfil their role in technology transfer, in the application of basic advances to clinical medicine and in innovation, the research activities of the Department must span the breadth of biological research, from the molecular to the clinical, as the implications of molecular biology to clinical medicine are immense. The unique role that clinical academic departments can play is to bring the basic scientists and the clinical scientists together, so that the skills of the basic scientists can be applied to clinical problems, and the clinical scientists can understand and implement the advances in basic science. It is planned to develop this theme in two ways. The first is by attracting well-trained basic scientists to the Department, and the second is by even more extensive collaborations with the surrounding institutes and basic science departments. Already, a number of scientists, attracting independent funding from the NH&MRC, work in the Department, including the Senior Research Fellows Dr. John Hamilton, Dr. Kerin O'Dea and Dr. Barry Clarris. The collaboration with the Hall Institute is becoming stronger, and it is planned that the Clinical Research Unit of the Hospital and the Hall Institute will become linked with the University Department of Medicine. It should also be emphasized that the development of the subspecialty departments of the Hospital has been accompanied by the development of top-grade research at the clinical and basic level in a variety of disciplines throughout the Hospital. Academic activity is not the preserve of the university department, and now permeates most corners of the hospital. This is a thoroughly appropriate and pleasing development. Distinction between university and full-time hospital staff is often only one of name and title, rather than role, and every effort must be made to enhance this merging of academic and service roles.

The final challenge lies in the role of the University Department of Medicine in the clinical services of the Hospital. A dilemma arises from the multiple and divergent roles of the teaching hospitals. They are expected to provide a community primary and secondary health care service, they are tertiary centres of referral of specialized and difficult cases, they are undergraduate and postgraduate teaching institutions, and they are research centres. Trying to fulfil all roles leads at best to conflicts of interest and at worst to inadequacy in all activities. The appropriate balance between general medicine, perceived as best for secondary care, student teaching and the early phases of physician training, and sub-specialist medicine, perceived as best for tertiary care, the later stages of physician training and research is difficult to achieve. Appropriate reorganization of the clinical units, including the university department, to allow co-



Mr. Michael Hill, Ph.D. student, studying the reactivity of small blood vessels (shown on video screen) in diabetes in an effort to define the cause of the complications of diabetes.

operative linkages between general and special units may be the best compromise.

It is fashionable for those associated with teaching hospitals to decry their pitiable plight. Financial and industrial problems have certainly exacted a toll in terms of flagging morale and closed beds. However, the academic and research climate within the Royal Melbourne Hospital has never been brighter, and the human resources are such that it should continue to flourish.

## Reports from Clinical Schools

### **Austin Hospital-Repatriation General Hospital**

The Austin-Repatriation Hospital Clinical School is the youngest Clinical School of the Faculty, being established in 1966, and accepting its first students in fourth year in 1967. Sixteen students graduated from the Clinical School in 1970 out of a total final year class of 151 students. In 1985, 77 students graduated from the Clinical School out of a total final year class of 221 students.

This 47% increase in total student numbers has meant that no longer can we do all of the clinical teaching at the major teaching hospitals in each Clinical School. Much teaching is now done outside the major teaching hospitals at Box Hill Hospital, Preston and Northcote Community Hospital, Ballarat Hospital and others. The widening of hospitals used for teaching has not only taken the pressure off the major teaching hospitals but also allows the students to see a much wider range of clinical problems. The major teaching hospitals have become tertiary referral centres with specialized units and advanced technology. They tend to treat fewer patients of general interest and more patients with complex difficult problems. Although such patients are not commonly seen in outside practice they can form the basis for clinical instruction giving the students experience in problem definition and solution. At the other end of the scale, by using general practices and District and Base Hospitals for teaching, the student is able to see more 'bread and butter' medicine.

In 1985, we saw difficult times in the hospital system, especially in the teaching hospitals, brought about by financial and industrial problems. There were extensive cuts in services and bed numbers, which led to a profound effect on clinical teaching. A great deal of pressure was put on the patients in the teaching hospitals and the clinical schools needed to monitor their exposure to students.

Thus it is likely that in the future more and more hospitals will be asked to become involved with undergraduate teaching, not just public hospitals but also private hospitals. There is no substitute for clinical bedside teaching. Although video-recording and other audio-visual aids will be useful for teaching, it is only from patients themselves that students will be able to learn and refine their clinical skills.

*Bernard Sweet  
Associate Dean (Clinical)*

### **St. Vincent's Hospital**

St. Vincent's Hospital Clinical School each year accepts 64 students to commence their clinical training. In fourth year they spend a significant part of their time in Preston and Northcote Community Hospital. This enables students to become familiar with a wide variety of patients and medical conditions. Students continue to be taught in groups with clinical clerking, so familiar to generations of undergraduates, continuing to be the backbone of the teaching programme. However, graduates of yester-year would be interested in hearing of some of the recent innovations in teaching. These include a major emphasis on the teaching of communication skills within the framework of the medical consultation and the use of video-tape to allow self assessment and accurate feedback to students while learning clinical method. Thus the important skills of interviewing and performing a physical examination, which remain the basis of clinical practice in primary medical care and most specialties, can be reinforced.

An interesting feature of recent years has been the number of students who are now taking leave of absence relatively late in the course. There has been a steady increase of students taking leave of absence after fourth year or fifth year. Many of these seek a year's experience in Europe or Asia, familiarizing themselves with medical practice in other countries. One has spent his year working with the Ambulance Service.

Another pleasing first for us in 1985 was the graduation of Dr. Huyen Khanh Le. Dr. Le was our first Vietnamese refugee student to be admitted as a full-time student to the third year of the course based on her medical studies in Vietnam and having satisfactorily completed a qualifying examination at the second year level in 1981. Although a quiet student she has become very much a part of the student body at St. Vincent's. She is likely to pursue a career in general practice, and will be extremely capable of offering health services to the Vietnamese community in Australia. She has forged a path which others will follow.

*Greg Whelan  
Associate Dean (Clinical)*

### **The Royal Melbourne Hospital**

Fourth year started on 4 February which was a week earlier than usual and coincided with the changeover of all resident staff other than interns. After an intensive introductory programme, students had six rotations of six weeks each, medicine and surgery alternating. Rotations to Ballarat Base Hospital (for medicine and surgery) and the Goulburn Valley Base Hospital at Shepparton (for surgery) were again very popular with students; for the first time each student had a country rotation.

In fifth year the students spent most of their time away from the Clinical School, doing obstetrics and gynaecology, paediatrics, psychiatry and community medicine and clinical practice. There was little change in the programme.

As has become usual in final year, about 70% of our students spent part or all of the options period out of Australia. The reduction of hospital work in the Clinical School to 20 weeks (from 24 weeks in 1984) was unpopular with most teachers and some students but most students were relieved to get to the end of the course.

Not only do many of our students go away for electives but many students from other medical schools request electives here. About 25-30 attend each year, mostly in November to March when the pressure on the wards has eased. Requests (almost all from overseas) are rising: in 1984 these numbered 104 and rose to 185 in 1985. These have increased the work of the office staff.

The high level of industrial disputation in the hospitals, particularly in the Royal Melbourne Hospital, caused the cancellation of many elective admissions and the closure of some beds. As this Clinical School is seriously disadvantaged in not having an affiliated suburban hospital, the students found clinical material limited and shared the disappointments and frustrations felt by many staff in all parts of the hospital. The excellent results achieved by the students in the final examinations, despite these problems, reflect both the ability of the students and the efforts of the teachers.

*Roger Melick  
Associate Dean (Clinical)*

## News, People, Appointments



### Professor Priscilla Kincaid-Smith

Professor Priscilla Kincaid-Smith was elected President of the Royal Australasian College of Physicians (RACP) at the College Council meeting in October, 1985. She will hold office from May 1986 to May 1988.

Priscilla Kincaid-Smith was born in South Africa and becomes the first woman president of the RACP. She represented South Africa in both swimming and hockey and trained first in science and then in medicine. She moved to London and worked at the Royal Post-Graduate Medical School in Pathology and Cardiology. Her interest in renal disease sprang from her studies of high blood pressure and its relationship to the kidney.

In 1958 she met an Australian physician, Dr Ken Fairley, shortly before he returned home to Melbourne. She left behind her career in Britain to marry him and come to a country where she had to commence her career from scratch, where there was no such specialty as nephrology and some difficulties for graduates who were female and foreign.

Her achievements are widely known and include the promotion of dialysis and transplantation as integrated treatments of chronic renal failure, the recognition and prevention of analgesic nephropathy in Australia, the relationship between hypertension and the kidney and clinico-pathological correlation in renal disease. Her honours and distinctions are too numerous to record and include a CBE. She was successively first Vice President, President Elect and then President of the International Society of Nephrology and has been a president of the Australasian Society of Nephrology. She served Melbourne University as Assistant Dean in the Faculty of Medicine was awarded a personal chair in medicine at the

University of Melbourne in 1975 when she became the first woman professor in that University.

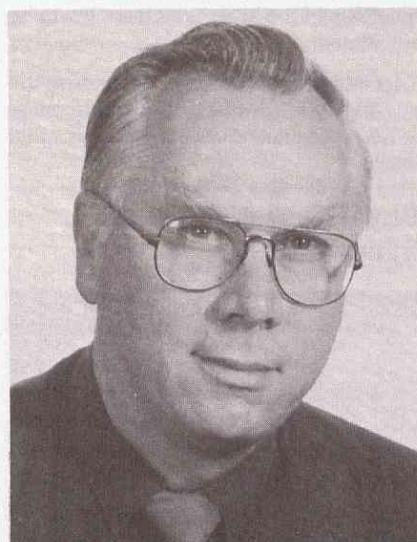
She was also the first woman to be chosen as Sims Travelling Professor by the Royal Colleges. She won the RACP Eric Susman Prize in 1969 and holds a D.Sc. from the University of Witwatersrand, an Honorary Fellowship of the American College of Physicians, an Honorary Fellowship of the Canadian College of Physicians and an Honorary Fellowship of the Royal Post-Graduate Medical School at Hammersmith. She has served on numerous local and international committees including World Health Organisation Committee on analgesics, the National Health and Medical Research Committee on renal failure and is currently serving on ASTEC. She also served on a variety of Victorian Government committees including in vitro fertilization and the Towards 2000 committee.

Her two sons are training in internal medicine at the Royal Melbourne Hospital and her daughter is studying veterinary science. They run 180 red angus breeding cows at a property near Apollo Bay single handed and her principal relaxations are spear fishing and horse riding.

### Promotions to readership

The following were promoted to Reader in 1985: Dr. Bruce Grant and Dr. Bruce Livett of the Department of Biochemistry, and Dr. Alex Lopata of the Department of Obstetrics and Gynaecology, Royal Women's Hospital.

### Dr. Bruce Grant

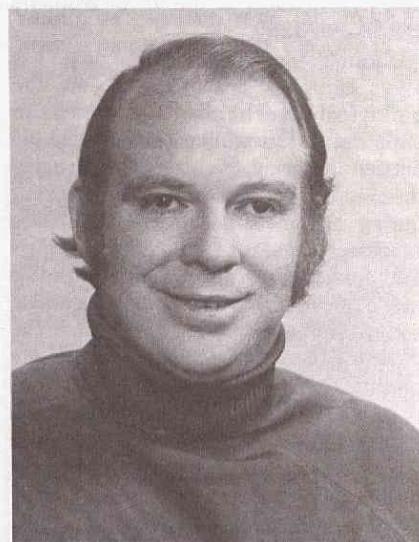


Dr. Grant received his first degree in Agricultural Sciences from the University of Queensland in 1958 and his Ph.D. from Purdue University in 1962. After a two-

year stay in the Department of Cell Physiology at the University of California, Berkeley, he returned to Australia to the CSIRO Division of Fisheries and Oceanography, where he initiated a research programme in marine phytoplankton.

In 1969 he joined the Biology Department at Queens University, Canada, where he continued to work on nitrogen metabolism and photosynthesis. In 1972 he returned to the Department of Biochemistry, University of Melbourne, as a Senior Lecturer, and began a study of the peculiar giant-celled algal genus *Caulerpa*, whose chloroplasts were thought to possess an unusual degree of metabolism and genetic autonomy. His work in this area demonstrated that the unusual properties of these chloroplasts was the result of the alga's wound response which effectively sheathed the chloroplasts in a strong gel of sulphate polysaccharide material. Since 1979 Dr. Grant has worked on the biochemistry and physiology of the fungal pathogen *Phytophthora*. His interest has centred on the zoospore, which is the principal infective agent of this organism, and particularly on the mechanism by which these cells recognize their hosts and respond to the recognition signals by undergoing differentiation.

### Dr. Bruce Livett



Dr. Livett was awarded the Bachelor of Science (Honours) degree in 1965 and Ph.D. in 1968 by Monash University. Over the next 15 years he worked in the University of Oxford, Monash University, McMaster University and McGill University in Canada, before returning to Australia in 1983 to become Senior Lecturer in the Department of Biochemistry, University of Melbourne.

Dr. Livett has achieved international distinction in the field of neurochemistry, particularly in the development and application of immunohistochemical techniques for mapping neuronal pathways containing specific proteins and physiologically active peptides; in providing the first evidence for processing, axonal transport and release of neurophysins from the hypothalamoneurohypophyseal system; and in the development of techniques for isolating and maintaining adrenal medullary chromaffin cells in culture, enabling the study of postsynaptic actions of drugs and neuropeptides.

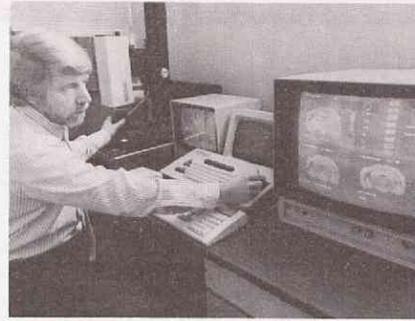
## Dr. Alex Lopata



Dr. Lopata graduated in Medicine at this University in 1961 and completed a Ph.D. degree in the Department of Physiology in 1970. He was appointed as Senior Lecturer in the Department of Obstetrics and Gynaecology at the Royal Women's Hospital in 1980.

During the last ten years Dr. Lopata has been carrying out research on the biological mechanisms involved in initiating and sustaining early human life outside the body. His work has revealed the complex cellular changes which occur during egg maturation and how these processes regulate fertilization *in vitro*. The studies have also provided insights into many of the abnormalities of gamete conjugation and how these influence the growth and viability of embryos that are maintained in nutrient media. The abnormalities of egg maturation and fertilization, observed during these investigations, are also believed to occur during gamete union in the body, and may account for the high reproductive wastage in the human. These findings have also provided a useful guide as to why only one in ten embryos produce normal pregnancies following their placement in the uterus of infertile women being treated by *in vitro* fertilization. The research currently being developed by Dr. Lopata has focused on biological mechanisms for reducing the incidence of abnormal fertilization and the development of methods for detecting anomalous embryonic growth.

## University researcher wins Selwyn Smith Prize



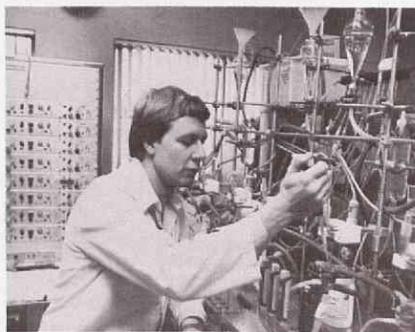
Dr. Frederick Mendelsohn, of the University's Department of Medicine at the Austin Hospital, has been awarded the Selwyn Smith Medical Research Prize for 1985 for research which could have important applications in understanding the action of hormones — the body's chemical 'messengers'. The prize of \$4,500 is awarded for the most important contribution to medical research during the past three years.

Dr. Mendelsohn received the award for his research on the hormone angiotensin, which is involved in raising blood pressure and regulating salt and water balance. The hormone is found in the kidneys, the adrenals and the circulating blood, and is also found in the brain. Using a technique developed while he was in the United States, Dr. Mendelsohn has mapped, for the first time, the precise distribution of angiotensin receptors in various parts of the brain. The receptor-rich sites appear as red or orange regions on computer-generated pictures of the brain. They vary in colour, according to receptor density.

Dr. Mendelsohn found that, in some cases, the binding sites were in areas of the brain which were known to be sensitive to the hormone. In other cases, their presence came as a surprise. The extent of their localization suggests that the hormone has a number of precise functions in the brain which are yet to be elucidated.

Dr. Mendelsohn's team is applying the investigative technique to a whole range of hormones and compounds with fruitful results.

## Physiologist awarded Syme Prize



Dr. Gregory Dusting, an NH&MRC Senior Research Fellow in the Department of

Medicine at the Austin Hospital has been awarded the David Syme Research prize for 1985 for research which could have important implications for the treatment and prevention of heart disease.

The prize, \$2,000 and a medal, is given annually for the most important research contribution in biology, chemistry, geology or physics, preferably research of value to industrial and commercial development. It is the second year in succession that the Syme Prize has gone to a University of Melbourne scientist. The 1984 Prize was awarded to Dr. Ronald Cooper, Reader in Physical Chemistry.

Dr. Dusting and colleagues at the Austin Hospital have identified a potent blood vessel dilator produced by the heart membrane and another by cells lining the blood vessels. The one produced by the endothelial cells of the blood vessels is known for its biological action but has not yet been isolated. It is of particular interest because of its potential use in the treatment and prevention of heart disease. Dr. Dusting believes it may be possible to prevent a heart attack by boosting the body's production of this substance.

The team's research is also throwing new light on the stress-heart attack puzzle. There is a good deal of evidence, Dr. Dusting says, that stress can precipitate a heart attack or a spasm in coronary arteries, yet the direct effect of adrenalin, the potent hormone released during stress, is to dilate the coronary blood vessels. How then can stress cause a heart attack?

Recent research by the team points to thromboxane as a culprit. Adrenalin released during stress appears to react with blood platelets, in a way still unclear, to increase the production of thromboxane. Thromboxane has a dual effect. By a series of reactions, more complex than previously thought, it causes the platelets to clump together, and it constricts the arteries. "The adrenalin-platelet mechanism is quite a new mechanism which we are exploring in detail," he says. "It raises some very important issues — how adrenalin works, its role in angina, and, particularly, its role in arterial spasm."

Dr. Dusting's co-workers over the past three years have been Professor Austin Doyle of the Department of Medicine at the Austin Hospital, Professor Jack Martin of the Department of Medicine at the Repatriation General Hospital, post-graduate students, Maryann Purchase and Roger Nolan, Dr. Owen Woodman and Dr. Dennis Li, and postdoctoral fellows, Dr. Janina Stashevskva of the Pharmacology Department and cardiologist Dr. Peter MacDonald.

The research is funded by the National Health and Medical Research Council and the National Heart Foundation. Support has also come from the Australian Tobacco Research Foundation.

## New Hospital Professor Director



Professor Richard Fox has been appointed the new Professor/Director of Haematology at the Royal Melbourne Hospital.

Professor Fox has played a major role in international conferences relating to cancer and blood diseases and was joint editor of a book, *Nucleosides and Cancer Treatment*. Before joining the Royal Melbourne Hospital he was Professor of Cancer Medicine at the University of Sydney and Associate Director of the Ludwig Institute for Cancer Research at the Royal Prince Alfred Hospital. He graduated and completed a Doctor of Philosophy at the University of Sydney and after five years as Resident Medical Officer and Medical Registrar at the Royal Prince Alfred Hospital, became a research fellow at the University of Sydney. He held a similar post in the Division of Haematology and Oncology at the University of California and in 1973 became Honorary Registrar in the Medical Research Council Leukaemia Unit at the University of London. From 1974-1977 he was a senior lecturer in Monash University's Department of Medicine located at Prince Henry's Hospital.

## Our bionic ear goes international

The bionic ear developed by a University research team in collaboration with the Sydney hi-tech biomedical firm, Nucleus Limited, has spawned sister companies with the purpose of developing, marketing and selling the device internationally. The companies — Cochlear Pty. Ltd. based in Sydney, and its U.S. off-shoot, Cochlear Corporation based in Denver, Colorado — will market the cochlear implant device which has taken the Melbourne and Sydney collaborators more than 15 years and \$6 million to devise, test and refine. Both Cochlear Pty. Ltd. and Cochlear Corporation are subsidiaries of Nucleus, which won the contract for commercial development of the implant in 1981.

According to research team leader, Professor Graeme Clark, the bionic ear has "come of age". Professor Clark is in the University's Department of Otolaryngology at the Royal Victorian Eye and Ear Hospital. "The formation of these companies is an indication of how well the bionic ear is performing in clinical trials," he says. "It is becoming accepted as a device of significant value to the profoundly and severely deaf."

Already approximately 30 deaf people in Melbourne and Sydney as well as participants in clinical trials in the United States, Canada and West Germany have been helped by the implant. It is estimated that in Australia alone hundreds of profoundly and totally deaf people could benefit from the device.

According to Professor Clark, important research design decisions made 15 years ago are now paying dividends. The Australian bionic ear is arguably the most advanced of the handful of different cochlear implants undergoing clinical trial worldwide, having the potential to provide more information about speech sounds than other devices.

"We are finding that a significant proportion of the profoundly and totally deaf patients using the implants can converse without the help of lip-reading skills," Professor Clark says. "For example, one-third or more of our patients can understand running speech on the telephone, an achievement not demonstrated with other cochlear implants. Indeed, a real drawback of this device is that it is the first to help deaf people to understand running speech."

As yet, the device can be used only by people who are postlingually deaf, that is, those who have become deaf after learning to talk. It is possible, however, that individuals deaf from birth or from early childhood before the crucial period of language development (that is, those who are pre-lingually deaf) may be helped to understand speech and to acquire a reasonable-quality speaking voice.

The Melbourne team intends using part of a \$1 million five-year grant from Australia's National Health and Medical Research Council specifically for this purpose. "We will be working initially with pre-lingually deaf children aged less than 10," Professor Clark says. "The reason for choosing this group is that understanding and reproducing speech becomes progressively difficult for pre-lingually deaf people as they get older."

Professor Clark says the device could never have achieved its present high level of sophistication without the support of numerous corporate and individual beneficiaries. Nucleus Limited, service organizations, the Channel 10 Telethon, the Deafness Foundation of Victoria, and supporting grants from the University of Melbourne, the Federal and Victorian Governments and the National Health and Medical Research Council.

The University can expect to reap some financial benefits from the bionic ear which is subject to patent and royalty agreements. A Nucleus spokesman said a return on the investment made will start flowing as early as next year.

## Honour for Professor Hare

Professor W.S.C. Hare, of the Department of Radiology was admitted to honorary membership of the Radiological Society of North America at its annual congress in Washington late last year. Presenting Professor Hare for membership, the Society said he was a leader in the development of radiology in Australia.

"Dr. Hare was the catalyst in a small group of radiologists that set the foundations for the teaching and research base of Australian medical schools. Recognition came in 1965 when he was appointed the Edgar Rouse Professor of Radiology at the University of Melbourne, the first chair of radiology in Australia. Over the past 25 years there has been striking growth in Australian radiology. The external influences have been from the United Kingdom and more recently from the United States," the Society said.

Dr. Hare is the author of 61 papers and has been very active in the professional activities in his home state and Australia. He was the Founding President of the Asian and Oceanian Society of Radiology in 1971, and continues in the development of radiology services in the Pacific rim as the Honorary Secretary/Treasurer since 1983.

"Rich links of scientific exchange and friendship are developing between radiologists in Australia and North America, largely through the efforts of individuals like Dr. Hare."

## Honorary degree for President of Ireland



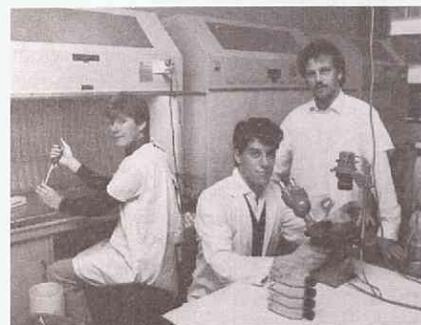
Chairman of the Academic Board, Professor Kwong Lee Dow, reads the citation for Dr Hillery's honorary degree as the Chancellor Professor Emeritus Sir Douglas Wright looks on.

The President of Ireland, His Excellency Dr. Patrick Hillery, was awarded an honorary degree of Doctor of Laws at a special conferring ceremony at the University. The conferring was held during

Dr. Hillery's recent visit to Australia. He is the first Irish head of state to visit Australia while in office.

Dr. Hillery was appointed President in 1976. He graduated from University College, Dublin, with the degrees of Bachelor of Science, Medicine, Surgery and Obstetrics. In 1951 he was elected as Fianna Fail member of the Irish Parliament for West Clare and was Minister for Education from 1959 to 1965. From 1965 to 1966 he was Minister for Industry and Commerce, and Foreign Minister from 1969 to 1972.

## New methods devised in cancer treatment



Dr. Geoffrey Pietersz, right, with research students — Mark Smith, left, and Jerry Kanellos.

The unusual strategy of interfacing organic chemists with biological scientists is paying dividends at the University's Research Centre for Cancer and Transplantation. During the past two years, the chemistry/biology mix of the Centre's bio-organic group has resulted in several promising methods of pinpointing and treating various cancers. The methods devised by the group, which are currently the subject of patent applications, use antibodies as 'carriers' for several types of 'cargo.' (Antibodies are defensive substances geared to rendering intruders, including cancer cells, harmless).

In some cases, the cargo consists of radioactive isotopes which enable scientists to locate and establish the size of a cancer; in other instances, the cargo is a powerful toxin capable of destroying the cancer. The latter combination of carrier and toxic cargo is known as the 'magic bullet' approach to cancer treatment.

Leader of the bio-organic group, Dr. Geoffrey Pietersz, obtained his doctorate in organic chemistry from the University of Melbourne before turning his attention to the art of coupling antibodies to radioactive isotopes or anti-cancer drugs. He was recruited in 1982 from the Department of Chemistry following completion of his Ph.D. thesis on a subject seemingly remote from cancer research — the characterization and synthesis of the yellow pigments of common garden aphids. He has since been joined by Ph.D. students Jerry Kanellos and Mark Smith

(chemistry/biochemistry and pathology/biochemistry majors respectively), and by Anthony Mitchell, a graduate chemist and technical assistant.

Dr. Pietersz concedes that the jump from aphids to cancer research is considerable but contends that organic chemistry has much to offer medical research. Advances in cancer detection and treatment, he believes, will rely increasingly on closer interaction between scientific disciplines. He says, "Biochemists are familiar with basic organic chemical reactions, but when it comes to working out new reactions or new drug analogues, more than basic organic chemistry is required.

"At the same time, a comprehensive chemical knowledge is insufficient by itself. It must go hand in hand with a 'feel' for the biology of human and animal systems because these tend to be more sensitive to temperature and chemical manipulation than the systems familiar to the organic chemist."

Insights from organic chemistry have enabled the group to devise methods of linking the relatively lightweight radioactive isotopes and anti-cancer chemicals to the much heavier animal and human antibody molecules. Large quantities of identical antibodies can be produced in sophisticated laboratories such as those of the Research Centre for Cancer and Transplantation. Known as 'monoclonal antibodies', they are specific to particular cancers, such as those of the breast, lung, colon and skin.

Dr. Pietersz: "After various manipulations, we have devised a method of linking cancer antibodies to a new organic compound, the Technitium radioactive pharmaceutical known as Tetrachloronitridotechnitium 99M (discovered last year by researchers from the Australian Radiation Laboratories). Our work with animals indicates that this radioisotope/antibody complex may have significant advantages over other such complexes currently employed to determine the location of tumours. These advantages include its apparently greater sensitivity (enabling imaging of smaller tumours than is currently possible), its stability, the reduced dose of radiation to which treated subjects are exposed, its low cost and ease of production."

Although the Technitium 99M/antibody complex has proved successful in the laboratory, it has still to be tested in the clinical setting.

The second major recent achievement of the group is the discovery of a method of coupling the powerful plant toxin, ricin, to specific cancer antibodies. Ricin, derived from castor bean seeds (from which castor oil is also extracted), has long been recognized as a powerful killer of cancer cells. (It is thousands of times more toxic than conventional anti-cancer drugs). Its use in humans has been limited, however because of its damaging 'non-specific' effects on normal body cells.

The bio-organic group's method of linking ricin to cancer antibodies seems to have overcome this problem, blocking the non-specific actions of the toxin and thus confining its activity to the destruction of the abnormal cancer cells.

"Our work with animals indicates that ricin/antibody complexes may provide a powerful new way of treating solid tumours in humans," says Dr. Pietersz. "After removing the tumour surgically, the ricin/antibody complex could be injected into the bloodstream to destroy any remaining cancer cells or tumour fragments. In some cases it might be possible to inject the complex directly into the tumour."

The use of ricin as the 'warhead' of a 'magic bullet' targeted directly at cancer cells, has proved effective in destroying cancers in mice that are growing beneath the skin surface. Dr. Pietersz: "As well as the prospect of greater effectiveness, this compound may be cheaper than conventional anti-cancer drugs because the ricin can be extracted easily from castor beans and because its potency means that less of it is required in the treatment."

While the ricin/antibody complex holds promise of an important new method of enhancing the destructive powers of antibodies, Dr. Pietersz says that further work is necessary before seeking ethical approval for its use in patients. "We need, for example, to determine optimum dosage levels and to ascertain precisely what effect the ricin/antibody complex is having on cancerous and normal cells."

There is still a long way to go, but Dr. Pietersz and his colleagues believe that their inter-disciplinary approach will result in the earlier detection of cancers and the deployment of more potent anti-cancer agents, with fewer side-effects for patients.

## Teaching 'lab' classes in physiology by micro-computer



The University's Department of Physiology has always placed great emphasis on laboratory-based teaching for its science, dental science, medical and optometry students. Recently staff members introduced a novel micro-computer project to meet the need to replace obsolete undergraduate teaching laboratory apparatus. As well as saving in funds, the Department has been able to

explore the potential of computer-managed learning.

In the present pilot project the Department has exploited this possibility by structuring practical sessions around three teaching components:

- Preliminary computer-based interactive review of related lecture material;
- use of the computer as a data-acquisition/display device in the experimental phase of the session, and
- extension of student 'hands on' experience with the use of computer-based stimulations, into areas which would normally be too difficult technically or too expensive for them to tackle.

The primary need has been for a machine capable of supporting available software to function as an oscilloscope and chart recorder suitable for students. The computer must have the facility to accept input from peripheral devices in a 'real time' experimental mode. These specifications have limited students to 8 bit machines, but in the future they hope to move to 16 bit computers — if and when the software is produced.

During October a pilot evaluation trial was conducted using four student computer work stations in a series of first year medical practical classes. The mobile work stations incorporate the micro-computer and the additional auxiliary devices for the acquisition of data and the production of hard copy results. The project budget is approximately \$25,000; \$9,000 from Physiology Department funds and \$16,000 from a Medical Faculty Development Grant jointly to the Departments of Physiology and Pharmacology.

Preliminary evaluation has shown that from the students' view, an important aspect in the introduction of computers has been to use the computer right from the outset in an experiment; this ensures that the computer is perceived clearly by the students as a tool and a resource.

The Department would also like to emphasize the importance of a team approach bringing together individuals with a range of complementary skills. The team comprises four people. Electronics support from Departmental Technical Officers, Charles Chlebowczyk and Lindsay Dally has dealt not only with installation matters but also with the design and construction of original circuitry for auxiliary equipment. Two academic staff members, Bob Kemm and Lea Delbridge have collaborated to 'customize' the hardware and software for student use. Bob has had a long involvement with the development of laboratory software and hardware for research purposes. His interest in the application of computing technology in undergraduate learning management has evolved from his experiences in the teaching of computing to graduate students. Lea has a specialist interest in tertiary education methodology and

technology. She is participating in a Diploma of Tertiary Education Course conducted by the CSHE.

From 1985 the Department will be seeking funds for progressive major re-equipping of teaching laboratories. The cost will amount to about \$400,000. At the same time field trials will be extended to other student groups and new experiments. The Department believes a cautious approach is vital in this area of rapidly changing computer technology with its problems in obtaining suitable support software and hardware.

### **New Professor for Austin Hospital Chair**

Professor Colin Johnston, Professor of Medicine at Monash University and Physician and Chairman of the Medical Division at Prince Henry's Hospital, has been appointed to the University of Melbourne's Chair of Medicine at the Austin Hospital. Professor Johnston succeeds Professor Austin Doyle, the Foundation Professor, who retired on December 31, 1985.

After qualifying for the degrees of Bachelor of Medicine and Bachelor of Surgery at the University of Sydney in 1957, Professor Johnston had appointments at the Royal Prince Alfred Hospital and three years research in the United States. In 1968 he was appointed First Assistant in the University of Melbourne's Department of Medicine at the Austin Hospital. He was appointed Reader in 1971. During that time Professor Johnston held hospital appointments as Senior Physician at the Austin, Consultant Physician to the Professorial Unit at the Royal Women's Hospital and Physician at the Mercy Maternity Hospital.

Professor Johnston took the chair at Monash in 1973 and was Chairman of the University's Department of Medicine from 1978 to 1982. He has been a member of the Board of Management of Prince Henry's Hospital since 1979 and in 1984 was Vice-President from 1981 to 1983 he was Associate Dean of the Faculty of Medicine at Monash.

Professor Johnston is engaged in research on renal and hormonal control of blood pressure and their role in pathogenesis of hypertension, localization and role of kallikrein-kinin system, cardiovascular adrenergic receptors, regulation of cyclic AMP by the kidney and also studies on hormones and heart failure. He has produced, either singly or jointly, more than 200 publications in journals of high international standing. Since 1972 he has attracted more than \$1.3 million in research grants.

## **Retirements**

### **Austin Eric Doyle**

Austin Eric Doyle was born in Yorkshire on 2 August 1923 and graduated in medicine at the University of London (Guy's Hospital) in 1947. After a period as a Surgeon Lieutenant in the Royal Navy before his early postgraduate training in the U.K. (Postgraduate Medical School, Hammersmith Hospital) and New Zealand (University of Otago), he came to Australia as First Assistant in the University of Melbourne, Department of Medicine at the Royal Melbourne Hospital, a position he held from 1957 to 1966. In that year he took up the appointment as Foundation Professor and Chairman in the University of Melbourne, Department of Medicine at the Austin Hospital. Over the next several years he developed this department into one which is recognized nationally and internationally for its contributions in medical research and basic science. At the same time his influence has been the major factor in the Austin Hospital's development of clinical standards to its acknowledged very high level. The success of the hospital and the university department owes much to his gifts of leadership, which attracted a succession of staff who have worked in his department and gone on to head departments in various parts of Australia and overseas.

Throughout this time he has also developed his own research on the mechanisms and treatment of high blood pressure, and trained and fostered the careers of a succession of investigators. His work on hypertension has been accorded high international recognition for several years. He has been a council member of the International Society of Hypertension since 1976 and President of that society until 1982. His activities in that body have contributed substantially to international recognition of Australia as one of the top few countries in high blood pressure research. As a key member of the Committee of Management of the National Blood Pressure Studies organized and held in Australia in the 1970s, he contributed substantially to the understanding and treatment of this public health problem. He has had a major influence on national and international attitudes to the treatment of high blood pressure.

He has published extensively and contributed as Editorial Board member of journals, has been a member of the Scientific Advisory Committee of the Australian Tobacco Research Foundation and Chairman of the Australian Council for High Blood Pressure Research for several years. He has been at various times Chairman of the Medical Manpower Advisory Committee, R.A.C.P., council member and President both of the Australian Society for Clinical and Experimental Pharmacology and the Australian Society of Nephrology, and council member of the R.A.C.P.

Professor Doyle has contributed outstandingly to academic development in this university. A long list of medical and non-medical scientists planning to return to Australia after working overseas can thank him for his advice and encouragement, and very often for a place in a department in which to begin their careers. His open and generous policy in this respect has been rewarded by the success of many of these physicians and scientists.

The influence of Professor Doyle on academic medicine has been in all the areas of clinical practice, teaching and research. He has been an outstanding contributor to Australian medicine, medical science and medical education.

### **Francis John Raymond Hird**

Frank John Raymond Hird was born in 1920. His Bachelor's degree in Agricultural Science was First Class, and he was awarded numbers of Exhibitions. As a Sir John and Lady Higgins Research Scholar he took his Master's degree in Agriculture in 1947 in the Department of Biochemistry and following some preliminary work in that department, he spent the years 1949-1950 at the Sir William Dunn Institute of Biochemistry in Cambridge where he was awarded the degree of Doctor of Philosophy. Returning to the Department of Biochemistry in Melbourne, he became a Senior Lecturer in 1951, a Reader in 1957 and in June 1964 was appointed to a Chair in Biochemistry. In 1962 he was awarded the degree of Doctor of Science.

In a research career spanning forty years we see a trained, incisive mind interacting with polished laboratory techniques to throw light on a range of biological phenomena. These phenomena have ranged from studies on proteins and enzymes, to studies on cell organelles, whole cell preparations, organs and whole animals. In the process of these studies Frank Hird made significant contributions to knowledge.

Frank Hird has had an outstanding career as a teacher, both at undergraduate and postgraduate levels. Many postgraduate students have had cause to reflect on his ruthless pruning of their

manuscripts so that the essence should emerge, and many of those have taken the lesson so to heart that they have gone on to make a name for themselves in their own right. All of them must have profited by his insistence on clean, controlled technique, on straightforward prose and on their having the clearest possible view of where they were going and what they were doing. He insisted that everything they did or wrote must be based on reason and knowledge. He lectured always without notes of any sort — it suited his temperament and concentrated his mind. His lecturing career commenced as long ago as 1948; recently he gave his last lecture as a Professor of Biochemistry and the first and the last were, quite appropriately, delivered to agriculture students. As he grew more experienced in lecturing, he was able to indulge in a few eccentricities — his great weakness, the limerick, could sometimes be heard in the lecture halls.

Frank Hird gave generously of his time in the wider work of the University. As Dean of Science, he launched the Faculty into the modern ways of administration. As Chairman of Department he was noted for his sensibility and absolute fairness. On University committees he was a vigorous and vocal defender of the rights and responsibilities of students and staff. His unmasking of bureaucratic and academic humbug was frequently delivered with wit and sometimes with a provocative frivolity which perhaps detracted from the seriousness of his arguments. Nevertheless, his forthright comments sparked some major initiatives in the University, particularly in the promotion of research and scholarship. We have reason to be thankful for his outspokenness even if disagreeing with some of what he said. We shall miss him from our staff as a scientist, as a teacher, as a colleague and as a man.

### **Simon Joshua Leach**

Simon Joshua Leach was born at Salford, U.K. on 13 September 1920. His undergraduate education was at the University of Manchester where he obtained a B.Sc.Tech. (Hons 1) degree in 1942. Immediately after graduation he worked as a chemical engineer at the Manchester Oil Refinery. In 1946 he began postgraduate studies and was employed as a

Research Assistant in the Department of Physical Chemistry at the University of Leeds. He was awarded a Ph.D. in 1949.

He moved immediately to the Division of Protein Chemistry of CSIRO where he progressed to become a Senior Principal Research Scientist before his appointment to a Chair of Biochemistry at the University of Melbourne in 1968. His years at CSIRO were marked by a series of fundamental papers on the chemistry of proteins. Many of his studies were related to the chemistry and chemical treatment of wool. He forged a very valuable association at this time with Harold Scheraga and George Nemethy of the Cornell School of Protein Chemistry and a series of collaborative projects concerning the computation and prediction of the conformation of proteins has continued to the present day.

Professor Leach pursued these studies with energy, imagination and flair on his appointment to the University of Melbourne. He was awarded a D.Sc. from the University of Leeds in 1970. Between 1969 and 1973 he edited a three-volume work which remained a standard treatise on protein chemistry for many years. He has served on the editorial boards of a number of biological science journals.

During the late 1960's there was extraordinary activity and progress in the field of molecular immunology and Professor Leach was amongst the first to examine the link between polypeptide conformation and antigenicity. This has been his major interest in recent years.

Professor Leach has been an enthusiastic and successful communicator of his science. He has been an outstanding teacher and has attracted extremely talented people to work in his laboratory. Many of his former students now occupy senior posts in universities and research institutes throughout the world.

Professor Leach has made substantial contributions to science and to the academic life of this university. At a time when protein chemistry, in association with molecular biology, is becoming more important as a fundamental area of biochemistry and biotechnology, it is to be hoped that his leadership and experience will continue to enhance the activities of the scientific community of Melbourne.

## Obituaries

### Sir Macfarlane Burnet — “wisdom of an almost spiritual kind”

*Professor Sir Gustav Nossal, Professor of Medical Biology and Director of the Walter and Eliza Hall Institute of Medical Research, paid a personal tribute to Sir Macfarlane Burnet at Sir Macfarlane's funeral on 5 September 1985. Sir Macfarlane died on 31 August. The following is an edited version:*

Frank Macfarlane Burnet died peacefully on Saturday 31 August, three days before what would have been his 86th birthday. It is my privilege to present a brief personal tribute to the life of Sir Macfarlane, who was unquestionably one of the fathers of Australian medical science and one of this century's greatest biologists.

The bare bones of Sir Macfarlane's *curriculum vitae* can be recounted briefly. He graduated in Medicine from the University of Melbourne in 1922, and became an intern and then pathology registrar at the Melbourne Hospital. There, he soon attracted the attention of Dr. Charles Kellaway, the second Director of the Walter and Eliza Hall Institute, who took him under his wing. Soon after a two-year apprenticeship period at the Lister Institute in London, Burnet became Kellaway's Assistant Director, and, apart from a second stint in the United Kingdom in 1932-33, Burnet's whole career was at the Institute which he led from 1944 to 1965. In all, 60 years were dedicated to the Institute and its affiliated parents, the University of Melbourne and the Royal Melbourne Hospital.

Three intertwined threads can be detected in Burnet's scientific work. First, there is Burnet the microbe-hunter. His early work stands in the mainstream of this great tradition handed down from Louis Pasteur and Robert Koch. To isolate new viruses was difficult and dangerous, but desperately important for control through immunization and public health measures. His work in this field, including influenza, poliomyelitis, herpes viruses, scrub typhus, Q fever and many others, would alone have merited an international reputation. But for Burnet, the isolation of a new virus was the beginning, not the end.

The second strand involved Burnet as the inspired seeker of the nature of the life process. Viruses were the smallest and simplest forms of life. Study of how they divided inside the host cell, involving simple yet elegant techniques, revealed many secrets of biological organization. This thread was woven into a unique and beautiful tapestry through a blending of separate disciplines. Concepts were borrowed from microbiology, genetics, biochemistry, epidemiology and ecology to synthesize an holistic construct of the natural history and biology of infectious diseases. Rene Dubos is the only other person who has ever had equivalent daring.

The third strand shows Burnet as the chief architect of the stunningly profound insights that we now possess concerning the body's immune defence system. Burnet's brilliant theorizing revealed how the white cells of the blood make the myriad forms of antibody that protect us against disease, and how these white cells cleverly discern that they must *not* make antibodies against the many tissues of the body itself. Indeed, the birth of the new

immunology, with its deep implications for many aspects of medicine, including organ transplantation, auto-immune diseases, cancer and immune deficiencies, dates from, and is in no small measure due to, Burnet's full-time involvement in immunology from 1957 onwards.

What scientific qualities permitted this sustained and protean creativity? Originality, imagination and intuition are foremost. Were it not such a cliché, I would be tempted to say that the description “lateral thinker” was invented for Burnet. His work was infused by a fierce desire to extract general truths from particular experiments, permitting nature's plan to be seen as a seamless web. He was firmly convinced that the most precious truths of nature were essentially simple, and would be revealed to the honest and persistent searcher if pursued with sufficient single-mindedness. Finally, an openness to new discoveries made by others, accessed through wide and disciplined reading, allowed Burnet to use the whole world as his laboratory. The sum of international medical research provided fuel for the constantly evolving pattern of his theoretical framework.

This committed Australian worked in Melbourne, with a relatively small group of gifted colleagues and students. He was supported by Australian resources and published largely in Australian journals. The work, however, flowed into *world science*, first as a trickle, then as a stream and finally, in the immunological era, as an overwhelming flood. A grateful scientific world responded with the highest honours the peer group can bestow. He was elected to the Royal Society of London in 1942 and later won its Royal and Copley Medals. He was a Foundation Fellow of the Australian Academy of Science and served as its President from 1965 to 1969. He received numerous honorary doctorates, fellowships and foreign prizes. The ultimate reward, the Nobel Prize for Medicine, came in 1960 for his work in immunology. This widespread recognition of unique worth helped Burnet to overcome his natural shyness, leading to an extraordinary final chapter of his career.

Sir Macfarlane retired in 1965, and was invited by the late Professor Sydney Rubbo to be a guest professor in the Department of Microbiology of the University. There, his gift as a generalist found a new outlet in a profusion of writing, chiefly popular science, sociology and philosophy. No fewer than 16 books emerged in as many years. He also lectured widely, and was much sought by the media. His views were not always popular, for example his gloomy prognostications about the impossibility of a cure for cancer or his brief but loudly voiced disillusionment with molecular biology. But, popular or not, Burnet believed he had earned the right to speak out with conviction, his honest views unshaded by opportunism. The depth and originality of his mind shone through every presentation. Burnet was never obvious and never trivial.

How can I personally ever repay the debt I owe Mac Burnet, my mentor and cherished friend? He propelled me into the international arena, he early gave me broad hints of his plans for me, he finally made it clear that I

was his chosen successor. The answer, of course, is that I can never repay, and that his passing leaves an irreparable gap. But as we celebrate this phenomenal life, I can declare that the Burnetian legacy lives on within the Walter and Eliza Hall Institute. I and the many whom he set on the pathway to discovery cannot emulate the elegance of his mind, but we can remember and sustain the pure flame of his passionate search for truth.

## David Derham — a personal tribute

*By David Caro, Vice-Chancellor*

With the death of David Derham on 1 September 1985, the University of Melbourne lost one of its greatest friends and supporters. For those who knew him well, his last few years as he struggled against illness were sad. However he lived those years as he lived his whole life — with great courage and with a continuing and consuming interest in the things he held dear.

Apart from his family, Sir David's abiding interest was this University and its role in the community. Throughout his 14 years as Vice-Chancellor, a period of rapid and sometimes turbulent change, he never spared himself. For part of that time I worked with him closely and admired his grasp of detail, his mental energy and determination to achieve the best possible result for this University. At the same time, in national and international arenas, he enhanced Australia's role in tertiary education.

David Derham's involvement with the University began almost 50 years ago. Born in Melbourne in 1920, he attended Trinity Grammar School and Scotch College before entering Ormond College in 1938.

He interrupted his studies to serve in the War, rising to the rank of major and earning an MBE for his services. Returning to the University in 1946, he completed the degrees of BA (Hons) and LL.M in 1947. In 1948-49 he served articles with the solicitors' firm, Moule, Hamilton and Derham. In 1949 he went to the Bar and also became a tutor in law at Queens College and an independent lecturer in constitutional law. In July 1951, at the age of 30, he succeeded George Paton as Professor of Jurisprudence. For the next 12 years he occupied the Chair of Jurisprudence and won an international reputation as a scholar and teacher.

David Derham served as Vice-Chairman of the Professorial Board and as a member of Council. He wrote articles and chapters of books on the Australian Constitution, legal personality and political pluralism and edited Paton's standard text on jurisprudence. In 1964 he was elected a Fellow of what is now the Australian Academy of Social Sciences.

In 1964 he became Foundation Dean of the Faculty of Law at Monash University. He planned the School with what has been described as "a nice blend of respect for tradition and recognition of future needs". When he resigned as Dean in 1968, Monash recognized his service by conferring on him an honorary LL.D and by naming the David Derham School of Law in his honour. He was further honoured with a CMG.

Let us recap the unique spectrum of Sir Macfarlane's gifts: originality, imagination, intuition, naive honesty, conceptual breadth and daring, and, yes, wisdom of an almost spiritual kind. No-one who has known him will lightly apply the adjective "great" to another. No-one who loves Australian science will ever forget his example.

In November 1967, David Derham accepted the invitation to succeed Sir George Paton as Vice-Chancellor of this University. He inherited the complex problems of an old institution, but proceeded to master its complexities.

It was a testing time and the University was in trouble. A public inquiry into the University's administration had sapped public and institutional confidence and it became his responsibility to usher in a new structure for a modern university. He needed to accomplish this at a time when the University had to reduce expenditure drastically.

I was chairman of a department and will long remember the basic budget exercise. David Derham visited each department putting the case for cuts in the budget, persuading and arguing until he gained acceptance. It was not a task designed to win friends but he undertook the job with skill, vigour and finesse. While no-one enjoyed it, we all learned to respect him for his courage and determination to perform an unpleasant, but essential task.

As Vice-Chancellor there is no doubt that his achievement was significant. Of course, the developments were not his alone, but he kept a close watch on every aspect of administration.

Awarding him an honorary Doctorate of Laws after his retirement in 1982, the University recorded: "His capacity for sustained hard work was matched with a rare ability to discern the implications of an action . . . he scorned to sacrifice performance to popularity, or the long-term interests of the University to short-term convenience, an attitude which could be sustained only with remarkable courage during the difficult years of student dissidence . . . always a strong vice-chancellor, capable of exercising firm personal authority, he deliberately devolved processes of decision from the centre to the faculties and departments and sought the involvement of all academic staff in reaching decisions on academic aims and the deployment of resources. No individual could believe more passionately in the ideal of collective academic governance . . ."

As Vice-Chancellor, David Derham had to restrict his commitments to non-University organizations. He remained Chairman of the Overseas Service Bureau, from 1965 until 1981, a member of the Board of Management of the Walter and Eliza Hall Institute of Medical Research. He was also Chairman of the Board of Management of the Melbourne Theatre Company, one of the University's most notable initiatives in the community's cultural life.

David Derham's achievements were recognized throughout the Commonwealth. An influential member of the Australian Vice-Chancellors' Committee from 1968, and its Chairman in 1975-76, his views were respected by his colleagues and by governments. He was made a Knight Commander of the Order of the British Empire in 1977. In 1981 the Association of Commonwealth Universities awarded him the Symons Award for his outstanding contribution to the welfare of universities.

His respect for tradition and his ability to cope with change made him a great vice-chancellor. He believed a

university should demonstrate its excellence by the quality of its teaching and research — a concept of excellence to which he dedicated his life.

For me, the six years I spent as David's deputy were perhaps the happiest I have known. I believe he was for the University, as he certainly was for me, a person of enormous influence and a very great friend.

To his wife, Rosemary, and his children, Pen, Kathie and Mark go our deep sympathy, and our thanks for sharing him with us for so long.

## Sir John Lewtas Frew

By M J Eadie

Sir John (Jock) Frew, the eminent Melbourne physician, was born on September 10, 1912. He died suddenly on May 8, 1985, only four days after chairing a meeting of the Australian Drug Evaluation Committee in Sydney.

Jock Frew attained widespread professional recognition at a comparatively early stage of his career, and remained in the forefront of Australian medicine for over three decades. A generation of aspiring physicians, myself among them, knew him as an influential Censor of The Royal Australasian College of Physicians, and later as its Censor-in-Chief (1966-1970), its Vice-President (1970-1972) and, ultimately, its President (1972-1974). For many years he was a member of the Pharmaceutical Benefits Advisory Committee and President of the Committee of Management of his beloved Royal Melbourne Hospital, and for a time he served as a Commissioner of the Commonwealth Serum Laboratories. At the time of his death he was a member of the NH&MRC Medical Research Ethics Committee, and Chairman of the Board of the Freemasons' Hospital in Melbourne. He had a very large consulting practice, and his opinion was widely sought, and respected, by the government, and by individual members of the government in a private capacity, both here and in Malaysia.

At first acquaintance, Jock Frew may have seemed to some a rather enigmatic and perhaps intimidating figure. It was not that he looked aloof — rather, the reverse — but there was also an element of the maverick in him. Even when mingling easily in a group of men, there was something in his quality of mind which set him a little apart from his fellows. It took time to understand what lay behind Jock's outward manner. He and I were early risers and over a decade, it was my good fortune to share breakfast with him several times a year at Pharmaceutical Benefits Committee meetings. Gradually I began to understand him a little, and came to realize that his teasing and banter meant that he liked you, and that he was quite touched when he realized that he was liked in turn.

Jock would have admitted that he was a workaholic. After Friday meetings in Sydney or Canberra he would fly back to Melbourne, visit his patients in various private

hospitals, and chair one or other of his committees, before going home. Despite the size of his practice, his advancing years and his many professional and community activities, he remained thoroughly up-to-date in his knowledge of medicine, and was always very carefully prepared for committee meetings.

Although Jock's recreation was listed in *Who's Who* as Rugby Union football, it was of cricket that he talked. He took whole days off to watch first-class matches at the Melbourne and Sydney Cricket Grounds, and once he let slip that he spent his Saturday afternoons in summer sitting on the grass watching Melbourne district cricket, going to the pavilion at the tea-break to buy a cup of tea and piece of cake 'to help the club'. But the great concern and centre of his life was medicine, and all that went with it — his patients, protégés and colleagues, his hospitals, the RACP and the whole of the physician's art. Jock Frew had a high ideal of how a physician should act, and he lived by this. He was a thoroughly competent professional, who saw his own knighthood as a recognition of the role and status of the consultant physician. Believing that a physician is called to serve, he willingly gave his time and energies to many professional and community bodies and activities. It was, I think, a source of quiet satisfaction to him that, over all his years of being widely consulted by his professional colleagues for their own illnesses, he could say he had never knowingly sought a fee from any.

In these days of highly specialized medical practice, Jock Frew may have been almost the last of a generation of great Australian consultant general physicians. His wisdom in clinical practice, his humour and humanity, the extent of his knowledge, his quickness and penetration of intellect, and his slightly unusual cast of mind are quite irreplaceable. We can but be grateful for a physician's life lived true to his own fine ideals, and hope that Lady Frew and her family may find some consolation in that knowledge, and in the realization of how greatly Jock will be missed, and how affectionately remembered, by his old colleagues, especially those on the Australian Drug Evaluation Committee and the Pharmaceutical Benefits Advisory Committee.

## NH&MRC Grants Top \$5.4 Million

Researchers at the University of Melbourne will receive a total of \$5,492,458 from the National Health and Medical Research Council to support 85 research projects and programs in 1986.

The University has received \$1,410,801 for 33 new projects and \$2,647,797 for 47 continuing projects.

Five continuing programs will receive \$1,433,860 in 1985.

The NH&MRC awarded Australian researchers a total of \$31,756,300 for project grants and \$6,233,998 for program grants in 1986.

### Program Grants

#### Commitments:

Professor G.M. Clark — *Studies to develop sensory prostheses for deaf children and adults* — (\$211,857).  
 Professor W.J. Louis, Dr B. Jarrott — *Biochemical pharmacology of anti-hypertensive and other cardiovascular drugs* — (\$500,141).  
 Professor T.J. Martin — *Hormonal and cellular regulation of bone resorption and formation* — (\$233,362).  
 Professor I.F.C. McKenzie — *Studies of cell antigens by hybridoma and other techniques* — (\$252,656).  
 Professor M. Rand, Dr D.F. Story — *Modulation of synaptic transmission by prejunctional receptor mechanisms* — (\$226,471).

#### New Awards — Project Grants

Dr R.C. Augusteyn — *Lens changes during senile cataract formation* — (\$63,979).  
 Dr J.D. Best — *Metabolic adaptation to prolonged stress-hormone infusion: role of the Beta cell* — (\$28,590).  
 Professor P.S. Bhathal — *Biliary epithelial cells, proteins and antigens in normal and disease states* — (\$29,984).  
 Professor R.N. Cahill — *Ontogeny of lymphocytes in foetal sheep and neonatal lambs* — (\$30,105).  
 Dr C. Cheers — *Control of phagocyte production during infection with intracellular bacteria* — (\$44,203).  
 Dr W.G. Cole — *Collagen DNA defects in heritable connective tissue diseases* — (\$50,479).  
 Dr M.E. Dunlop — *Islet phospholipids: enzyme location, calcium mobilization and insulin release* — (\$59,331).  
 Dr G.J. Dusting — *Prostanoid precursors in hypertension* — (\$55,425).  
 Dr J.R. Forsyth — *Auxotyping and serotyping of Victorian strains of neisseria gonorrhoeae* — (\$21,104).  
 Mr D.M. Francis — *Surgical techniques in canine segmental pancreatic transplantation* — (\$12,860).  
 Dr J.R. Fraser — *Biology and metabolism of hyaluronic acid in joints and tissues* — (\$55,776).  
 Dr O.M. Garson — *Investigation of degree of erythroid involvement in acute leukaemia* — (\$25,656).  
 Dr J.A. Hamilton — *An in vitro model of rheumatoid arthritis* — (\$38,267).  
 Dr J.A. Hamilton — *Control of gene expression in human synovial cells* — (\$57,227).  
 Dr G.D. Hirst — *Calcium currents and arteriolar constriction* — (\$80,322).

Dr G.J. Howlett — *Physico-chemical characterization of the Bradykinin/Kininogen system of the rat* — (\$30,838).  
 Professor R.G. Larkins — *Isolation and study of the renal tubule cells responsible for vitamin D metabolism* — (\$35,394).  
 Dr B.G. Livett — *Neuropeptide control of hormone and transmitter secretion* (\$58,116).  
 Dr P.D. Marley — *Occurrence and functions of opioid peptides in the adrenal medulla* — (\$42,064).  
 Mr C.J. Martin — *Neural control of reflux associated lower oesophageal sphincter relaxations* — (\$34,142).  
 Dr F.A. Mendelsohn — *Localization and regulation of angiotensin receptors in brain and kidney* — (\$28,286).  
 Dr G.W. Mihaly — *Studies of the clinical and biochemical pharmacology of antimalarial drugs* — (\$77,494).  
 Dr H.S. Mitchell — *A population-based study of rheumatic disease in urban Melbourne* — (\$56,957).  
 Professor T.O. Morgan — *The mechanism of sodium transport across the papillary collecting duct* — (\$31,119).  
 Dr K.D. Muirden — *Protective mechanisms in joints and rheumatoid arthritis* — (\$24,123).  
 Dr W.G. Nayler — *Calcium overload in the ischaemic and reperfused myocardium* — (\$100,252).  
 Professor A.J. Pittard — *Molecular studies of the replication of plasmids from inc groups B and I* — (\$55,801).  
 Professor A.J. Pittard — *Construction of mini gal plasmids for rapid incompatibility testing* — (\$29,194).  
 Dr F.W. Rickards — *Steady-state brain potentials and the early diagnosis of deafness* — (\$22,335).  
 Professor G.H. Schreiber — *Transport of thyroid hormones from the bloodstream to the brain* — (\$30,754).  
 Dr I. Schweitzer — *Studies of hypothalamic-pituitary-adrenal axis dysfunction in depression* — (\$35,860).  
 Dr J.W. Tiller — *Psychological variable and respiratory symptoms* — (\$25,656).  
 Dr J.D. Wark — *Regulation of normal endocrine cell function by vitamin D metabolites* — (\$39,108).

#### Renewed Projects

Dr F.P. Alford — *Insulin action in man: in vivo and in vitro metabolic effects of hyperinsulinaemia* — (\$28,741).  
 Dr R.C. Augusteyn — *The structures and properties of human and bovine lens proteins* — (\$59,112).  
 Dr C. Bell — *Dopaminergic neurones in the sympathetic nervous system* — (\$29,167).  
 Dr W. Boyle — *Studies related to human macrophages* — (\$38,765).  
 Dr W. Boyle — *Cellular interactions in immune responses to alloantigens* — (\$81,014).  
 Professor J.B. Brown — *FSH thresholds during follicular maturation in the human and rhesus monkey* — (\$33,909).  
 Dr G.R. Campbell — *Identification of cells in atherosclerotic plaques* — (\$54,179).  
 Dr G.R. Campbell — *Arterial elastic lamellae in health and disease* — (\$21,413).  
 Dr C. Cheers — *In vivo analysis of lymphocyte-macrophage interactions in listeriosis* — (\$27,174).

Dr C.A. Clifford — *Twin study of effects of ageing and alcohol on neuropsychological function* — (\$35,410).  
 Dr W.G. Cole — *Molecular defects of collagen in osteogenesis imperfecta* — (\$72,205).  
 Professor I. Darian-Smith — *Tactile discriminators of textured surfaces, thalamocortical proc. in primate* — (\$147,516).  
 Dr R. Di Nicolantonio — *Prenatal exposure to Na<sup>+</sup> & K<sup>+</sup> in the rat: role in blood pressure and salt taste* — (\$25,801).  
 Professor A.E. Doyle — *Sodium balance and renal vascular resistance in experimental hypertension* — (\$21,341).  
 Dr G.J. Dusting — *Eicosanoids and vascular tone* — (\$72,612).  
 Dr J.F. Forbes — *Optimal cytotoxic therapy and quality of life for breast cancer patients* — (\$27,402).  
 Dr J.R. Fraser — *Ross River virus and human disease* — (\$40,990).  
 Dr P.M. Grinwald — *Myocardial cell NA imbalance in ischaemia and other conditions* — (\$61,038).  
 Dr J.A. Hamilton — *Growth regulation in the monocyte-macrophage lineage* — (\$103,429).  
 Professor K.J. Hardy — *Studies of placental and foetal hepatic drug disposition* — (\$53,793).  
 Dr L.C. Harrison — *Receptors for insulin and insulin-like growth factors: structure-function studies* — (\$70,428).  
 Dr I.H. Holmes — *Antigenic characterization of rotaviruses* — (\$65,760).  
 Dr J.L. Hooper — *Analysis of bivariate continuous and binary traits in twin and family data* — (\$51,103).  
 Dr B.E. Kemp — *Regulation and specificity of calcium dependent protein kinases* — (\$104,455).  
 Dr R.G. Larkins — *The role of deficient prostacyclin production in vascular disease in diabetes* — (\$30,873).  
 Dr A. Lopata — *Human fertilization: oocyte maturation, activation and the block to polyspermy* — (\$33,947).  
 Dr J.D. Mathews — *Disease susceptibility genes linked to MHC and immunoglobulin loci* — (\$72,471).  
 Professor I.F. McKenzie — *Studies in transplantation immunity* — (\$31,790).  
 Dr F.A. Mendelsohn — *Control of angiotensin converting enzyme in cultured endothelial cells* — (\$30,049).  
 Professor T.O. Morgan — *Sodium potassium and blood pressure importance of time and exposure* — (\$63,682).  
 Professor T.O. Morgan — *Renal concentrating system interaction of different hormones* — (\$30,506).  
 Professor T.O. Morgan — *Effect of atrial factor on renal function* — (\$11,761).  
 Professor T.O. Morgan — *Physiological biochemical and morphological events during renin biosynthesis* — (\$69,458).  
 Dr K. O'Dea — *Nutritional and environmental effects on the diabetic phenotype* — (\$76,876).  
 Professor D.G. Penington — *Analysis of platelet heterogeneity — density and size in health and disease* — (\$36,777).  
 Professor P.C. Reade — *Mode of normal and disturbed development of the orofacial region in mammals* — (\$64,744).

Dr M.D. Rickard — *Immunological prevention and diagnosis of hydatidosis/echinococcosis/cysticercosis* — (\$75,274).  
Professor G.B. Ryan — *Studies of peripolar cell function and glomerular proteinuria* — (\$157,831).  
Dr M.S. Sandrin — *Molecular cloning of human genes using DNA-mediated transfection* — (\$34,297).  
Professor G.H. Schreiber — *Plasma protein synthesis in the liver and its control* \$40,089.

Dr A. Shulkes — *Production, processing and ontogeny of neurotensin* — (\$77,585).  
Dr R.A. Smallwood — *Determinants of hepatic elimination* — (\$66,937).  
Dr J. Staszewska-Woolley — *Chemical mechanisms in activation of cardiac and pericardial reflexes* — (\$73,083).  
Dr J.D. Wark — *Vitamin D action on specific gene expression: a cultured cell model* — (\$32,809).

Professor D.O. White — *Antigenic determinants of influenza virus recognized by antibodies and T cells* — (\$117,319).  
Dr N.T. Williams — *Differentiation and regulatory events in human megakaryocytopoiesis* — (\$38,322).  
Dr N.T. Williams — *Bone marrow control of murine megakaryocytopoiesis* — (\$54,560).

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### A New/Old Dedication

*In this issue Syd Sunderland is illustrated (three times) and mentioned several times, as he has been on so many occasions in The Speculum. The 1943 issue contained a piece of undergraduate doggerel which celebrated (and only slightly sent up) the enormous vocabulary of neuro-anatomy of which Syd was such a master. You may well ask, 'Whatever happened to the medial and lateral striae of Lancisi, or the Bandolera of Giacomini?' The 'poem' should have been dedicated to Syd, and after forty-two years, it's about time it was, so here it is.*

## The Neurological Nightmare — or Wouldn't It?

Schwann has a cell and Majendie a deficiency,  
In terms neurological we must show proficiency.  
Over kinaesthetic tracts of Flechsig and Gowers,  
Decussations and ependyma, we must show our powers.  
Bracelets of Nageotte, and Foramina of Luschka  
Must not be confused with the foramen of Huschka.

Sulci, gyri, areas and striae,  
Aquaducts of Silvius and cuneate fasciculi,  
Pedunculi, olives, foveae, and tuberculi,  
Colliculi, operculi, commissures and nuclei,  
Fornices and fimbriae, lozenges and loci,  
The pyramid, the tuber, the declive and the culmen  
Would, I'm sure, confuse and dismay many greater men.

We contend with flocculi, ventricles and ganglia,  
Not to mention insulae, amygdaloids and brachia.  
We can localise exact lesions of the optic tract,  
And consider athetosis quite a laugh,  
A lemniscus never tricks us  
When we know thalamic symptoms (Oh! not half).

Edinger and Westphal, Broca and Forell,  
Munro, Silvius, Bechterew and Bolk  
Have combined to make our neuro just a little bit of Hell  
Or after all perhaps its just a jolk.

The syndromes are easy, especially those  
That Frohlich, Ehrlich, and Zuckerkandl chose.  
The capsules, the chiasmae and the globi pallidi  
Are normally concerned with some disastrous malady.

Darkschewitch, Deiter and the sympathetic trunks,  
When its getting near exams always send me into funks.  
I could tolerate Anatomy, Phys and Biochem galore,  
But spare me from Neurology, for that I do abhor.

We dream we've got spasticity, paresis and paralysis,  
Which prove to be tonicity on more complete analysis.  
Focal subdivisions of cortex-monoplegia,  
Are rarely satisfactory, in fact they never please yer.

We examine by palpation, excitation and ablation,  
And find we can't lay claim to a single sane relation.  
Our reflexes are abnormal, our cerebation — sin!  
Our red nucleus: anaemic, our pons: a trifle thin.  
What with cerebellar tonsils and a few secretory nuclei,  
Is it any wonder we end up with G.P.I.?

—P.G.J.

## Report to Faculty of Medicine 1985

Dr Eric Cunningham Dax joined the honorary staff as Senior Associate with the aim of working on his important collection of psychiatric art which is temporarily housed in the Unit.

### Open day and visits

On March 14, members of Faculty were shown a preview of an exhibition to celebrate the 100th anniversary of *Speculum* — '101 not out'. The exhibition has attracted attention throughout the year from students, staff and visitors — some 300 came to see the museum on Discovery Day. The museum is being increasingly recognized as part of the museum resources of Melbourne and during the year groups from schools, adult organizations and overseas visitors have been shown round.

### Publications

Work has continued on the Melbourne University Press production of William Clift's copy of Matthew Baillie's *Atlas of Morbid Anatomy*. Clift's drawings have been painstakingly reproduced, the text printed and binding has begun. Publication is expected in March 1986 and will include a supplement giving biographical and bibliographical details together with a modern interpretation of the diseases represented. In preparing this supplement it has become clear that Samuel Johnson's lung was never included amongst the specimens although this error has been accepted as fact since 1849.

The second edition of Professor Russell's *British Anatomy* is also due out early in 1986.

Enough money has been realised from our first venture *Occasional Papers on Medical History Australia* to cover major costs for the publication of papers from the 1984 Conference on Medical History and Health in Australia — *Patients, Practitioners and Techniques*. This has been a joint venture with the Department of History and Philosophy of Science.

### Recent acquisitions

Amongst recent acquisitions this year are a number of unusual haemoglobinometers from the late Dr. Theo Frank's family and a rare copy of a 1920 Australian pamphlet<sup>1</sup> on contraception from Miss Lexi Luly of Preston.

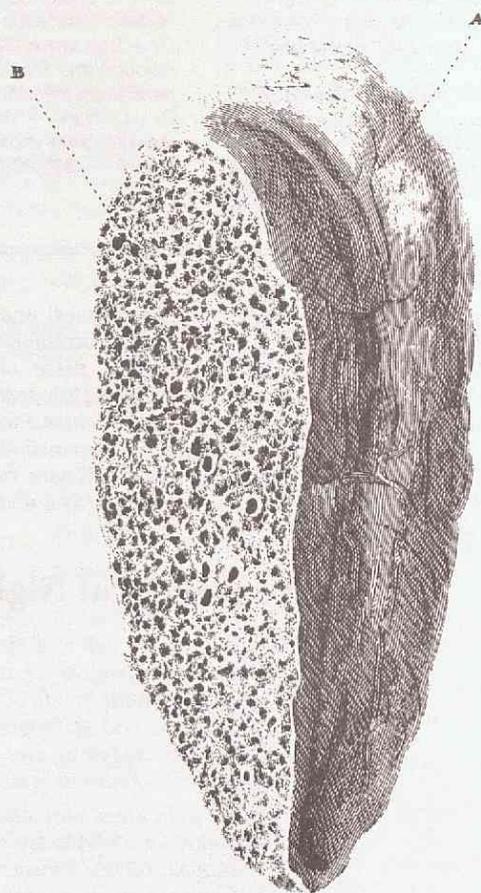
### Medical History Australia Newsletter

The mailing list for the *Medical History Australia Newsletter* has steadily increased and some readers, including the Newsletter Editor of the American Association for the History of Medicine, have requested that their copies be sent by airmail.

### Expo '85

By request the Grayson microruling machine and biographical material linked with Dame Jean MacNamara were sent to Expo '85 in Japan.

<sup>1</sup> Professor Attwood reports that the cover of the pamphlet gives no indication of its real contents; however on opening the cover one finds, in red ink, the 'Important Notice — Wife's Guide and Friend'. Such pamphlets were produced in large numbers but few remain and this is an important acquisition.



Copy of engraving from Baillie's *Morbid Anatomy*, fasc 2, plate 6, fig 1. Reproduced in *The Lancet*, December 21/28, 1985 in "A Dissertation Upon the Lung of the Late Dr Samuel Johnson, the Great Lexicographer" by Harold Attwood.

### 1986 Wellcome Exhibition

Wellcome Australia Limited is to celebrate its centenary in 1986. Material from the Wellcome Museum of the History of Medicine is being sent out from London to form the basis for an exhibition which will be mounted in the major museums in Australia, beginning with Melbourne in 1986. Members of staff have attended local committees organizing this exhibition and the Medical History Museum will be lending some material of local interest.

### Medical History Conference

Arrangements are well under way to hold the 3rd National Medical History Conference in Adelaide in November 1986 at the same time as the 10th anniversary of Flinders Medical School is celebrated. At this conference it is likely that a Medical History Society of Australia will be founded.

### Grants

A generous grant was received from the Rowden White Foundation and the Ramaciotti Foundations acceded to our submission to catalogue the collection of archives and instruments in the Unit. This grant will enable the appointment of an Assistant Archivist to work for 18 months, a major step forward.

# Dates to Remember 1986

## Dean's Lecture Series 1986

**Tuesdays at 5.30 pm**  
**Sunderland Theatre,**  
**Ground Floor, Medical Centre Building**  
**(corner of Grattan Street and Royal Parade)**  
**University of Melbourne**

The Dean's Lecture Series is designed to illustrate current research activities in the Faculty of Medicine. All medical students, medical graduates and interested biological scientists are invited to attend. Admission is free.

### Term 1

#### 22 April

*Vasopressin — An old hormone with new actions*

Professor Colin Johnston

Professor of Medicine, Austin Hospital

#### 29 April

*Breast cancer — A decade of change*

Professor Richard Fox

Professor/Director, Department of Haematology and Medical Oncology, Royal Melbourne Hospital

#### 6 May

*Seminar: Ethics at the growing edge of medicine*

Professor Emeritus Richard Lovell

Chairman, Medical Research Ethics Committee of NH&MRC (formerly Professor of Medicine, Royal Melbourne Hospital), and His Excellency Dr. Davis McCaughey

Governor of Victoria

(Member, Medical Research Ethics Committee of NH&MRC)

to be followed at 6.30 pm by the

**1986 Annual General Meeting**

of the

**University of Melbourne Medical Society**

#### 13 May

*Biological and psychodynamic aspects of depressive disorders in middle to late life: implications for enquiries into affective disorders in general.*

52nd Beattie-Smith Lecture

Professor Sir Martin Roth

Professor of Psychiatry, University of Cambridge, U.K.

### Term 2

#### 24 June

*Stress and hypertension*

Dr Bruce Scoggins

Senior Principal Research Fellow, The Howard Florey Institute of Experimental Physiology and Medicine

#### 1 July

*Towards 2000 — Is microsurgery magic?*

Mr Ian Taylor

Consultant Plastic Surgeon, Royal Melbourne Hospital

#### 8 July

*Connective tissues — From fractures to molecular biology*

Dr Bill Cole

First Assistant in Paediatric Surgery, Department of Paediatrics, and Head, Orthopaedic Research Unit, Royal Children's Hospital

#### 15 July

*Activation of a cancer gene in lymphoid neoplasia*

Dr Suzanne Cory

Principal Research Fellow, The Walter and Eliza Hall Institute of Medical Research

## Continuing Medical Education 1986

These courses are intended to update doctors and others working in associated health professions. Registration may be limited for specific courses. The Faculty also offers continuing education training programmes in Anatomy for Surgeons (in conjunction with the Royal Australasian College of Surgeons), Diagnostic Radiology, and Industrial Screening Audiometry. Registration forms and further information will be available for each course throughout the year, giving details of venue, programme, fees, etc., from the Faculty of Medicine Office for Continuing Medical Education, University of Melbourne, Parkville 3052. Telephone (03) 344 5889.

#### February 28 (Friday) and 1 March (Saturday)

*Psychiatry for non-psychiatrists: 4 workshops*

Course Director: Professor Graham Burrows

Venue: John Lindell Lecture Theatre, Austin Hospital

#### 11-12 April (Friday and Saturday)

*Geriatric medicine for general practitioners*

Course Director: Professor D.M. Prinsley

Venue: Mount Royal Hospital

#### 2-3 May (Friday and Saturday)

*Recent advances in neuropharmacology: aminoacids, monoamines and peptides*

Course Directors: Professor M.J. Rand, Dr. D.F. Story, Dr. M.W. Nott

Venue: Lecture Theatre N10, Royal Melbourne Hospital

#### 13-14 June (Friday and Saturday)

*Current management of early breast cancer*

Course Director: Mr. John F. Forbes

Venue: Lecture Theatre N10, Royal Melbourne Hospital

#### 11-12 July (Friday and Saturday)

*Cancer in general practice*

Course Director: Professor B.L. Hillcoat

Venue: Lecture Theatre N10, Royal Melbourne Hospital

#### 15-16 August (Friday and Saturday)

*Update in adult cardiology and cardiac surgery*

Course Director: Mr. C.J. Mullany

Venue: Michael Chamberlin Lecture Theatre, St. Vincent's Hospital.

#### 22-26 September (Monday to Friday)

*St. Vincent's Hospital Postgraduate Week*

*The Changing Face of Orthopaedics over the Past Fifty Years*

Guest Speakers: Mr. John Chalmers, Orthopaedic Surgeon, Royal Infirmary and Princess Margaret Rose Orthopaedic Hospital, Edinburgh. Professor N. Gschwend, Klinik Wilhelm Schulthess, Zurich.

Convenor: Mr. Jonathan Rush, 6th Floor, Medical Centre, 55 Victoria Parade, Fitzroy, 3065. Telephone: (03) 417 1769.

#### 3-4 October (Friday and Saturday)

*The advancing edge of paediatrics*

Course Director: Dr. Max Robinson

Venue: Vernon Collins Lecture Theatre, Royal Children's Hospital

#### 24 October (Friday)

*The cognitive therapies*

Course Director: Mr. R.O. Stanley

Venue: Hercus Lecture Theatre, University of Melbourne

#### 10-14 November (Monday to Friday)

*Magnetic resonance imaging: a practical course for imaging specialists*

Course Director: Dr. B.M. Tress

Venue: Royal Melbourne Hospital

