Prince of Wales Medica Research Institute

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Financial Summary

Years x Success



2000

2001

2002

2003

The Institute expanded to double its size. A link was created between the original premises and the new extension to form a large, modern research complex. The new facility housed a Gait laboratory and the Spinal Injury Research Centre. For the Official Opening on 15 November, His Royal Highness, the Prince of Wales sent a congratulatory message which read in part, "With opening of this new building today, the Institute is magnificently placed to meet the challenges and responsibilities of a rapidly growing, exciting and important area of medical research."

Continuing to expand at a rapid rate, three new laboratories were established specialising in cerebrovascular disease, brain mapping, and risk factors and clinical symptoms associated with neurological diseases in the elderly. Arvind Singh Mewar, the Maharana of Udairpur, toured the Institute and lent his royal support to a Gala fundraising dinner.

The first purpose-built medical research crash laboratory facility in Australia – the Impact Injuries Research Laboratory – was officially opened. Its purpose was to study the impact of car injuries on small children and devise ways to protect them. This initiative further expanded the Institute's research capabilities and future objectives. President Bill Clinton was guest of honour at a fundraising dinner. The Mavne Clinical **Research Imaging Centre** officially opened. The Centre houses a 3 Tesla **MRI** machine and provides a valuable resource for scientists and clinicians to investigate diseases whilst providing enhanced diagnosis for patients. The celebrated actor and advocate for spinal cord injury research, Christopher Reeve, visited the Institute and was guest speaker at a fundraising dinner. The Institute celebrated its 10 year anniversary.



2004

Professor Peter Schofield appointed Executive Director and CEO. The appointment was welcomed by all as heralding a new era which would give further impetus to the exceptional research already underway at the Institute. Her Excellency, Professor Marie Bashir, Governor of NSW, launched two books by senior scientists which covered the diverse field of neuroscience.

2005

Professor Simon Gandevia, the Institute's Deputy Director, named **Eminent Scientist of the** Year by the International **Research Promotion Council. In partnership** with the UNSW, the Institute further developed its capacity in neuroscience research through the appointment of Professor Lindy Rae to the NewSouth Global **Chair of Magnetic Resonance. The NISAD Chair of Schizophrenia** Research was awarded to **POWMRI and UNSW with** the new Professor to be based at POWMRI. The Phyllis Luker Bequest Society established.

2006

First steps taken in the creation of a multidisciplinary medical research precinct on the Randwick Hospitals Campus. This will bring together the collective knowledge of scientists across many disciplines and fields of study and share resources and sophisticated research equipment.

2016

The Medical Research **Precinct expands under** increased funding from government bodies and the wider community. A strong collaboration is formed between the research centres within the Precinct, each with its own focus and research goals, but sharing expertise and equipment, central services, and a common vision. This plan enables the Medical **Research Precinct to** further develop into a world-class centre for biomedical science and translational research developing its findings into diagnostic and therapeutic interventions in human health.

The outlook for 2006 and beyond is truly remarkable. The opportunities to translate our work into clinical therapies, creating a natural synergy amongst our researchers, are impressive. Through scientific tenacity we will continue to conduct world-class, collaborative medical research to cure human disease, improve quality of life, and thus create a legacy for the future.

Executive Director & Chief Executive Officer **Professor Peter R Schofield**

Chairman's Report

Paul Brassil, Chairman

One of the most impressive things about the Prince of Wales Medical Research Institute is its steadfast commitment to excellence.

Since I joined the Board in 1997, the Institute's investigators have gone on to establish a significant scientific record, illuminate the fundamental processes of brain and nervous system and announce important discoveries in both basic science and in understanding the causes and potential treatments of diseases and disorders of the brain and nervous system.

Through its research programs, the Institute has helped train many young scientists who will make great discoveries throughout this century. In turn, these young researchers are charged with the responsibility of helping the wider community gain a better understanding of how advances in molecular biology are changing their world. And under the visionary leadership of Professor Peter Schofield, this world-class organisation and its researchers are being guided to a new level of achievement in which they will use the techniques of molecular, cellular and genetic neuroscience to address psychiatric, psychological and neurological disorders.

As Chairman, I consider it an honour to be associated with them, and to play some small part in furthering their many accomplishments.



Board matters

Three new Directors were appointed to the Board bringing extensive skills and experience in the political, financial and health sectors. We appreciate their commitment to furthering the Institute's mission and success.

Dr Andrew Refshauge was nominated to the Board by the NSW Minister for Health in October. Andrew, a medical practitioner, was former Deputy Premier of NSW (1995-2005), former Treasurer and Minister for Health.

Mr Barry Shepherd, Director of Corporate Services at SESIAHS, was nominated to the Board by the Area Health Service in July. Barry served as one of the Institute's Founding Directors (1991-1996) as the nominee of one of our stakeholders, University of New South Wales.

Professor Peter Smith was nominated to the Board by the University Council in November. Peter is Dean of the Faculty of Medicine at the UNSW and is recognised as a leading clinician, researcher and educator.

We were sorry to lose the services of two Directors. Professor Richard Henry resigned in November when he completed his term as Acting Dean of Medicine at UNSW. However, in his current role as Senior Associate Dean of Medicine at UNSW, Richard remains closely associated with POWMRI and the future of the Institute. In July, Ms Liz Broderick resigned as an independent Director.

An Audit Sub-Committee of the Board was formed in 2005 and reports regularly to Directors. Members are Phil Salter, Andrew Dermott (Company Secretary) and myself (as Chair). The Committee's terms of reference include governance, annual accounts (prior to an external audit), financial, operational and insurance risks, and remuneration reviews and methodology.

Farewell

Founding Patron, Dr Colleen McCullough, tended her resignation in May due to ill health. Since her appointment in 1994, Colleen has devoted time and energy to her role, travelling from her home on Norfolk Island to attend Institute functions. She continues to support POWMRI by donating a proportion of royalty earnings. As a neuroscientist, Colleen has always emphasised that solutions to the emotional and financial burdens of disease and disability will only be found through medical research. She remains proud of the Institute's achievements to date and assures us that POWMRI's best interests will always be close to her heart.

A rewarding year

It would be impossible for me to thank adequately all the individuals and groups who have made the 2005 year so enjoyable and rewarding.

It is given to few individuals to be associated with such a wonderful organisation at an extraordinarily exciting time. I am grateful to my fellow Directors for giving me this opportunity and for their wise counsel and staunch support throughout the year.

The Institute is fortunate to have a talented and dedicated staff in both the scientific and administrative arenas under the excellent leadership of Executive Director and CEO, Professor Peter Schofield and Deputy Director, Professor Simon Gandevia. They have made this complex organisation work smoothly and effectively.

In addition, Peter Schofield was appointed a member of the Federal Government Legislation Review Committee for 'The Prohibition of Human Cloning Act 2002' and 'Research Involving Human Embryos Act 2002'. This appointment illustrates the level at which his sound knowledge and value as a pragmatic contributor to discussion on current issues affecting all of us is acknowledged.

I thank all those who supported the Institute by attending functions, as well as individuals, corporations, trusts and foundations who assisted our scientific research throughout the year.

The challenge

First and foremost is a need to create a multidisciplinary medical research precinct on the Randwick Hospitals Campus which will bring together the collective knowledge of scientists across many disciplines and fields of study. The plan reflects the foresight of the key players – one being our Institute – in this initiative. But such a development is dependent on major capital funding from sources including the State Government.

Therefore we need to provide for major investment in this ambitious plan. To this end, the Institute has embarked on developing both a Capital Appeal and a Bequest Program. By intensifying our efforts to raise significant funds, we can advance the pace towards this integration. Increasing the physical size of the Institute to accommodate new scientific teams and expanding our areas of research in the neurosciences is a priority. The Board remains committed to the vision, and the goal.

Funding critical to the future

Now, more than ever before, medical research is faced with critical funding issues. An Institute Chairmen's Group has been formed and POWMRI is working closely with other leading institutes to make representation to the State Government regarding the need to revamp its infrastructure funding model. The uncertainty regarding the future levels of support for the NSW Government's infrastructure grants program places the investment in all medical research institutes under considerable risk.

The Group has presented compelling data to the State Government showing how critical these funds are in leveraging further Commonwealth Government competitive research funds and underpinning the investment in research improvements. We need to not just maintain but accelerate the ability of this State's medical researchers to contribute substantially to improved health and well-being of the community.

It is hoped that in 2006 there is a real and tangible demonstration of the Government's support of the importance of scientific and medical research. The returns will be life-changing.

and Brank

Paul Brassil Chairman Prince of Wales Medical Research Institute

13 x Directors 1 x Vision















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The members of the Board of Directors of POWMRI Limited

Mr Paul Brassil

BEc LLB ACA FTIA Director, POWMRI Limited, 1997 – present Chairman of the Board, POWMRI Limited, February 2004 – present Chair, Audit Committee, POWMRI Limited, 2005 – present Partner of PricewaterhouseCoopers, Chartered Accountant and a Fellow of the Taxation Institute of Australia, specialising in advising local and international clients on income tax and related matters.

Ms Liz Broderick

Director, POWMRI Limited, 2003 – July 2005 Member, Audit Committee, POWMRI Limited, 2005 Head of the Legal Technology Group at Blake Dawson Waldron and an acknowledged leader in the field of law and technology.

Prof Roger Dampney

BSc PhD DSc Director, POWMRI Limited, 1995 – present Professor of Cardiovascular Neuroscience at the University of Sydney and an Honorary Consultant Physiologist at Royal North Shore Hospital. He is also a member of a number of Societies and Advisory Committees and was previously a Member of NHMRC Regional Grants Interviewing Committees and Member of NHMRC Assigners' Panel.

🖸 Ms Judi Hausmann

MPRIA Director, POWMRI Limited, 2003 – present Principal of Hausmann Communications in Sydney and a Member of the Public Relations Institute of Australia.

Prof Richard Henry

MBBS MD FRACP DipClinEpi MRACMA Director, POWMRI Limited, March – November 2005 Appointed by the UNSW Council during his term as Acting Dean, Faculty of Medicine, UNSW. With extensive expertise in health systems and medical education, he has been appointed Acting Pro-Vice-Chancellor (Education and Quality Improvement) at UNSW for 2006.

Dr Andrew Refshauge

MBBS GAICD

Director, POWMRI Limited, October 2005 – present Former Deputy Premier of NSW (1995-2005), former Treasurer and Minister for Health, and a medical practitioner with extensive skills and experience in the political, financial and health sectors.

Mr Philip Salter

Director, POWMRI Limited, 2004 – present Joint Managing Director of Salmat Limited, one of Australasia's leading direct customer communications companies. He is a member of the Company Directors Association of Australia and a former Director of the Australian Direct Marketing Association.

Mr Barry Shepherd

PSM

Director, POWMRI Limited, July 2005 – present Director of Corporate Services, SESIAHS and previously Deputy CEO, South Eastern Sydney and Eastern Sydney AHS. He served as a POWMRI Director during the Institute's formative years and was renominated to the Board by the Area Health Service. He has extensive expertise in the health and medical research sector and the delivery of major projects.

Prof Peter Smith

RFD MD FRACP FRCPA Director, POWMRI Limited, November 2005 – present Dean, Faculty of Medicine, UNSW. He has served on a number of Commonwealth and State Government committees and advisory boards, and is recognised as a leading clinician, researcher and educator.

Mr David Thomas

Director, POWMRI Limited, 1997 – present David's business is in the hospitality industry.

Prof Mark Wainwright

AM MAppSc PhD DSc Director, POWMRI Limited, 2004 – present Vice-Chancellor and President, University of New South Wales since July 2004. He has served on boards of a number of Co-operative Research Centres and is currently a Director of NewSouth Innovations Pty Ltd (formerly Unisearch Ltd).

Mr John Walton

AM MBA BEc FCPA FAIM Director, POWMRI Limited, 1991 – present

An inaugural Director of POWMRI, he was Chairman of Eastern Sydney Area Health Service 1991-1996, having been a Director since 1976. He is Chairman of Walton Enterprises Pty Ltd, Deputy Chairman of the Australian Institute of Management, and a Director of Young & Rubicam Australia Pty Ltd, Capital Investments Pty Ltd, and Sydney Children's Hospital Foundation. He has also served as Chairman or Director of many corporate and community boards.

Prof Peter Schofield

PhD DSc

Executive Director and Chief Executive Officer, POWMRI, July 2004 – present

Mr Andrew Dermott

BEc CA Company Secretary and Finance Manager, POWMRI

Professor Peter R Schofield



Executive Director's Report

The Prince of Wales Medical Research Institute ended 2005 with tremendous momentum, providing a strong foundation for accelerated progress in 2006. The strength of any organisation is measured by the quality of its people and by its working relationships with others. In both areas, a number of significant developments were brought to fruition in 2005.



Dr Brett Garner

People

Over the past 12 months, we made substantial gains with the recruitment of new research group leaders. Professor Caroline (Lindy) Rae commenced a new position as NewSouth Global Chair of Magnetic Resonance, a UNSW crossfaculty research leadership position. Lindy's appointment builds on the Institute's investment in the Mayne Clinical Research Imaging Centre. Dr Brett Garner, an NHMRC RD Wright fellow, was appointed as a POWMRI Research Fellow and he and his team joined the Institute late in the year.

Several staff members received promotions. Dr Jane Butler, an NHMRC RD Wright fellow, was appointed a POWMRI Research Fellow. Dr Kay Double was awarded an NHMRC Senior Research Fellowship, Professor George Paxinos was promoted to an NHMRC Senior Principal Research Fellowship and Matthew Kiernan was promoted by UNSW to the position of Associate Professor.

We also farewelled Professor Erica Potter, one of the Institute's four founding scientists who retired at the end of the year. We extend our sincere thanks to Erica for her contributions over many years and wish her the very best in the next phase of her career.

Awards and recognition

Professor Simon Gandevia FAA, the Institute's Deputy Director was named Eminent Scientist of the Year in the field of Science and Medicine for the Australasian region by the International Research Promotion Council. This is a direct reflection of the esteem in which he is held by his peers both nationally and in the wider global arena.

Associate Professor Stephen Lord was awarded a Doctor of Science degree, the highest degree from the UNSW for his research over the past decade on falls and balance in the elderly. Steve's work is making a real difference to the reduction of these severe and life-threatening injuries in our society.

Dr Jane Butler proudly continued an Institute tradition, being awarded the AW Campbell award for the best contribution in the first five postdoctoral years by the Australian Neuroscience Society.

Institute scientists have had considerable involvement in the Australian Neuroscience Society. Professor Glenda Halliday has just commenced her term as ANS President, taking over from Professor George Paxinos, the Immediate Past President and President of the IBRO World Congress to be held in 2007. Dr Vaughan Macefield served as ANS Program Convenor for the January 2006 Annual Conference.



A/Prof Lynne Bilston with Special Minister of State, the Hon John Della Bosca

Research contributions

Our primary dissemination of our research findings is through peer reviewed scientific publications in books and specialist journals. In 2005, the Institute had its highest ever number of publications, with Institute staff contributing 126 scientific papers, chapters and commissioned government reports and serving as an editor for one book. Professor George Paxinos's major reference, The Rat Brain in Stereotaxic Coordinates, is now in its fifth edition and since its initial publication in 1982 it has become the third most cited book in all science, with approximately 30,000 scientists making reference to it in their own publications. It is also the most cited Australian scientific publication.

Our research in the last year has led to changes in public policy, with Associate Professor Lynne Bilston's work on child seat restraint in automotive accidents leading to a new public education campaign launched by the Special Minister of State, the Hon John Della Bosca. The results from Lynne's team formed the basis for consideration of changes to the national road safety legislation.

Partners

2005 saw further development of links with our major research partners, the

University of New South Wales, our Hospital and Research Institute partners on the Randwick Hospitals Campus, and the initiation of a major new partnership with the Neuroscience Institute of Schizophrenia and Allied Disorders (NISAD), a virtual institute seeking to understand the causes of and treatments for schizophrenia.

We have engaged with the State Government through the Ministry of Science and Medical Research in the development of their Medical Research Strategy. We were disappointed that the Strategy, which included both capital and recurrent expenditure, was not supported in the May budget. However, the key goal of the Strategy had been developing and focusing the broader activities of medical research in the state. Locally, this has meant that all research partners -University, Hospitals and Institutes have been working in partnership with the government to develop the Randwick Medical Research Hub. A report from Cox-Richardson, Architects and Planners, established that future research needs of the Hub could best be met by redevelopment of the south-western area of the campus to produce expanded research facilities for the Institute and its precinct partners. We look toward the government supporting these initiatives in the near future.

Brain Sciences UNSW

Brain Sciences UNSW, a collaborative venture between UNSW, affiliated Hospitals and Research Institutes, especially POWMRI and the Black Dog Institute, aims to build on collective strengths and capacity in the neurosciences. Brain Sciences UNSW was officially launched by the UNSW Vice-Chancellor in March and has already resulted in enhanced levels of interaction and collaboration amongst neuroscientists on the campus.

NISAD Chair in Schizophrenia Research

The Institute, together with UNSW, were successful in our bid to host the NISAD Chair in Schizophrenia Research. This will be a key appointment to the Institute as the new Professor and team will be located at the Institute. It also provides an opportunity to build closer links with NISAD. The total funding commitment to support the NISAD Chair in Schizophrenia Research is worth \$8 million over the first five years, with funding provided by NISAD, UNSW and the Institute. Following an international search we are in negotiation with our preferred applicant and hope to make an appointment early in 2006.

Research support

The National Health and Medical Research Council (NHMRC) continues as our single largest source of direct research support. New five year research fellowships were awarded to Professor George Paxinos, Dr Vaughan Macefield and Dr Kay Double. A total of seven new NHMRC Project grants were obtained and two grants were obtained from the Australian Research Council. Overall, the Institute's success rate was more than twice the national average and funds secured represented 40% of all funds received by UNSW in this funding round.

A NHMRC "Special Facilities" Enabling Grant for Genetic Repositories Australia was awarded \$2 million over five years to establish a national facility which will create, distribute and maintain long-term secure storage of human genetic samples (cell lines and DNA) from a wide variety of sources in Australia.

Supporters and donors

The Institute continues with a range of fundraising events, which in the 2004/2005 financial year resulted in just over \$1 million being raised for our research. These included our ongoing participation in the ASX-Reuters Charity Foundation partnership, the Bridge for Brain Research Challenge, and our highlight event, the Food for Thought degustation dinner at the Four Seasons Hotel which produced an outstanding and entertaining evening. Our individual donors and supporters have also been extremely generous, with key individuals and families providing significant donations which under-pin both specific and general projects. I extend my sincere thanks for this support.

In 2005 we launched a direct mail campaign as part of a long-term strategy to increase our donor base. We also launched The Phyllis Luker Society, a program to encourage supporting the work of the Institute through bequests. The launch was most successful and our initial members, those who have confirmed a future bequest, have already been recognised.

Through the year my colleagues and I invited many friends and supporters to visit the Institute, to meet our Board members and senior scientists and see firsthand the research we undertake.

The future

As we grow and develop our research programs, especially those in mental illness, the need to expand our research facilities has become a pressing issue.

We are currently developing strategies for a major capital campaign. This is a considerable undertaking but we are very aware of the need to establish a pool of capital to enhance our financial stability, increase program independence, and fund special initiatives in an unknown financial future. A strong development program will help fill such needs through communication methods employed in the development which highlight the importance of recognising donors, cultivating relationships and seeking philanthropic support from the wider community.

The outlook for 2006 and beyond is truly remarkable. The opportunities to translate our work into clinical therapies, creating a natural synergy amongst our researchers, are impressive. Through scientific tenacity we will continue to conduct world-class, collaborative medical research to cure human disease, improve quality of life, and thus create a legacy for the future.

Professor Peter R Schofield *PhD DSc* Executive Director and Chief Executive Officer



Celebrated Chefs 2005 Food for Thought, Robert Molines, Robert's at Peppertree in Pokolbin; Pablo Tordesillas Garcia, Water's Edge in Canberra; Michael Manners, Selkirk's in Orange; Lorenzo Pagnan, Lorenzo's Diner in Wollongong; Laurent Deplanes, Collit's Inn at Hartley Vale; Steven Snow, Fins at Byron Bay

147 Scientists + 1 Mission x Dedication = Alleviation of Pain and Suffering





The Institute aims to provide an environment where our research teams, team leaders and individuals are empowered to fully develop their potential to identify the causes of many diseases and to develop new therapies which alleviate the suffering and indignity that accompany them.

- Changing the Face of Ageing
- Brain Mapping and Abnormalities
- Balance and Prevention of Falls
- Nerve and Spinal Cord Injury
- Human Movement
- Making Sense of the Sensory System
- Mayne Clinical Research Imaging Centre
- Spinal Injuries Research Centre
- Tissue Resource Centre

Changing the Face of Ageing

What are the fundamental processes of ageing and the diseases that so often accompany them? How can we protect cells from dying? What treatments can be developed to protect cells from disease?

Understanding how the brain ages, both successfully and unsuccessfully is a key area of research. Investigators are particularly interested in age-related neurodegenerative diseases. These are now major health problems due to increased life expectancy being a flow-on from the decreasing impact of infectious and systemic diseases. Therefore the focus is on protecting what we have, and replacing what we've lost.

Diseases associated with ageing, such as Alzheimer's and Parkinson's disease, represent a compounding set of challenges – they derive from malfunction at the level of cellular and molecular processes. Current research at the Institute will have far-reaching implications for early diagnosis and effective treatment of some of these age-related conditions.



Above Brain tissue slides **Right** An 'inflammatory plaque' from the cortex of an Alzheimer's disease brain

Causes of Parkinson's disease

Professor Glenda Halliday and her group completed a range of studies assessing the role of inflammation in Parkinson's disease.

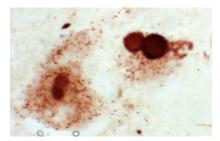
They have been able to show that the final common cellular mechanism involved in the death of the brain dopamine neurons is a certain type of inflammation that invokes an antibody reaction. They can also detect this reaction in the blood of patients with Parkinsons disease. Additional data from the same patients that suggests genes, which regulate inflammation, influence the time of disease onset and the rate of its progression.

Their prediction is that certain antiinflammatory drugs will help patients with Parkinson's disease, and they plan to test this theory as soon as funds are available.

Studies on dementia syndromes

Professor Halliday and her team can now confirm that up to 50% of people with dementia are misdiagnosed with Alzheimer's disease when they have another dementia syndrome. This is because they have similar central memory deficits.

Researchers further assessed relationships between clinical, structural, cellular and genetic events in both patients with dementia and healthy controls in order to establish better diagnostic tools and information on the different pathological mechanisms causing dementia. They identified a novel 'inflammatory' structure in the brains of patients with a genetic form of Alzheimer's disease and believe that identifying the proteins involved in creating this structure will provide new avenues for treating Alzheimer's disease. Combining behavioural and brain imaging approaches, they studied the boundaries between healthy and pathological cognitive ageing in very old adults to identify the very earliest signs of dementia. In other brain imaging studies they have shown that loss of tissue in the front of the brain relates to behavioural changes, and can be used to differentiate patients with frontotemporal dementia. Lastly, they found that the dominant genetic defects differ between those patients with Alzheimer's disease and those with dementia with Lewy bodies or frontotemporal dementia.



These latter studies involved a number of international collaborations and Professor Halliday states that there is still considerable work to do in this area of research.

Changes in neuromelanin pigment underlie brain cell death in Parkinson's disease

Dr Kay Double continues her work on Parkinson's disease, a disorder where over 90% of the dopaminergic neurons of the substantia nigra, a part of the midbrain, die. While cell death does occur in other brain regions, this death occurs later and is not as extreme as that seen in the nigra. She and her team are attempting to understand why the neurons of the substantia nigra are particularly vulnerable in this disorder. One of the characteristic features of these cells is that they contain the dark polymer pigment neuromelanin, about which little is known. The researchers began by reviewing what is currently known about neuromelanin and its possible link with Parkinson's disease. Experimental work characterised the development and maturation of the pigment in the human brain and identified, for the first time, a significant concentration of the lipid dolichol associated with the pigment. The team demonstrated that, in the healthy brain, the pigment can protect the cell from potentially damaging molecules, such as iron, by binding these substances. If the neuromelanin-bound iron levels become too high however, cell damage ensues. This is significant as neuromelanin-bound iron is increased in the Parkinson's disease brain and is thought to be one mechanism contributing to cell death in the pigmented region of the brain.

Dr Double's research showed that neuromelanin pigment in the parkinsonian substantia nigra differs to that in the healthy brain. In the diseased brain the pigment appears darker and the lipid content is changed. Further, neuromelanin in the parkinsonian brain is associated with aggregates of - α -synuclein protein. Aggregation of this protein is stimulated by high iron levels and is thought to be a critical process in the death of the pigmented cells.

Ongoing work will investigate how neuromelanin is changed in the parkinsonian brain and how these changes stimulate pathological processes, such as protein aggregation. An understanding of these pathways will explain why pigmented brain cells are particularly vulnerable in Parkinson's disease and how the cells die. Such knowledge will ultimately lead to treatments to slow or halt the development of this disorder.

History of Sleeping Sickness Neurohistory: Encephalitis lethargica, the forgotten epidemic (1916-1930?)

Dr Paul Foley is preparing the first history of the 'sleeping sickness' (encephalitis lethargica) epidemic which afflicted the world between the two World Wars. About one-third of victims died during the acute phase; at least equally tragic was the fact that almost all survivors, mostly under the age of 30 years, developed incurable neurological syndromes resembling Parkinson's disease – as seen in the film 'Awakenings'. Despite the enormous acute and long term effects of the epidemic, no detailed historical examination of this disorder has ever been published, and its cause never established. This ARC-funded project has already attracted international interest from neurohistorians, neurologists and others. In other work, an extensive paper on the German neurologist Hans Gerhard Creutzfeldt was published in the Journal of Neural Transmission; another long paper, on the history of Duboisia myoporoides, an Australian plant formerly employed internationally in the treatment of parkinsonism, is in press at Historical Records of Australian Science. Presentations to the International Society for the History of the Neurosciences (ISHN), Australian Society of the History of Medicine and to local organisations, including the Royal Australasian College of Physicians, as well as the historical exhibition co-chaired by Dr Foley at the World Congress on Parkinson's Disease in Berlin have all promoted interest in encephalitis lethargica and in neuroscience history in general.

Brain Mapping and Abnormalities

Structural studies of the brain and the spinal cord

Maps of the brain and spinal cord are needed by virtually everyone who studies the relation between the nervous system and its disorders such as depression, schizophrenia, Parkinson's disease, Alzheimer's disease and motor neuron disease.

Scientists also need to know the relationships between the brain and spinal cord of humans and other species so that they can test hypotheses inspired by human considerations and relate their observations to humans.

Professor George Paxinos and colleagues are continuing to develop and refine brain atlases of humans and other species which are used internationally as the standard guides for scientific work. These atlases are also used by neurosurgeons to target small deep lying structures in the brain.

In 2005, they published the fifth edition of *The Rat Brain in Stereotaxic Co-ordinates.* This book assists those who use the rat to model human disease. It is listed in the 50 most cited items in the Web of Science and is the only Australian publication and, in particular, the only neuroscience publication on this list. Its five editions have attracted over 30,000 citations.

With financial support from the Christopher Reeve Paralysis Foundation, Professor Paxinos and his team also commenced work on mapping the mouse, rat and human spinal cord.



Prof George Paxinos AO

Arteriovenous malformation (AVM)

The continuation of A/Professor Marcus Stoodley's electron microscopic study of brain vascular malformations resulted in publications on both abnormal features of cells lining cavernomas in the brain and arteriovenous malformations. AVMs occur when a tangled collection of abnormal blood vessels create irregular communication between the arterial and venous systems.

His team has developed a model of an AVM and shown that the molecular and cellular changes in this model mimic the changes seen in human AVMs, making this suitable for studying new treatments.

Their long term goal is to enhance the efficacy of radiation treatment for AVMs. A major step was made towards this goal with their recent experiment demonstrating significantly increased thrombosis rates in a model of AVM using a combination of prothrombotic factors targeting abnormalities in the blood vessel walls.

Balance and Prevention of Falls

Falls are a vital issue for older people with at least one in three community dwellers aged 65 and over falling one or more times each year.

Falls among older people can lead to injury, hospitalisation, loss of confidence and activity restriction. In NSW, admissions to hospitals for fallrelated injury, particularly among older people, are currently estimated to cost \$324.2 million each year. With the ageing of Australia's population, falls injuries and associated costs are expected to almost double over the next few years unless effective falls prevention strategies can be identified.

A/Professor Stephen Lord's research program includes a range of studies directed to reduce falls and related injury in older people. His team's work investigates the basic physiology and biomechanics of human balance, including stepping, trips/slips and walking.

Risk factors for falls are being investigated in community dwellers and among those with Parkinson's disease, with a focus on the vestibular system, vision, and neuropsychological aspects. Studies of large populations will enable prediction of people at risk of falls and injury and thereby yield practical screening tools for clinical use in Australia.

The effect of different aspects of shoe design continues to be investigated with an aim of developing safer footwear for older people. Large randomised controlled trials will establish whether targeted falls intervention programs can prevent falls in older people staying in acute hospitals and in community-dwelling people at high risk of falls. These interventions will include multi-faceted programs and home-based and group exercise.



Testing shoe design using uneven surfaces

Physiological risk factors for falls in older people with lower limb arthritis

The Lord group conducted a study of 681 community-dwelling men and women aged 75-98 years, to investigate specific physiological risk factors for falls associated with lower-limb osteoarthritis, to better understand the increased risk of falls in people with arthritis. The 283 participants with lower-limb arthritis and 401 control participants underwent tests of strength, sensation, vision, reaction time and balance and were asked about pain and any falls experienced in the previous 12 months.

Investigators found those with lower-limb arthritis had reduced knee and ankle strength, poorer lower limb joint position sense and less stable standing balance, while being comparable in vision, tactile sensitivity and reaction time. The arthritis group experienced 22% more falls, which was associated with the poorer knee extension strength and standing balance. The team concluded that older people with lower-limb arthritis are at increased risk of falling due to deficits in neuromuscular systems and increased bodily pain and would benefit from targeted falls prevention intervention to address these specific deficits.

Nerve and Spinal Cord Injury

Injury is the leading cause of death for people under 45 years of age.

Injuries to the nervous system, such as brain and spinal cord injuries, are particularly devastating – often leading to lifelong disability. Injury research includes a range of studies from basic research into the mechanisms of injury, to developing improved treatments for injured people and developing strategies to prevent injuries.



Child injury

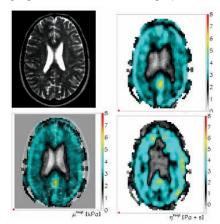
A/Professor Lynne Bilston's team of researchers have completed several major projects in the area of child occupant safety. Their extensive study of child occupants showed that children using inappropriate restraints and/or incorrectly using restraints are at a significantly increased risk of serious injury in car crashes.

Completing a thorough review of spinal injuries sustained by children aged 16 or under was a focus of this study. Investigations indicated that spinal injuries are occurring predominantly from traffic crashes and falls. Several off-road motorcycle spinal injuries were also seen, reflecting a need to discourage young children from riding motorcycles, both as drivers and passengers.

A large scale survey of restraint use by children up to age 12, suggested that the majority of children are not using appropriate restraints for their size. Appropriate restraint usage rates were best for children aged nine months to two years, and worst for children aged six to eight. In addition, this research demonstrated that carers had inaccurate ideas about child restraint laws, what were the best restraints to use, and this lack of knowledge appeared to influence how they restrained their children.

Brain elasticity

A magnetic resonance elastography project led by A/Professor Bilston has produced excellent high resolution maps of brain elasticity and viscosity and work has begun measuring muscle and tendon properties. This collaborative project



Above Brain MR elastography results showing brain elasticity, viscosity and elasticity overlaid on the brain anatomy

with colleagues from the University of British Columbia, Canada, using a rat model of spinal cord injury, has explained how the direction of a fracture dislocation results in different levels of cord injury.

Syringomyelia (fluid-filled cysts in the spinal cord)

Previously A/Professor Marcus Stoodley and his team demonstrated that fluid flow into the spinal cord is increased next to regions of scarring caused by injury.

In a collaborative project with A/Professor Bilston's group, computer modelling was used to show that fluid pressure is increased by such scarring and that this is likely to be responsible for the increase in fluid flow. It was also found that fluid accumulates in the cord next to scarring, even when there is no initial traumatic cyst.

Neuroinflamation

Work on the long term inflammatory effects of peripheral nerve and spinal cord injuries in animal models continued under Professor Elspeth McLachlan.

Reseacher Ping Hu used a second test lesion to investigate the generation of memory in T-lymphocytes after various types of nerve injury that trigger invasion of sensory ganglia and spinal cord by immune cells. His data suggested that breakdown products of degenerating nerve may be antigenic, as in multiple sclerosis, and may explain people's different reactions to injuries including the development of chronic neuropathic pain.

Researcher Kim Dilati continued Emma Kettle's work comparing the effects of blocking nerve activity generated at the injury site with the effects of blocking the much slower transport mechanisms that move proteins and breakdown products from the cut axons back to the cell bodies. It appears that neuro-immune signalling occurs mainly in the first 24 hours after the injury. As infiltrating blood cells like macrophages may be responsible for the progressive loss of sensory nerve cells after injury, early interventions that reduce inflammation should be neuroprotective. Ping Hu also completed Sarah McKay's work on microglial activation throughout the spinal cord after a mid-thoracic cord lesion. The team discovered a novel form of activation around neurones damaged by the lesion that no longer project to the brain. These cells progressively die, destroying the circuits that would be required to recover function after regeneration of descending pathways.

Changes in artery function following spinal cord injury

Bladder distension or minor unheeded injuries in people with spinal cord injury often lead to episodes of high blood pressure (autonomic dysreflexia) that may cause stroke or death.

The development of high blood pressure depends on activation of the sympathetic nerves that supply small arteries. In particular, it has been speculated that an augmented constriction of arteries that supply blood to the intestine plays a major role in triggering dramatic rise in blood pressure.

Dr James Brock and Professor Elspeth McLachlan have demonstrated that spinal cord injury produces a marked enhancement of sympathetic nerve-mediated constrictions of these arteries, providing the first direct support for this idea.

Effects of nerve injury on blood vessel function

Many people who recover from traumatic injury or who have chronic conditions such as diabetes suffer from peripheral vascular disorders leading to poor circulation in the extremities. These conditions are characterised by impaired wound healing, cold hands and feet and ongoing pain. These people must face a long life with progressively increasing disability. Even normal ageing can lead to similar problems.

Dr Brock's work is directed at understanding the altered role of the nerves in regulating blood vessels supplying skin in these disorders. The aim is to identify appropriate drug targets for which local application in the affected region can alleviate the symptoms without causing widespread side effects.

Human Movement – Initiation, Effect and Impairment

Professor Simon Gandevia's group of researchers are studying human movement – its initiation, its effects and its impairments in humans.

The motor cortex controls every voluntary movement made by the more than 600 muscles in the body. The precision of human movement is a hallmark of the evolution of primates. Damage to the neural pathways, as occurs in stroke, has devastating consequences including paralysis, loss of speech, impaired walking and other impairments of motor function.



Prof Simon Gandevia and Dr Jane Butler study the neural control of breathing

Obstructive sleep apnoea

Sleep apnoea affects over 4% of males and 2% of females in the general population and has many detrimental effects on health as a result of repeated airway occlusion, loaded breathing and periods of oxygen desaturation overnight.

Dr Jane Butler's team examined the physiological changes in inspiratory muscle reflexes in people with moderate and severe obstructive sleep apnoea (OSA). They found that the amount of reflex inhibition in the breathing muscles – diaphragm, chest and neck muscles – increased as the severity of OSA increased. That is, those people with the most severe OSA also had the biggest inhibitory reflex responses in their breathing muscles.

The reason for the differences in reflexes is not yet clear. However, the implications of the study are that the neural control of breathing is altered in people with OSA. They are now seeking further information to find out whether these changes are a cause or an effect of OSA.

Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a leading cause of death and disability. Its economic burden is increasing and it is the fourth leading cause of death in the western world. Its mortality among females has more than doubled over the last 20 years. Smoking remains the major cause of this disease which can be silent until lung function is markedly impaired.

Professor Simon Gandevia has a longstanding interest in how the diaphragm, the major breathing muscle, works in COPD. The neural drive to the diaphragm is measured directly with electrodes inserted into the muscle using ultrasound guidance. Using this method, Professor Gandevia and his team studied the drive to the diaphragm in patients with severe COPD before and after a surgical procedure which aims to remove the most damaged lung tissue (lung volume reduction surgery).

In a group of severely affected patients, the surgery improved lung function, increased diaphragm length and significantly reduced the brain's drive to the muscle for normal breathing. After surgery, improvements in patient's quality of life and exercise performance were related to improved neuromechanical coupling in the diaphragm. This study has revealed an important mechanism by which the lung surgery can reduce breathlessness and improve exercise capacity in this debilitating disease.

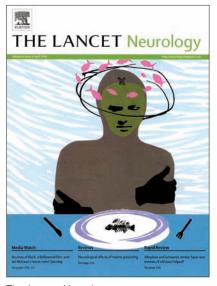
A focus on motor neurone disorders

Under the leadership of A/Professor Matthew Kiernan, a number of research projects were effectively linked with the recently inaugurated motor neurone disease (MND) clinical service run through Prince of Wales Hospital. Dr Steve Vucic commenced work as the clinical fellow of the Motor Neurone Disease Research Institute of Australia. Dr Vucic's work aims to establish the site of MND onset, using novel techniques that were developed at the Institute. Similar collaborative studies with the ANZAC Institute are underway in patients with familial MND.

In other research highlights, Sr Margie Zoing was awarded the first TOW Prize in the nursing division for her presentation on 'burning mouth' in MND patients. Jennica Winnhammar continues to explore the basis of respiratory failure in MND patients using neurophysiological and diffusion tensor magnetic resonance imaging techniques. The team presented their data at the 16th International Symposium on ALS/MND held in Dublin; with Sr Zoing's research highlighted by the International MND Alliance on their website.

Dr Arun Krishnan is writing up his PhD thesis, which has established that potassium is a critical factor in the development of neuropathy in patients with kidney failure. Dr Krishnan has been awarded the prestigious Australian Association of Neurologists position at the National Hospital for Neurology and Neurosurgery, Queen Square, UK, and will take up his post in 2006.

Finally, research studies from the lab covering neurotoxic marine poisoning were chosen as the cover illustration for *Lancet Neurology*, the highest impact journal in clinical neurology.



The *Lancet Neurology* cover illustration, April 2005

Making Sense of the Sensory System

Sensory receptors reside in virtually every part of the body. They are responsive to different stimuli and provide the brain and spinal cord with information about the body's internal environment and about the world around us.

Researchers are using a range of techniques to understand how the sensory system works, how it affects the motor output from the brain, and how it gives us an accurate 'sensory' map of the external world. This research aims to understand the changes in the sensory pathways after injury and other pathologies, including the involvement of the immune system in inflammation, leading to sensory disturbances such as hypersensitivity and spontaneous pain. Strategies to help patients with these conditions are being studied.



Dr Vaughan Macefield records nerve data from finger pads

Understanding how pain is initiated

Dr James Brock used a unique technique that allowed electrical activity to be recorded from the very fine nerve endings, the activation of which results in painful sensations.

Using this technique, the mechanisms, by which substances released in damaged and inflamed tissues lead to discharge of action potentials and the sensation of pain, have been investigated. The work is aimed at developing more effective treatments for pain.

Feeling the world: sensing forces at the fingertips

In a collaborative study with Professor Tony Goodwin and Dr Heather Wheat, Department of Anatomy and Cell Biology, The University of Melbourne, Dr Ingvars Birznieks, Department of Integrative Biology, Umeå University, Sweden and the Institute's Dr Vaughan Macefield inserted fine microelectrodes into the median nerve at the wrist in awake volunteers.

The aim of this study was to record from single sensory nerve fibres in the skin of the finger pads and determine how each of the four classes of low-threshold mechanoreceptor encodes compression and rotation forces applied to the skin. By applying controlled stimuli to the finger pad, we can emulate the forces developed during manipulation of held objects. This work extends from studies done by the Melbourne team on models which lack the one type of mechanoreceptor in the finger pads. By undertaking this work in human subjects, we can correlate the neurophysiological findings with the psychophysical findings and address the question as to how different types of sensory ending encode specific features of a mechanical stimulus.

MCRIC

Mayne Clinical Research Imaging Centre

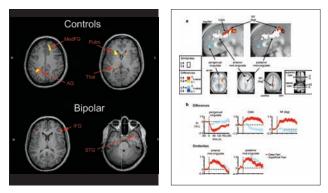
In January, Professor Caroline (Lindy) Rae was appointed NewSouth Global Professor of Magnetic Resonance at the Institute. The new chair arose from the Brain Sciences UNSW initiative in which the Institute and other UNSW affiliated Institutes and Hospitals co-ordinate their collective strengths in brain research.

Professor Rae has been developing new protocols for application on the 3 Tesla Magnetic MRI system housed in the Mayne Clinical Research Imaging Centre. This system allows researchers to non-invasively measure brain function, structure, connectivities and chemistry.

During 2005 there were 18 active research projects, run both by researchers from within the Institute and from other Australian institutions. These covered a range of interests including motor control, psychiatric disorders, the effects on the brain of long term cannabis use, pain and the neurobiology of sleep and snoring.

Use of the system has increased over the year and researchers expect to commence data acquisition in 2006 on another 10 projects, including investigation of the ageing brain, both normal ageing and various types of dementia, and a study of reading and what happens when reading ability is impaired.

New research equipment was acquired in 2005 (funded by the Australian Research Council and NHMRC) allowing a greater scope and support for research investigations. The system is available for use by researchers from POWMRI as well as from other institutions.



Integrated functional MRI and neurophysiological research

Dr Gin Malhi and Dr Jim Lagopoulos from the neighbouring Black Dog Institute took an integrated approach to examine emotional plasticity in patients with bipolar disorder. This allowed a detailed and sophisticated understanding of mood regulation from a cognitive neuroscience perspective.

Through the use of multimodal neuroimaging techniques such as functional MRI and Diffusion Tensor Imaging (DTI), they have been attempting to identify a biological marker of bipolar disorder and depression. Their research thus far (see figure) demonstrates robust differential patterns of activation in euthymic bipolar patients as compared to healthy subjects, suggesting that affective processing in patients is significantly diminished.

In 2006, they will attempt to integrate EEG and fMRI and attempt to deliver TMS within the scanner as they initiate a series of studies that examine the functional deficits in bipolar disorder and determine the neural basis of interventions, ranging from medication to meditation.

Differential activation of brain areas during pain originating in muscle and skin

In a collaborative study with Dr Luke Henderson, Professor Richard Bandler, Department of Anatomy, Sydney University and the Institute's Professor Simon Gandevia, Dr Vaughan Macefield has been using fMRI to examine sites of the brain involved in the processing of pain originating in muscle or skin.

Using small injections of hypertonic saline into a leg or forearm muscle, or into the overlying skin, the team found evidence of differential activation of certain brain sites during pain of differing qualities: muscle pain is characterised by a diffuse, radiating dull ache, whereas cutaneous pain is characterised by a local sharp burning sensation.

Using this model they have found that the pregenual cingulate cortex shows a decrease in signal intensity during the induction of muscle pain but not cutaneous pain, but shows a large increase in signal intensity in the primary sensory and motor cortex.

Above Left Functional MRI study of euthymic bipolar disorder showing different brain activation in patients with this condition compared to healthy controls **Above Right** Areas of the brain dealing with blood pressure control and pain





Under the direction of Professor Elspeth McLachlan and Professor Simon Gandevia, this Centre incorporates work on spinal cord injury by many laboratories in the Institute. The projects range from experimental studies of the effects of spinal transection on the responsiveness of blood vessels (Brock, McLachlan), the inflammation that may lead to spinal hyperexcitability (McLachlan), to better understanding of how spinal cysts develop in the long term after spinal injuries (Stoodley), and the design of improved child restraints in motor cars (Bilston).

Projects on people with spinal cord injury included measurements of the excitability of motor and sensory axons (Kiernan, Macefield), the evaluation of nerve-muscle units in atrophied muscles (McNulty), the development of stimulation techniques for generating more effective muscle force to assist coughing (Butler, Gandevia) and walking (Nickolls) during rehabilitation.

This year, the Christopher Reeve Paralysis Foundation awarded Professor George Paxinos a grant to produce the first atlases of the spinal cords of humans and mice assisted by computer reconstruction technology brought from Grenoble in France by Dr Olivier Palombi.

Dr Gunnar Wasner, a Research Fellow of the Humboldt Foundation in Germany, arrived to undertake a two-year study of the mechanisms underlying chronic pain after spinal cord injury.

An international symposium on Spinal Cord Injury Pain was held at the Institute as a satellite of the World Pain Congress in August, organised in conjunction with Professor Wilfrid Jänig from Kiel in Germany.



Tissue Resource Centre

In 2005 the Institute received funds from an NHMRC Enabling Grant to become a member of the Australian Brain Donor Programs facility.

Professor Glenda Halliday reorganised the Institute's brain tissue collection operation to formally recognise the new Tissue Resource Centre which collects donated human tissues for research purposes. This has required implementing a formal management structure with Heather McCann appointed TRC Manager, national protocols for brain tissue collection, as well as participation in state and national management committees and scientific review panels.

Approval of the brain donation protocols for tissue banking was given through the South Eastern Sydney and Illawarra Area Health Service and the UNSW Ethics Committees, paving the way for the implementation of these changes. This allows tissue access by other researchers, both in Australia and overseas. In addition, the TRC was awarded the capacity to bank tissues from blood (sera, lymphocytes, DNA), skin (fibroblasts) and nasal biopsies (olfactory epithelial and stem cells). New protocols and operations include frozen brain tissue for a wider range of genetic and biochemical studies.

During 2005, the Tissue Resource Centre received 42 brains from donors, both healthy and those with neurodegeneration, with 34 made available to further research on neurodegenerative conditions in laboratories around the world.

Plans are underway for 2006 when the TRC team will centralise the processing and storage of blood samples from the Australian Parkinson's Project, an NHMRC funded project.

Prizes and Awards

Simon Gandevia

Eminent Scientist of the Year Award in the field of Science and Medicine from the International Research Promotion Council for his work on post-polio patients.

Stephen Lord

Awarded a Doctorate of Science by UNSW for his work Physical and physiological function, falls and fractures in older people: surveillance, risk factors and intervention strategies.

Jane Butler

Awarded the AW Campbell award for the best contribution to neuroscience by a member of the Australian Neuroscience society over the first five post doctoral years.

Paul Foley

First prize in the Black Dog Institute's essay competition on the origin of the term *Black Dog*.

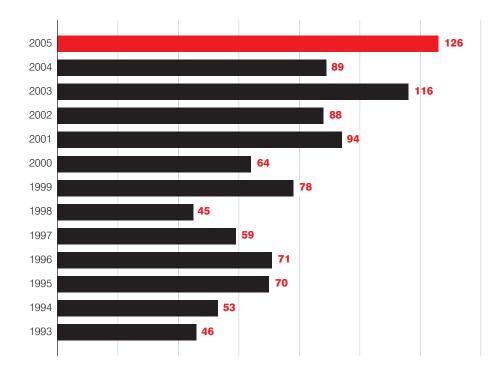


IRPC representatives Dr Cyriac, Hamish Holewa and Dr Pam McGrath congratulate Prof Simon Gandevia

Postgraduate degrees conferred in 2005

Student	Degree	Project Title	Supervisors
Dr Carolyn Orr	PhD	Triggers of microglia activation in Parkinson's disease	G Halliday and D Rowe
Negin Amanat	PhD	Development of a biodegradable drug delivery system for the delivery of bone healing compounds	L Bilston and D Little
Heidi Fedorow	PhD	Neuromelanin in human dopamine neurons	K Double, G Halliday and B Garner
Robert Gorman	PhD	Neural control and mechanics of human respiratory muscles during increased ventilatory drive	S Gandevia and D McKenzie
Gillian Gregory	PhD	Pathogenetics of onset dementias	G Halliday and P Schofield
Gabrielle Todd	PhD	Central fatigue	S Gandevia and J Taylor
Michael Yuen	PhD	Anti-whiplash seat design	L Bilston

2005 Publications



Steadily increasing research ouput. Our method of communicating our research fundings is through peer reviewed scientific publications, which together with edited books comprised 93% of our publications.

Books

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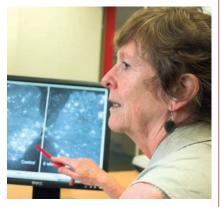
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Bilston LE, Review of draft RTA Bus Inspectors Bulletin Regarding Bus Door Closing Forces, Technical report to the NSW Road and Traffic Authority, March 2004.

Bilston L, Brown J, A Review of Paediatric Spinal Injuries in Traffic-related Incidents, A report to the Motor Accidents Authority of NSW, October 2005, 36 pages

Bilston L, Brown J, The potential for improved side impact protection in Australian child restraints, A report to the Motor Accidents Authority of NSW, April 2004, 133 pages

Bilston L, Yuen M, Brown J, Reconstruction of real world crashes involving child occupants, A report to the Motor Accidents Authority of NSW, August 2005, 52 pages

Brown J, McCaskill M, Henderson M, Bilston LE, Identification of Injury Mechanisms for Child Occupants aged 2-8 in Motor Vehicle Accidents, A report to the Motor Accidents Authority of NSW, April 2005, 71 pages

Footnote: Due to the change of annual report date from financial to calendar year both 2004 and 2005 publications are listed.

Service to the Scientific Community

Professional service to the scientific community and related organisations

Lynne Bilston

- Chair, IEAust National Panel on the Biomechanics of Impact Injury, 1996 – 2002
- Member, IEAust National Panel on the Biomechanics of Injury, 1995 – present
- Board Member, College of Biomedical Engineers, IEAust
- Kidsafe NSW
- Member, Australian Standards Committee for Child Restraints in Motor Vehicles (CS-085)
- Editorial Board Computational Methods in Biomechanics and Biomedical Engineering

James Brock

- President 2003-2005 Australian and New Zealand Microcirculation Society
- Treasurer 2005-2007 Australian and New Zealand Microcirculation Society
- Member, NHMRC Review Panel 2005
- Member, Animal Care and Ethics Committee, UNSW 2004
- Teacher, International Brain Research Organization Neuroscience Schools 2001 – present
- Editorial Board Autonomic Neuroscience: Basic and Clinical

Jane Butler

- Member, local Organising Committee, 2006 meeting of the Australian Neuroscience Society, 2005
- Judging Panel, Coast Medical Association, 2005
- Judging Panel, Australian Neuroscience Society

Kay Double

- Member, Management Council, Parkinson's NSW Inc
- NSW Representative of the Australian Association of Alexander von Humboldt Fellows
- Member, NSW Tall Poppy Science Award Selection Committee

Richard Fitzpatrick

- Editorial Board Journal of Physiology
- Editorial Board Gait and Posture

Paul Foley

• Books Editor – Journal of the History of the Neurosciences

Simon Gandevia

- Chair, Section on Exercise and Work Physiology for the International Union of Physiological Sciences, 2002 – present
- Co-Convenor of Exercise Group, Australian Physiological and Pharmacological Society, 1999 – present
- Associate Editor Journal of Applied Physiology, 2005 – present
- Editorial Board Encyclopedic Reference in Neuroscience
- Editorial Board Acta Physiologica Scandinavica (International Receiving Editor)
- Editorial Board Journal of NeuroEngineering and Rehabilitation
 Editorial Board – Australian Journal
- of Physiotherapy
- Faculty of 1000 Section Head for Muscle and connective tissue

Glenda Halliday

- Executive Director, Brain Bank, POWMRI and Parkinson's NSW Inc, 1995 – present
- Director, Tissue Resource Centre, POWMRI, 2005 – present
- Chair, NHMRC Grant Review Panel, Neurology & Brain Imaging, 2005-2009
- President/Past President (2004 2008), National Association of Research Fellows of NHMRC
- President (2005 2009), Australian Neuroscience Society
- Member, Scientific Advisory Board, Victorian Movement Disorders Collaborative Research Group, 1998 – present
- Member, Finance Committee, Faculty of Medicine, UNSW, 1999 present
- Member, Research Committee, Faculty of Medicine, UNSW, 1999 – present
- Member, Tow Research Committee, Coast Medical Association, 1999 – present
- Member, Membership Committee, International Brain Research Organization, 2001 – present
- Member, ad hoc professional appointment committees, POWMRI & UNSW Faculty of Medicine, 2003 – present
- Member, Network for Australian Parkinson's Project, 2003 – present
- Member, Network of Australian Brain Banks, 2005 – present
- Member, Organising Committee, 7th World International Brain Research Organization Conference, 2005 – 2007
- Member, Organising Committee, 17th International Congress on Parkinson's Disease and Related Disorders, 2005 – 2007
- Editorial Board Neuroscience Letters
- Editorial Board Acta Neuropathologica
- Editorial Board Journal of Neural Transmission
- Editorial Advisory Board Brain

Matthew Kiernan

- Chair, Specialist Advisory Committee in Neurology, Royal Australian College of Physicians
- Chair, Neurology Curriculum Writing Group, Royal Australian College of Physicians
- Member, Committee for Physician Training, Royal Australian College of Physicians
- Member, Conjoint Committee, Memorandum of Understanding between Specialty Societies and the Royal Australian College of Physicians
- Honorary Secretary, Australian Association of Neurologists
- Council Member, Australian Association of Neurologists
- Postgraduate Coordinator, Prince of Wales Clinical School, UNSW
- Member, Higher Degree Committee, UNSW
- Member, Examination Committees 4th and 6th Year Medicine, UNSW
- Member, Human Research Ethics Committee, Prince of Wales Hospital
- Board Member, Australian Brain Foundation NSW Committee
- Editorial Board Journal of Neurology, Neurosurgery and Psychiatry
- Editorial Board Journal of Clinical Neuroscience

Stephen Lord

- Vice President, International Society for Posture and Gait Research, 2001 – present
- Member, Osteoporosis Australia Medical and Scientific Committee
- Founding Member and Scientific Advisor, New South Wales Falls Prevention Network
- Member, Australian Injury Prevention Network
- Member, Injury Prevention Research Institutions of Australasia
- Establishment of Australian Falls Prevention Conference
- External advisor to European Union Fall Prevention Network (ProFaNE)
- Foundation member of Injury Prevention Research Institutes Australia
- Chair, Australian Falls Prevention
 Project for Hospitals and Residential
 Care Facilities Expert Panel, 2004 2005
- Member, Safety and Quality Council National Taskforce for the reduction of harm from falls, 2004 – 2005

- Member, Working Group for the development of standards for preventing falls injury in health care organisations, ACHS, 2005
- Editorial Board Gait and Posture
- Editorial Board Journal of Aging and Physical Activity
- Editorial Board Journal of Gerontology: Medical Sciences
- Editorial Board Journal of the American Geriatrics Society

Vaughan Macefield

 Chair of Local Organizing Committee, 2006 meeting for the Australian Neuroscience Society, 2005

Elspeth McLachlan

- Chair, International Program Committee, 7th IBRO Congress on Neuroscience
- Regional Coordinator, IBRO Public Awareness Committee Nuffield Foundation Medical Fellowship Committee
- AVCC Representative, ARC/AVCC/NHMRC Joint Working Group to revise the National Statement and Guidelines on Scientific Practice
- Selection Advisory Committee, ARC/NHMRC Thinking Systems
- NSW Regional coordinator, Australian Academy of Science
- Stakeholders' Committee, Australian Stem Cell Centre
- Advisory Committee, Parkinson's NSW Inc.
- Editorial Board Clinical and Experimental Pharmacology and Physiology
- Editorial Board Clinical Autonomic Research

George Paxinos

- President 2004 2005, Australian Neuroscience Society
- Editorial Board Neuroscience and Biobehavioural Reviews
- Editorial Board Journal of Chemical Neuroanatomy

Caroline Rae

- 2004 2006 Conference Secretary, ANZMAG – 06
- 2002 2005 Chair, Metabolism and Molecular Medicine Special Interest Group, Australian Society for Biochemistry and Molecular Biology
- Member, review panel board, Magnetic Resonance in Medicine

Peter Schofield

- Public Officer, (Lorne) Genome Conference Incorporated, 1992 – present
- Member, Pharmaceutical subcommittee, Australian Drug Evaluation Committee, 1995 – 2005
- Co-convener, The Neuroscience Panel & Member of Scientifi Advisory Committee, NISAD, National Institute for Schizophrenia and Allied Disorders, 1998 – present
- Foundation Director & Public Officer Discovery Science and Biotechnology Conference Inc, 2003 – present
- Member, Scientific Advisory Board, Mental Health and Addiction Research Centre, University of Otago, Christchurch, New Zealand, 2003 – present
- Member, National Neurosience Consultative Taskforce, 2004-2005
- Member NSW Neuroscienceand Mental Health Working Party, 2005-2005
- Member, Reference Group for development of NSW Medical Research Strategy, 2004-2005
- Member, Inaugural Course Management Committee, Australian Advance Neuroscience Initiative, 2004 – present
- Member, Scientific Advisory Board, Apollo Life Science Pty Ltd, 2004 – present
- Member, Program Committee, 11th International Congress of Human Genetics, 2004 – present
- Member, Legislative Review Committee of Prohibition of Human Cloning Act 2002 and research involving Human Embryos Act 2002
- Deputy Chair, NHMRC Grant Review Panel, 2005 present
- Editorial Board Psychiatric Genetics

Marcus Stoodley

- Member, Scientific Advisory Board, Cure for Life Foundation
- Member, RACS Board of Surgical Research
- Member, Brain Foundation NSW
 Committee
- Board Member, Australian Brain Foundation
- · Editorial Board Pediatric Neurosurgery

Funding

National Health and Medical Research Council

Bilston LE, NHMRC Senior Research Fellowship A (2004 – 2008), 2005 amount \$99,250

Brock J, Senior Research Fellowship A (2005 – 2009) 2005 amount \$103,500

Brock J, Mechanisms underlying disordered skin blood flow following nerve injury, NHMRC Project Grant (2005 – 2007), 2005 amount \$134,000

Butler J, Studies of motor control in health and disease, NHMRC RD Wright Fellowship (2004 – 2008), 2005 amount \$83,500

Butler J, McKenzie D, Gandevia S, Cortical, descending and reflex control of human inspiratory muscles, NHMRC Project Grant (2005 – 2007), 2005 amount \$109,625

Colebatch JG, Assessment of vestibular function and balance in humans, NHMRC Project Grant (2004 – 2006), 2005 amount \$63,250

Double KL, Halliday GM, Shepherd C, Brock J, Waters Alliance 2695 high pressure liquid chromatography system, NHMRC Equipment Grant, 2005 amount \$40,000

Finch CF, Stevenson MR, Norton RN, Zwi AB, Lord SR, Williamson AM, Cameron DI, , Addressing Injury in a Population Health Framework- an integrated approach to prevention, acute care and prevention, NHMRC Capacity Building Grant (2005 – 2009), 2005 POWMRI allocation \$77,400

Gandevia SC, Senior Principal Research Fellowship (2005 – 2009), 2005 amount \$156,500

Gandevia SC, Rae C, Halliday GM, Broe GA, Macefield V, Bilston LE, Colebatch J, Mitchell P, Sachdev P, Maglife 3T compatible patient monitoring system and coils, NHMRC Equipment grant, 2005 amount \$80,000

Gandevia SC, Proske U, Taylor JL, Fitzpatrick RC, Neural mechanisms underlying human proprioception, NHMRC Project Grant (2005 – 2007), 2005 amount \$187,878

Halliday GM, Principal Research Fellowship (2005 – 2009), 2005 amount \$125,250

Halliday GM, Glia and Parkinson's disease, NHMRC Project Grant (2003 - 2005), 2005 amount \$162,500

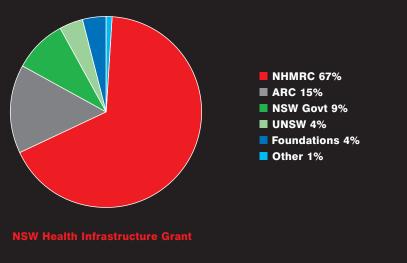
Halliday GM, Harding A, Brooks W, Kwok J, White L, Alzheimer's disease and dementia with Lewy bodies: How different are they?, NHMRC Project Grant (2004 – 2006), 2005 amount \$185,750

Lin C, Membrane properties of functionally identified C fibres in human and rat skin, NHMRC CJ Martin Fellowship (2003 – 2006), 2005 amount \$63,500

Lord SR, Principal Research Fellowship (2002 – 2006), 2005 amount \$115,000

Lord SR, Haren M, Cameron DI, Ivers R, Simpson J, A randomised controlled falls prevention trial of long distance glasses in elderly multifocal wearers, NHMRC Project Grant (2005 – 2007), 2005 amount \$204,000

Lord S, Kerr G, Anstey K, Broe A, Cameron I, Cumming R, Fitzpatrick R, Steele J, Wood J, Prevention of injuries in older people, NHMRC Health Research Partnerships in Injury (2002 – 2006), 2005 amount \$521,046



The Institute qualifies as one of the six large independent Institutes recognised under Stream 1 of the NSW Health Department R&D Research Infrastructure Program. The Institute has been successful in securing funding of \$1.48 million per annum for the current triennium (2003-2006).

The Institute also received \$1.07 million infrastructure funding from UNSW in 2005.

Macefield VG, NHMRC Senior Research Fellowship A (2000 – 2005), 2005 amount \$103,500

Macefield VG, Henderson L, The autonomic, somatic and central neural responses to deep and superficial pain in human subjects, NHMRC Project Grant (2005 – 2007), 2005 amount \$123,250

McLachlan EM, Immune-mediated inflammation in dorsal root ganglia after peripheral nerve injury and in sensory neuropathies, NHMRC Project Grant (2003 – 2005), 2005 amount \$120,000

Paxinos G, NHMRC Principal Research Fellowship (2001 – 2005), 2005 amount \$125,250

Paxinos G, Human hypothalamic homologues to autonomic control centres identified in the rat and monkey (2001 – 2005), 2005 amount \$76,621

Piguet O, Structural, functional and neuropathological correlates of normal and pathological cognitive ageing, NHMRC Neil Hamilton Fairley Fellowship (2003 – 2006), 2005 amount \$63,500

Potter EK, NHMRC Senior Principal Research Fellowship (2000 – 2005), 2005 amount \$141,500

Purves-Tyson T, Effect of estrogen on signalling mechanisms of the pelvic autonomic nervous system, NHMRC Peter Doherty Fellowship, (2004 – 2009), 2005 amount \$35,500 Schofield, P, Halliday G, Mitchell P, Wilhelm, K, Broe GA, Brodaty H, Tetrad 2 DNA Engine base unit and accessories; Chromo4 Real Time Alpha Unit, NHMRC Equipment Grant, 2005 amount \$80,000

Shepherd C, Geczy C, Raftery M, Halliday G, Targeting inflammatory mechanisms in Alzheimer's disease, NHMRC Project Grant (2004 – 2006), 2005 amount \$127,000

Taylor JL, NHMRC Senior Research Fellowship A (2003 – 2005), 2005 amount \$103,500

Taylor JL, Butler J, Gandevia SC, How changes in the motor cortex and spinal cord with exercise contribute to farigue in humans, NHMRC Project Grant (2005 – 2007), 2005 amount \$102,000

Hodges P, Lord SR, Physiology and pathophysiology of trunk control mechanisms, NHMRC Project Grant (2001 – 2005), 2005 amount \$30,000 (Administered by the University of Queensland)

Kril J, Creasey H, Halliday G, Understanding the variation in frontotemporal dementia, NHMRC Project Grant (2004 – 2006), 2005 amount \$136,750 (Administered by University of Sydney)

Little D, Bilston LE, Relationship of the anabolic and catabolic responses in healing a critical sized defect in rats, NHMRC Project grant (2005 – 2007), 2005 amount \$111,750 (Administered by University of Sydney)

Research Grants

The Institute attracts competitive external grant funding from a number of national and international organisations every year. Total peer-reviewed funds for the 2005 calendar year were \$5.44 million. The most significant funding body is the National Health and Medical Research Council. In 2005, NHMRC grants income was \$3.71 million. While the NHMRC continues to be a major source of research funding, there has been significant expansion of grant income from the Australian Resarch Council as Institute researchers continue to actively seek research funds from other sources.

Australian Research Council

Bilston LE, Finch CF, Hatfield J, Effectiveness and appropriateness of child restraints, ARC Linkage Project Grant (2005 – 2007), 2005 amount \$120,000

Bilston LE, Gandevia SC, Ehman RL, Development of new methods to measure in vivo properties of human body tissues, ARC Discovery Project (2004 – 2007), 2005 amount \$150,000

Broe GA, ARC Research network in ageing well, ARC Research Network grant (2004 – 2009), 2005 sub-contract amount: \$10,000

Burke D, Kiernan MC, Connor MA, Resurgent sodium currents in peripheral nerve axons and sensory neurons, ARC Discovery Project (2004 – 2006), 2005 amount \$90,000 (University of Sydney) POWMRI subcontract amount \$11,003

Foley PB, Encephalitis lethargica in the 1920s (and afterwards): the forgotten epidemic, ARC Discovery Project and Australian Postdoctoral Fellowship (2004 – 2006), 2005 amount \$80,000

Forgas J, Paxinos G, Affective influences, social thinking and behaviour: A social neuroscience approach, ARC Discovery Project (2004 – 2006), 2005 amount \$70,000

Hunt N, Rae C, Brain metabolic changes in experimental malaria: a paradigm for the molecular mechanisms of intravascular inflammation, ARC Discovery project subcontract, 2005 amount \$30,000

Malhi GS, Sachdev PS, Halliday GM, Colebatch J, Gandevia S, Rae C, Grunstein RR, Watson JJ, Magnetic resonance in humans: Equipment for neuroscience studies, ARC Linkage Infrastructure Equipment & Facilities, 2005 amount \$323,400

NSW Government (Dept of Health/Ministry for Science & Medical Research)

Kiernan MC, Origin and patterns of neuronal degeneration in motor neurone disease, NSW Ministry for Science & Medical Research Spinal Cord Injury & Other Neurological Conditions Project Grant (2005/6 - 2006/7), 2005/06 amount \$87,500

Lord SR, Kerr G, Anstey K, Broe A, Cameron I, Cumming R, Fitzpatrick R, Steele J, Wood J, Prevention of injuries in older people, NSW Health Department (2002 – 2006), 2005 amount \$\$0,000

McNulty P, Neurophysiological investigation of single motor unit properties, and sensorimotor integration and control in subjects with spinal cord injury, NSW Ministry for Science & Medical Research Spinal Cord Injury & Other Neurological Conditions Project Grant (2004/5 – 2005/6), 2005 amount \$100,000

Middleton J, Davis, G, Gandevia SC, Craig A, Nickolls P, Scott TRD, Lee BSB, Butler J, Lord SR, Enhancing functional recovery and independence after spinal cord injury, NSW Department of Health Spinal Cord Injury and Other Neurological Conditions Program Grant (2005 – 2008), 2005 amount \$250,000. POWMRI Subcontract 2005 amount \$135,255

Stoodley M, Cerebrospinal fluid flow in post-traumatic syringomyelia, NSW Ministry for Science & Medical Research Spinal Cord Injury & Other Neurological Conditions Project Grant (2004/5 – 2005/6), 2005 amount \$95,990

Vucic, O, Motor Neurone Disease, NSW Ministry for Science & Medical Research Spinal Cord Injury & Other Neurological Conditions Travelling Scholarship, 2005/06 amount \$6,000

Other Funding Bodies

Bilston LE, Finch CF, Hatfield J, Effectiveness and appropriateness of child restraints, Roads and Traffic Authority of NSW industry partner contribution to ARC Linkage Project Grant (2005 – 2007), 2005 amount \$33,000

Bilston LE, Finch CF, Hatfield J, Effectiveness and appropriateness of child restraints, Motor Accidents Authority industry partner contribution to ARC Linkage Project Grant (2005 – 2007), 2005 amount \$20,000

Broe GA, The role of the pre-supplementary motor area in age related gait slowing: a functional MRI study, Brain Foundation, 2005 amount \$10,000

Butler J, Abnormalities in respiratory muscle reflexes in patients with obstructive sleep apnoea syndrome (OSAS) – clinical assessment of reflex responses and their role in predicting OSAS severity, Clive and Vera Ramaciotti Foundations Establishment Grant, 2005 amount \$30,000

Double K, Variability in isoform expression patterns of tyrosine hydroxylase in Parkinson's disease, Brain Foundation, 2005 amount \$10,000

Double K, An investigation of the lipid and associated components of neuromelanin in Parkinson's disease, UNSW Faculty Research Grant, 2005 amount \$20,000

Double K, Halliday GM, An investigation of a role for neuromelanin in alpha-synuclein aggregation in Parkinson's disease, UNSW Goldstar Award, 2005 amount \$30,000

Duma S, Alzheimer's Australia Research Travelling Scholarship, 2005 amount \$4,752

Fitzpatrick R, Codamotion System – 3D camera unit, Clive and Vera Ramaciotti Foundation Equipment Grant, 2005 amount \$30,000

Hoang P, Herbert R, Gandevia SC, Passive properties of gastrocnemius muscle in people with muscle sclerosis, MS Australia, 2005 amount \$5,000

Huang Y, Travel grant to attend the American Neuroscience Annual Meeting, Washington, USA, Ian Potter Foundation, 2005 amount \$2,300

Kiernan M, Pathophysiology of oxaliplatin-induced nerve dysfunction and neuropathy, UNSW Goldstar Award, 2005 amount \$30,000

Kiernan M, Cortical hyperexcitability in motor neurone disease, Brain Foundation, 2005 amount \$10,000

Koutcherov Y, UNSW NewSouth Global Postdoctoral Research Fellowship (2003 – 2005), 2005 amount \$76,376

Lord SR, Prevention of injuries in older people, UNSW Faculty of Medicine contribution to Program grant, 2005 amount \$25,000

McLachlan E, Neurosensory analyser – a vital tool to assess sensation in neurological disease, Clive and Vera Ramaciotti Foundation, 2005 amount \$30,000

Paxinos G, Organisation of the human cortex as revealed by gene expression profiles, Rebecca 1 Cooper Medical Research Foundation Ltd, 2005 amount \$13,938

Paxinos G, An atlas of the human cerebral cortex, Ronald Geoffrey Arnott Foundation (2005 – 2007), 2005 amount \$30,000 Stoodley M, Cerebrospinal fluid flow in post-traumatic syringomyelia, Brain Foundation, 2005 amount \$15,000

Taylor JL, Measurement of voluntary activation using intramuscular pressure responses, Australian Academy of Science: Scientific Visits to Europe, 2005 amount \$10,700

Taylor JL, Butler JE, Changes in corticospinal transmission following voluntary contractions in human subjects, UNSW Goldstar Award, 2005 amount \$30,000

Dunn W, Brock JA, Wilson VG, McLachlan EM, Sympathetic neurotransmission in the resistance vasculature, The Wellcome Trust (2003 – 2005), 2005 amount £5,840 (Administered by the University of Nottingham)

Moseley GL, Tracey I, Gandevia SC, Non-invasive investigation of human brain mechanisms associated with the development and treatment of RSD, Reflex Sympathetic Dystrophy Syndrome Association, 2005/06 amount US\$49,808 (Administered by University of Oxford)

Scholarships

Chew JZZ, Department of Education Science and Training Australian Postgraduate Award (2004 – 2006), 2005 amount \$18,837

Clarke E, Department of Education Science and Training Australian Postgraduate Award (2004 – 2006), 2005 amount \$18,837+ University of Sydney top-up scholarship \$13,016

Krishnan A, NHMRC Medical/Dental Postgraduate Scholarship (2004 – 2005), 2005 amount \$29,489

Luu B, Department of Education Science and Training Australian Postgraduate Award (2005 – 2007), 2005 amount \$18,837 + UNSW Faculty of Medicine Rising Star award \$6,000

Martin P, Department of Education Science and Training Australian Postgraduate Award (2005 – 2007), 2005 amount \$18,837 + UNSW Faculty of Medicine Rising Star Award

Murray N, Prince of Wales Clinical School Postgraduate Research Scholarship, 2005 amount \$27,000

Saboisky J, Department of Education Science and Training Australian Postgraduate Award (2004 – 2006), 2005 amount \$18,837

Schofield E, NHMRC Dora Lush (Biomedical) Postgraduate Scholarship (2004 – 2006), 2005 amount \$20,484

Song C, Department of Education Science and Training Australian Postgraduate Award (2005 – 2007), 2005 amount \$18,837 + UNSW top up scholarship \$2,000

Vucic S, Kiernan M, Site or origin and patterns of neuronal degeneration in motor neurone disease, MND Research Institute Clinical Research Scholarship (2005 – 2006). 2005 amount \$75,000

Warden L, Prince of Wales Clinical School Postgraduate Research Scholarship, 2005 amount \$27,000

Fundraising and Public Relations

The Institute's Public Relations and Fundraising are active players in the support and enhancement of the work of the scientists – the roles being to encourage private and public support of the Institute through public affairs activity and fundraising efforts. Whether the goal is fundraising or image-building the two functions are, for practical purposes, combined. Public relations continue to foster a good public image in the community and, without a positive image, development and fundraising efforts will not succeed. Fundraising invites donors to participate in a worthwhile cause that brings huge benefits to the global community through research initiatives that lead to enhanced quality of life.

In the Public Relations arena, much of the activity is focussed on maximising favourable exposure among the general public and in mass media, locally, nationally and internationally. Publications are produced to promote the Institute's strong research areas, educate the community on the latest research outcomes and inform potential donors.



Prof Peter Schofield at Research Australia's 'Thank You Day'



Gala Dinner guests Paul and Mira Brassil with David Thomas

The role of philanthropy – helping to discover new cures

Progress in medical research is greatly accelerated by the generous support of individuals, foundations and corporations. The participation of these friends of the Institute furthers our mission of discovering and implementing new treatments for so many debilitating diseases.

In 2005, we extend our special thanks to the members of our honorary Fundraising Committee including Judi Hausmann (Chair), Ian Brown, Mike Da Silva, Verity Gibson, Robert Goldman, Adam Griffiths and Mardi Le Page. This dynamic group of people was invaluable in the organisation of our 2005 'Food for Thought' Gala Dinner. We thank them sincerely for their efforts.

Food for Thought Gala Dinner

Holding memorable fundraising events is becoming a tradition for the Institute, and this dinner was no exception. Food for Thought featured a seven course degustation dinner showcasing award-winning chefs from regional NSW and the ACT.

Guests dined on a stunning fusion of dishes from Pablo Tordesillas Garcia, Waters Edge in Canberra; Robert Molines, Robert's at Peppertree in Pokolbin; Laurent Deplanes, Collit's Inn at Hartley Vale; Steven Snow, Fins at Byron Bay; Michael Manners, Selkirks in Orange; Lorenzo Pagnan, Lorenzo's Diner in Wollongong and Jochen Hess, Four Seasons Hotel.

The dinner was hosted by ABC Radio personality Simon Marnie with entertainment by celebrity chef Luke Mangan and singer and songwriter Tim Freedman.

National Bridge for Brain Research Challenge

This year, B4BRC went national! Over 3,000 Bridge players throughout Australia played hands in support of the Institute's 2005 Challenge which raised funds for dementia research. The unique event was supported by the NSW Bridge Association, the Australian Bridge Federation and major sponsors Nokia, Ursa Communications and Video Easy.

IRPC Award Ceremony

The International Research Promotion Council's (IRPC) Eminent Scientist of the Year Award was conferred on Professor Simon Gandevia at a ceremony held in Sydney. Professor Gandevia received recognition for his outstanding research and for his broader contribution to science and medicine, particularly in the field of prior polio. The IRPC is an international organisation committed to promoting academic and research programs in science and medicine. The Award Ceremony was attended by representatives from the IRPC, Post Polio Network, plus colleagues from the scientific community and corporate representatives. Two of the highlights of the evening were an address by Joy McKean, widow of Slim Dusty and herself a polio sufferer, and a congratulatory video message from Steve Waugh whose grandmother contracted polio as a child.

ASX Reuters Charity Foundation

In 2005 the ASX Reuters Charity Foundation funded a spinal research nurse who assisted in a wide range of research projects into spinal injury. Eligibility for a grant from this philanthropic organisation hinges on the presentation of a significant research project and the ability to work in partnership with the Foundation to raise funds. Institute staff and volunteers join representatives from the ASX and Reuters to sell art union tickets throughout the year and provide volunteer support for the ASX Reuters Charity Golf Tournament and Dinner. We are sincerely grateful to ASX Reuters Charity Foundation for their continued financial assistance.

Direct mail appeals

Direct mail fundraising appeals are primarily aimed at sourcing new donors and promoting the work of our scientists. This year, the appeals supported the Institute's work in Alzheimer's and dementia, and child injury from car crashes. Through the 2005 initiatives, the Institute acquired 334 new donors and raised \$42,570.

Media coverage

Coverage over the 2005 period highlighted a number of researchers and projects including Professor Peter Schofield (NISAD Chair in Schizophrenia, the benefits of an active mind), Dr Daina Sturnieks (how joint pain affects sensory and motor functions), Dr Matthew Kiernan (marine poisoning), Professor Simon Gandevia (AuPS Council Exchange Lecturer, neural changes after lung volume reduction), Dr Kay Double (Parkinson's disease), Professor George Paxinos (navigating the brain, the 3D Atlas), Professor Tony Broe (mental activity to combat neurodegeneration, brain ageing), Professor Lindy Rae (NewSouth Global Professor in brain sciences appointment), Dr Penelope McNulty (how spinal injuries affect muscles, dance and the muscles), Dr Claire Shepherd (Alzheimer's disease), A/Professor Stephen Lord (falls in the elderly), Jasmine Menant (shoe design aids the elderly), A/Professor Lynne Bilston (child injury), Professor Glenda Halliday (Parkinson's disease, Brain Bank). The Institute also received coverage for its special events Food for Thought and Bridge for Brain Research Challenge.

Why Support the Institute?

It is difficult to envisage a cause more worthy of support than research designed to eliminate or alleviate human suffering. The Institute acknowledges the importance of financial support from the community at large. The generosity of donors, the corporate sector and individual benefactors has enabled the Institute to continue with research across a wide diversity of disciplines and with outstanding results.

We encourage you to become a supporter of our work. Your contribution will assist a new generation of researchers in their medical research and education and ultimately the health and wellbeing of the community at large.

There are many ways you can help. For a full list of opportunities, visit the Institute's website www.powmri.edu.au or phone 61 2 9399 1000. Mailing address for donations is PO Box 82, St Pauls, NSW 2031.

Thank you

Ab Abbornbrock, Ms Linda Abbort, Ms Jill Abboud, Mr George Abi-Aprixi, Mr Naja Abbud, Mr Vincent Affleck, Ms Carolyn Aggiris, Ms Helen Ahmed, Mr Rehan Ainsworth, Ms Belinda Ainsworth, Mr Mark Ajam, Mr/s GN Akopiantz, Ms Patricia Albert AO, Mr Robert O Albert Ms Barbara Alcher, Miss Diane Aldini, Ms Patricia Allana, Mr F Ina Alexander, Mrs J Allara, Mrs C Allara, Mrs C Allara, Mrs C Allara, Mrs S Andreson, Mrs N Anderson, Mrs S Andrews, Ms M Anderson, Mrs N Anderson, Mr S Anderson, Mr S Andrews, Ms M Angelopoulos, Mr Goorge Angus-Leppan, Mr/s P Antorws, Ms M Angelopoulos, Mr Goorge Angus-Leppan, Mr/s P Antwork, Ms Joan

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B Bailey, Ms Susan Bailey, Mr & Mrs Sam & Jenny Bailey, Mr & Mrs Sam & Jenny Bailey, Mr S Bainbridge, Mrs Doreen Baker, Mr R Baker, Ms Helen Balgowlah-Dee Why Bridge Club Ballint, Mr & Mrs P & M Ball, Mr Duncan Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Ballina Bridge Club Ballard, Mr & Mrs John & Glenn Barley, Mr K Barnes, Mr Michael & Frieda Barnes, Mr Frank Barnes, Mr Frank Barnes, Mr Frank Barnes, Mr Frank Barnes, Mr Pavid Becher, Mr/s A Beachamp, Mr David Becher, Mr/s W Bedford, Mr Martin Bell, Mr David Bell, Mr David Bell, Mr Mr & Mrs John & Lindsay Bennett, Mr & Mrs P

Bennett QC, Mr David Benson, Mr Roy Berger, Ms Lee Berzeviczy, Ms Maureen Berzan, Ms Diana Bignold, Mr IP Billinsky, Dr Christina Billston, Dr Lynne Bingham, Mr Henry Blackstock, Mr/s K Blair, Mr D Blackstock, Mr/s K Blair, Mr D Blackstock, Mr/s K Blair, Mr D Blackstock, Mr/s R Blayden, Mr S Bloom, Mr S Bloom, Mr Bloomfield, Mr/s R Blue Mountains Bridge Club Bluestone, Mrs O Bluestone, Mrs O Bluestone, Mrs O Bluestone, Mrs O Bluestone, Mr S Booth, Mr File Booth, Mr Stall Booth, Mr S Anne Booth, Mr S Mrs Philip Boothroyd, Dr Emmeline Booth, Mr S Mrs Philip Boothroyd, Br Eric Bowen Bridge Club Bowman, Ms Virginia Bowral Bridge Club Bowman, Mr Y S L Braus, Mr/S H Braus, Mr/S H Braus, Mr/S R Brayshaw, Ms Lola Breene, Mr J Brent, Mr/S L Bretten, Mr S Brenton, Mrs C Brereton, Mrs C Brereton, Mrs C Bridge at Club Willoughby Bridge at Club Willoughby Brient, Ms A Bright, Mr & Mrs M & M Bright, Mr & Mrs Roy & Noule Brisbane Water Bridge Club Brock, Dr James Broderick, Ms Elizabeth Brocher, Ms Elizabeth Brocher, Ms Elizabeth Brocher, Mr & His John & Maureen Brown, Mr & Mrs John & Maureen Brown, Mr & Mrs John & Maureen Brown, Mr Mark Brown, Mr Suzanne Brown, Mr Mark Brown, Ms Suzanne Brown, Mr Gary Brown, Ms Gay Brown, Ms Gay Brown, Ms Gooffey Brumley, Ms Dorothy Brunswick Valley Bridge Club Bryden, Mr & Mrs Buckley, Ms Y Buckwalter, Mrs Gerda Buckley, Ms Y Buckwalter, Mrs Gerda Bugen, Ms Gabrielle Burchfield, Mr Keith Burgess, Mr & Burnie Bridge Club Burns, Mr/s S Burns, Mr Stephen Burnie Bridge Club Burns, Mr Stephen Burnie Bridge Club Burns, Mr Stephen Butow, Mrs Clare Buttard, Ms Nicola Buttigieg, Ms Angela Buxton, Ms Alison Byrnes Transport

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The Phyllis Luker Society

Our People



A new Institute initiative has been launched with the establishment of The Phyllis Luker Society, a bequest society which recognises those supporters who have provided for philanthropy in their Will, naming the Institute as a benefactor.

Membership of The Phyllis Luker Society gives the Institute an opportunity to thank bequestors personally and acknowledge their generosity and concern for the eradication of diseases of the brain.

The Society is named in honour of a long-time supporter of the Institute who had the vision and foresight to make a very real difference to our groundbreaking research.

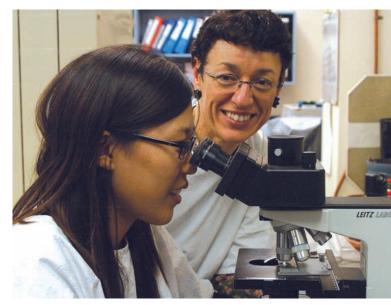
Miss Phyllis Luker was an unassuming person whose commitment to brain research led her to make donations over a number of years and to a determination to support the Institute after her death through a provision in her Will.

Hers is a story of an everyday person who was so moved by the terrible disease that affected her mother and sister that she became committed to eliminating Parkinson's disease. Through her bequest, the memory of her family will live on through future generations.

By advising the Institute of a bequest it provides an opportunity to thank the bequestor in person. All too often, the first indication of a bequest to the Institute is after a supporter has passed away.

Membership of The Phyllis Luker Society is open to anyone who confirms in writing that they have left a bequest of any nature (the size of a bequest is never asked) to the Institute.

Society Members are important supporters of the Institute and are invited to regular lunches to hear from guest speakers, meet like-minded people and Institute scientists, and to be brought up to date on current research.



Prof Glenda Halliday and Research Assistant Christine Song

The Institute has 14 staff at professorial or associate professorial level, and 10 staff holding NHMRC Research Fellowships.

During 2005 there were two Fellows of the Australian Academy of Science on the Institute staff, Professors Simon Gandevia and Elspeth McLachlan. One of the Institute's staff is a former President (Professor George Paxinos) and one is current President of the Australian Neuroscience Society (Professor Glenda Halliday); Professors Elspeth McLachlan and George Paxinos have been awarded the Ramaciotti medal recognising excellence in medical research; Professor George Paxinos has also been made an Officer in the Order of Australia (AO) for his service to neurological science; and two of the Institute's senior scientists, Professors Tony Broe and Shirley Sarks have been awarded Member of the Order of Australia (AM). Members of the scientific staff also occupy senior positions in national and international organisations concerned with nervous system function and dysfunction.

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Principal Research Fellows

Assoc Prof Lynne Bilston, BE(Mech)(Hons) MSE(BioEng) PhD (NHMRC SRF) Assoc Prof Stephen Lord BSc MA PhD DSc (NHMRC PRF) Assoc Prof David McKenzie MBBS BSc(Med) PhD FRACP (POW, Head, Respiratory Medicine) Assoc Prof Marcus Stoodley, MBBS(Hons) PhD FRACS (POWH Neurosurgeon, UNSW Senior Lecturer)

Senior Research Fellows Dr James Brock BSc(Hons) DPhil (NHMRC SRF) Dr Jacqueline Close MB BS MD FRCP (POWH Staff Specialist, Geriatric Medicine) Dr Matthew Kiernan MBBS(Hons) PhD FRACP (UNSW Senior Lecturer, POW Consultant Neurologist) Dr Vaughan Macefield BSc(Hons) PhD (NHMRC SRF) Dr Janet Taylor MBiomedE MD (NHMRC SRF)

Research Fellows

Dr Jane Butler, BSc(Hons) PhD (NHMRC RD Wright Fellow) Dr Kay Double BSc(Hons) PhD Priv. - Doz. (NHMRC RD Wright Fellow) Dr Brett Garner, BSc(Hons) PhD (NHMRC RD Wright Fellow) [from Nov 2005]

Senior Research Officers

Dr William Brooks BA MBBS MPH Dr Richard Fitzpatrick BSc(Hons) MBBS PhD Dr Woojin Kim BSc PhD [from Nov 2005] Dr Yuri Koutcherov BSc(Hons) PhD Dr Penelope McNulty BHMS(Hons) PhD (U Svd_NHMRC Peter Doherty Fellow) Dr Peter Nickolls MBBS BSc BE(Elec) PhD Dr Tertia Purves-Tyson BSc(Hons) MSc PhD Assoc Prof Wayne Reid BA(Hons) MPsychol PhD Dr Claire Shepherd BSc(Hons) PhD Dr James Tu MBBS(China) MSc PhD (POWH Senior Hospital Scientist)

Research Officers

Dr Paul Foley BSc(Hons) PhD (ARC Australian Postdoctoral Fellow) Dr Michael Green BSc PhD Dr Yue Huang BM MSc PhD Dr Matthew Kiernan MBBS(Hons) PhD FRACP (UNSW Senior Lecturer, POW Consultant Neurologist) Dr Cindy Lin MEngSc BE PhD (NHMRC CJ Martin Fellow) Dr Sarah McKay BSc(Hons) MSc DPhil Dr Olivier Piguet BPsych MA(ClinNeuropsych) PhD (NHMRC Neil Hamilton Fairley Fellow) Dr Farid Rahimi BSc(Hons)

Dr Daina Sturnieks BAppSc(Hons) PhD Dr Greg Sutherland BVetSci MHSci PhD Dr Nivan Weerakkody BBiomedSc(Hons) PhD Dr Leah Bent BSc MSc PhD (NSERC Visiting Fellow) [to April 2005] Dr Ingvars Birznieks Dr. MedSci, Dr. Biol (Swedish Medical Research Council Fellow) Dr Olivier Palombi MD - to Nov 2005 Dr Gunnar Wasner Priv. - Doz. Dr. med (Feodor Lynen Research Fellow, Germany)

Senior Research Assistants

Ms Julie Brown BSc Mr Ping Hu BMed MM Ms Heather McCann DipHlthSci Ms Hongqin Wang MBBS (China) Mr Collin Yeo

earch Assistants

Ms Adeline Akkari Ms Kerrie Atkins RN Mrs Joanne Blachura Ms Claire Boswell-Ruys BPhty Ms Rachael Brown RN Mr Bob Bryans Ms Anne Butler BA(Tourism Mgmt) Ms Francine Carew-Jones BSc(Med) Mr Hilary Carter Ms Heidi Cartwright BSc Mr Michael Cartwright BSc Ms Naomi Cook BMedSc(Hons) Ms Kim Dilati BPsych Ms Marcelle D'Ugo Mr Elias Glaros DipAppSci, BMedPharmBiotech [from Nov 2005] Mr Robert Gorman BE [to Nov 2005] Ms Emma Kettle BAppSc GradDip(Epidemiol) Ms Catherine Kirkham BPhthy Ms Marcella Kwan BSC GradDip(Biotech) GCHSM MPH Mr Francesco La Tella BSc(Maths) Ms Rachel McBain BMedSc(Hons) Ms Maaike Mintjes Drs (Neth) Ms Karen Murphy BSc(Hons) Ms Sandra O'Rourke BMedSc(Hons) Ms Teresa Orr RN MN Ms Svetlana Pianova MSc Ms Kate Plumb BA(Hons) Psychology Ms Mamta Porwal BHMS MPH Ms Janette Smith BPsych Ms Christine Song BSc(Hons) [to Feb 2005] Ms Rebecca St George BSc(Hons) BA Ms Julia Stevens BBiotech(Hons) Ms Anne Tiedemann BSc GradDipBiomedSci Ms Gabrielle Todd BSc(Hons) [to Feb 2005] Ms Diana Tripovic BSc(Hons) Ms Esther Vance BSc (Hons) PhD Ms Lolita Warden BSc [to March 2005] Ms Amy Watling BSc Mr Lajos Weisz Ms Tanya Wiendels BSc DipEd Ms Melanie Yeoh BPsySc [to April 2005] Mr Michael Yuen BSc [to Nov 2005]

Administration Ms Ursula Daniels

Ms Rosalie Dworjanyn BSc GradDipInfoMgmt Mrs Karen Gobbe Mrs Lee Hilton Ms Deborah McKay BHlthAdmin JP Ms Roslyn Nickolls BA DipEd Mrs Andrea Riley Dr Liz Temple BA PhD DipEd

Finance

Mr Andrew Dermott BEc CA, Company Secretary Ms Ruby Wang MCom

Information Technology

Mr John Hales BSc MBiomedE Mr Jimmy He Mr Jonathon Ong BSc (Comp Sci)

Public Relations and Marketing Ms Anne Graham RN MFIA

Fundraising and Events

Ms Stephanie Barker BA(Communication)

auests Ms Robyn Maher

PhD Candidates

Dr Athula Karunanayaka (P/T) Dr Arun Krishnan Dr Mark Latt Dr Jack Liao Dr Nick Murray Dr Kingsley Storer Dr Steve Vucic Cynthia Ashley Claire Boswell-Ruys Daniel Brooks Alex Burton Gang Cheng Shaokoon Cheng Svetlana Cherepanoff John Chew Elizabeth Clarke Stephen Duma David Elliott Guangqiang (John) Geng Eva Feredoes Phu Hoang Cindy Kersaitis Billy Luu Peter Martin Jasmine Menant Julian Saboisky Emma Schofield Christine Song Rebecca St George Anne Tiedemann Connie Vogler Alex Voukelatous Lolita Warden Philippa Williams Vanessa Young Wei Shin Yu Henry Zheng

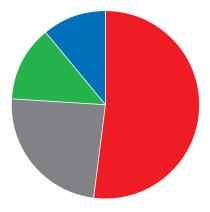
Masters Candidates

Iulie Brown Rachael Brown Annie Butler Marianne Huot Amy Watling Fatma Nasrallah

Honours Candidates

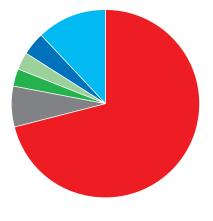
Aizza Biason Daniel Franks Anna Hudson Byron Seng Kone Kwok Nadine MacLaurin Natasha Mevawalla Lydia Ng Liz-Kim Pham-Ly Shilpi Yadav Kristy Yeung

Financial Summary



Income

- Competitive Research Grants 52%
- Infrastructure Support 24%
- Donations & Fundraising 13%
- Other 11%



Expenditure

- Salaries & Employee benefits 71%
- Depreciation & Amortisation 7%
- Fundraising 3%
- Building 3%
- General Operations 4%
- Other 12%

Financial information was extracted from the audited Financial Statements of POWMRI Limited, the statutory entity of the Prince of Wales Medical Research Institute, for the year ending 30 June 2005 and is included here for information purposes only. A full copy of the audited Financial Statements, including Notes to the Financial Statements and the Audit Opinions, can be obtained free of charge on request to the Finance Manager, Prince of Wales Medical Research Institute, Barker Street, Randwick NSW 2031.

Statement of Financial Performance for the Year Ended 30 June 2005

Revenue	01/02 \$000	02/03 \$000	03/04 \$000	04/05 \$000	
Research Grants	495	1,678	4,147	3,828	
Infrastructure	1,583	2,228	1,592	1,826	
Donations and Fundraising	778	1,262	211	1,000	
Other	315	542	564	822	
Total	3,171	5,710	6,514	7,476	
Expenses					
Salaries and employee benefits	1226	3271	4,832	4,955	
Depreciation and amortisation	385	430	478	467	
Fundraising	18	405	7	176	
Building	30	91	80	201	
General operations	226	135	314	297	
Other	714	854	658	808	
Total	2599	5186	6,369	6,904	
Operating Surplus	572	524	145	572	

Statement of Financial Position as at 30 June 2005

Balance Sheet	01/02	02/03	03/04	04/05
	\$000	\$000	\$000	\$000
Current Assets	5,535	5,096	5,163	6,938
Property, Plant & Equipment	6,375	7,220	6,945	6,552
Total Assets	11,910	12,316	12,108	13,490
Current Liabilities	1,576	1,351	885	1,655
Provisions	5	112	225	265
Total Liabilities	1,581	1,463	1,110	1,920
Retained Surplus	6,679	7,203	7,348	7,920
Reserves	3,650	3,650	3,650	3,650
Total Net Funds	10,329	10,853	10,998	11,570

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