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President's Message



Perhaps the best way to introduce myself as your new President is to give a quick summary of the issues which I think are facing the Institution – some of these

will be all too familiar to you. Most of these issues will be debated at the forthcoming Branch and Technical Group Forum in April, after which I will try to elaborate on each one in subsequent issues of *engineering dimension*.

As I hinted in my election platform, I have decided that my theme for the year will be “the young engineer”. This was confirmed for me by our latest meeting with our colleagues from Engineers Australia, who reported that their recent Year of the Young Engineer was highly successful. Our own rate of conversion of Student Members to Graduate Members leaves much to be desired, and will not improve unless we make the effort to understand the particular needs of young engineers and then try to meet those needs. IPENZ has already started some aspects of this process, but the Board has yet to decide on a structured approach or engage the Branches in this initiative. Ideas are welcome.

Our stated vision for the Institution is to hold a clear mandate to represent engineers in New Zealand, and of course in order to claim this we must represent the majority of engineers. Our Membership is far from this at present, and so over the last year we have been considering how to grow Membership numbers. Although our total Membership has grown quite significantly over the last five years, the number of Professional Members has remained quite static. Why is this, and how do we change it? Last year the Board reconfirmed that we will retain our broad Membership base which includes Technical and Associate Membership classes, but currently the number of Members in these classes is quite low. What specifically do we need to do to attract more of these Members?

Another set of issues relates to the volunteer base upon which so many of our activities rely. Similar organisations are finding it progressively more difficult to motivate volunteer assistance, partly because we seem to be working ever harder and partly because there are many activities competing for our spare time. So, how can we acknowledge and encourage the work which our volunteers are doing? Also, it puzzles me that while some Members say that the main benefit of Membership is networking at Branch activities, others pay their subs year in and year out but never participate in anything. Why is this? Does it matter? Can we turn them into more active Members?

Our role in public policy is growing, partly because we are steadily earning credibility with policy makers, but mostly because the issues on which we have something to say are becoming increasingly crucial to our economy and quality of life. Top of the list at present are energy, water, innovation and our technological skills base. I am finishing writing this column at Convention 2006; our keynote speakers have also placed engineers squarely in the frame for confronting the really tough issues which face our economy and environment. The obvious ones are global warming and nuclear power. They are tough for engineers because they involve complex interactions between the environment, economics, technology and human behaviour. They are especially tough for IPENZ because they are not issues on which Members are likely to reach consensus, but we can at least facilitate informed debate on these matters.

Finally, let me say that I believe that IPENZ is in sound shape and I expect this year to be one in which we continue to develop our current plans – I do not foresee any screaming u-turns. But then neither did I foresee the fire alarm in the middle of my address at the Fellows' and Achievers' Dinner!

Peter Jackson
President

IPENZ Congratulates 2006 Award Winners

The IPENZ Awards 2006 were presented at the Fellows' and Achievers' Dinner on Wednesday 22 March at the Duxton Hotel in Wellington. Here are the winners, followed by summaries of their outstanding contributions to the engineering profession and society.

The IPENZ Supreme Technical Awards for Engineering Achievers, sponsored by Opus International Consultants Ltd

The awards were presented by Kevin Thompson, Chief Executive of Opus International Consultants Ltd.



Dr Robin Dunlop is presented the Dobson Award



Claudia Zwimpfer receives the Rabone Award on behalf of her father Lawrence Zwimpfer



Ian Bywater is presented the Furkert Award



Dr Donald Clucas recipient of the John Cranko Award, is pictured with Elizabeth Coe



Above left:

Fulton-Downer Gold Medal – the President's Award

John Fitzmaurice with President Roly Frost

The President's Medal was renamed the Fulton-Downer Gold Medal in 2005 to recognise the Institution's heritage. It is awarded directly and personally by the President. John also won the Fulton-Downer Award in 1964 for his paper "Sewage Pumping Stations" when the Fulton-Downer Award was presented to the author of the best paper on a technical subject at the IPENZ technical conference.

Above:

IPENZ Student Design Award

Peter Jackson, incoming President, with the IPENZ Student Design Award winners Aaron Le Compte, Timothy Lonergan and Michael Willacy

Peter is Pro Vice Chancellor of the University of Canterbury where the 2006 winners carried out their award-winning research

Left:

Turner Award for Professional Commitment

Professor Michael Pender with President Roly Frost



IPENZ Supreme Technical Awards for Engineering Achievers

These biennial awards, sponsored by Opus International Consultants, recognise individuals who have demonstrated excellence and leadership in engineering practice over their careers to the benefit of the engineering profession. The four categories this year were:

- Dobson Award – Transportation
- Rabone Award – Information and Communications Technology
- John Cranko Award – Mechanical and Manufacturing
- Furkert Award – Sustainability and Clean Technology

Elizabeth Coe, a representative of the Cranko family, travelled from Melbourne to present the John Cranko Award in the category “Mechanical and Manufacturing”. Kevin Thompson, Chief Executive of Opus International Consultants Ltd, presented the other three awards.



Dobson Award in the category “Transportation”

Dr Robin Dunlop is currently Chief Executive and Secretary for Transport in the Ministry of Transport and is recognised for the expertise and experience that he has shared with the transportation community both nationally and internationally. He has held many leadership positions and has led change within the transportation sector.

Robin graduated with a Bachelor of Engineering (Hons) from the University of Canterbury in 1968 and completed a PhD in civil engineering on “Shrinkage and Creep Characteristics of Soil-cement” in 1972.

He has published many technical transportation and management papers and has been a consultant to the World Bank and International Road Federation Washington Program Centre on road agency structures and management. He has been a Director of the International Road Federation Washington Program Centre, a member of the council and Chairman of Austroads, past President of the Road Engineering Association of Asia and Australasia, a Fellow and Co-Chairman of Logistics and Transport New Zealand, and Director of the National Roads Board and of the New Zealand Institute of Management.

Robin has advanced the knowledge of the profession and received international acclaim for leading Transit New Zealand to consider environmental and social issues relating to highways and transport alongside technical considerations. As Chief Executive Officer of Transit New Zealand, he led the development and implementation of new cost-efficient methods for organising highway management. He was also the first delegate for New Zealand to the World Road Association (PIARC) and was awarded the 2003 International Road Federation Man of the Year Award in recognition of his pioneering activities and achievement in the realm of asset management and road funding. Robin’s achievements have had a decided impact on thinking processes around the world and the rationalisation of road management internationally.



Rabone Award in the category “Information and Communications Technology”

Lawrence Zwimpfer owns and manages a communications consulting firm and is recognised for the expertise and experience he brings to the business, and the community and educational organisations he serves.

Lawrence has used his engineering skills, knowledge and experience to help shape the knowledge industries in New Zealand. He has a particular passion for the education sector and has held three ministerial-appointed posts, including his current role as a member of the New Zealand National Commission for the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

Lawrence was the author of *Collaborating at Speed: Innovation Infrastructure for a Knowledge Economy* for the Next Generation Internet Steering Committee. He has been instrumental in helping to build a case for what is now the advanced network, and in convincing the government to invest in this project. The network will be a significant asset for research and education in New Zealand and will help keep the country at the forefront of research at the international level.

Lawrence has been an advocate for the adoption and uptake of information and communications technologies for the benefit of organisations and New Zealand as a whole. In this capacity, he has contributed to a number of organisations, including the New Zealand tertiary consortium for e-learning, the National Library, the 2020 Communications Trust and Wellington Girls’ College.

In his role as Business Futures Manager at Telecom New Zealand, Lawrence developed roles for Telecom to support industry-specific applications in areas such as education, technology support for senior citizens, and computer-based information for community groups. Lawrence also held significant positions at the Massachusetts Institute of Technology and the Institute for the Future at Menlo Park, California. In the early days of his career, he was a hands-on engineer with General Electric and the New Zealand Post Office (now Telecom New Zealand).



John Cranko Award in the category “Mechanical and Manufacturing”

Donald (Don) Clucas is an outstandingly inventive engineer who brings to his work comprehensive practical workshop skills and a highly developed ability as an engineering analyst and designer.

Don has made a significant contribution to innovation in the creation of technological products and was instrumental in developing the commercially successful Stirling cycle technology. His doctoral work created the promising and practical concept of a unique battery charger based on the Stirling cycle principle and his passion has been resolving the issues of harnessing its potential. He achieved this by utilising an ingenious wobble yolk mechanism to translate the four reciprocating motions into a rotating drive shaft.

Don’s work in developing the patented wobble yoke and other design innovations has led to the creation of Whisper Tech. Whisper Tech’s units have been chosen for one of the world’s largest residential “combined heat and power” installations based in Manchester, United Kingdom. By gaining a number of contracts in Europe, Whisper Tech has clearly demonstrated that it has the potential to earn significant income through sales to an increasingly international clientele. Don’s peers acknowledge that without his tireless dedication over the many years of development, the WhisperGen is unlikely to have reached this world-leading position.

Elected to Fellow in 2005, Don is a fitting example of a pioneering engineer who has made a significant contribution to New Zealand engineering.

Furkert Award in the category “Sustainability and Clean Technology”

Ian Bywater, Managing Director of Engenius Solutions, is at the forefront of New Zealand engineering and has worked tirelessly to advance engineering practices that enable solar and biomass energy to be used on a wider scale.

Whilst Manager of the Port Hills Energy Authority, Ian installed and operated the first small wind generator in New Zealand, paving the way for the fields of wind generators now prominent, though by no means dominant, throughout the country. Ian was also at the forefront of refining processes to harness the energy in biomass whilst General Manager of the Converttech Group. He continues to bring forward the lessons learned there to the sustainable energy industry.

In 2003, Ian won the New Spirit Challenge run by IEE, Europe’s largest engineering body, for his role in developing a model for dairy farms to achieve cleaner production and sustainable electricity energy. This was well-deserved recognition from a highly reputable international engineering authority



for a significant breakthrough in advancing engineering knowledge and innovation.

Ian’s record of activity in the development of the Institution has also been considerable. Ian has contributed to IPENZ activities through his contribution to the Sustainable Energy Forum and through his involvement with various Branch Committees and as a competence assessor and mentor.

IPENZ Student Design Award

This annual award, sponsored by Meridian Energy, recognises engineering excellence at student level and rewards innovation and entrepreneurial potential. It is designed to encourage students to combine and stretch their knowledge and skills in innovative and entrepreneurial ways and apply them to their design work in an enterprising context.

The winning entry for this year’s Student Design Award was so outstanding that the judges not only awarded it first prize, but felt it deserved the entire prize pool of \$3,000.

Malcolm Preston of Meridian Energy presented the award.



Michael Willacy, Timothy Lonergan and Aaron Le Compte of the University of Canterbury for “Active Insulin Control”

Michael, Timothy and Aaron undertook a research programme and trials to develop a mathematical model and algorithm for determining the required insulin dosage rate to maintain normal blood sugar levels in critical care patients.

The work involved extensive computer simulations and mathematical modelling to provide tables of safe and efficient insulin dosages for quick reference by nursing staff. The initial research output was interrelated tables, however, after trials and discussions with nursing staff, it was concluded that these involved an unacceptable degree of complexity. To simplify use and reduce the risk of error, Michael, Timothy and Aaron devised an ergonomically-designed “calculation wheel”.

Clinical trials using the wheel were undertaken and the results were collected and evaluated. They showed that the device will potentially decrease intensive care mortality rates by 20 per cent and cut annual health care costs. The direct benefit of this device to New Zealand is a saving of over 300 lives per year. The cost is less than \$1 per device; and savings for New Zealand district health boards alone are estimated to be in excess of \$13.5 million each year.



IPENZ Awards for Individual Distinction

Turner Award for Professional Commitment

This award is presented annually in recognition of a Member's continuing contribution to the profession of engineering, to the activities of the Institution and to society.

IPENZ President Roly Frost presented the award.



Professor Michael Pender, Professor of Geotechnical Engineering at the University of Auckland, has maintained an unyielding commitment to IPENZ and displayed the attributes recognised by the Turner Award throughout his career.

Since becoming an IPENZ Member 35 years ago, Michael has held numerous roles in the management and professional and technical leadership of a number of Technical Groups. He has upheld the image and promotion of the profession, advanced the profession's expertise, and encouraged young people to enter the profession and take an active role in IPENZ affairs.

Men and women from students to Fellows have had personal contact with Michael over the years, through the university, IPENZ and through the various Technical Groups he has been involved with: the New Zealand Geotechnical Society; New Zealand Society for Earthquake Engineering; and the Structural Engineering Society New Zealand. Generations of engineers will have memories of Michael's dedication to supporting the activities of the Faculty of Engineering at The University of Auckland. An impressive list of students can attribute their academic successes at least in part to Michael's support and he continues to teach the core subjects of foundation engineering, promoting the lessons learned during the cutting-edge research with which he has been involved.

Fulton-Downer Gold Medal – the President's Award

The IPENZ President's Award is presented annually to a Member or group of Members acknowledging their effort and achievement particularly where they have demonstrated the strengths of the engineering profession in its role of public service. The award comes directly and personally from the President, and is one of the highest accolades the Institution can bestow.



John Fitzmaurice was awarded the 2006 Fulton-Downer Gold Medal, the President's Award for public service, in recognition of his commitment to immigrant engineers.

John had an outstanding engineering career which included founding the consultancy Steven Fitzmaurice. Throughout his career, he contributed heavily to IPENZ, for example chairing the Auckland Branch in 1966, and to the New Zealand Water and Wastes Association of which he was awarded life membership in 1993.

In 2002 John answered the call to assist with preparing information for recently-arrived immigrant engineers and promoting them to potential employers. In 2003 he was instrumental in setting up the Special Interest Group for Immigrant Engineers (SIGIE). He joined the inaugural committee and continues to serve as the senior guiding figure for the Group. He has worked with government agencies to achieve funding for adaptation courses for immigrant engineers. John and his wife Betty have regularly hosted meetings of the Group, even to the extent of catering lunch, free of charge, for about 80 people at the 2004 AGM. John has given selflessly in carrying out these activities to assist new New Zealanders into worthwhile engineering careers.

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IPENZ needs to continue to protect and enhance the performance and reputation of the engineering profession both in New Zealand and overseas... Building on that I think we need to continue looking at ways in which engineering can interact constructively and productively with the wider community.

Bas Walker, IPENZ Vice President

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Distinguished Fellows

A Distinguished Fellow is a Fellow who has made an eminent contribution to engineering, technology or science, or other related area.



Bryan Bartley is elected a Distinguished Fellow of IPENZ in recognition of his eminent contribution to innovation in the creation of technological products, leadership in the profession of engineering, and service to the community, particularly in education.

Bryan spent much of his working life in quarrying and rose to the position of General Manager, Engineering for the Winstone Group, from which he retired in 1971.

Together with the late Jim Macdonald, a former Wellington City Engineer, in 1971 he invented the revolutionary BARMAC rock crusher, which won the UDC Inventors' Award in 1979. In 1993, together with John Blundell, he invented and patented Kiwi Feather propellers for racing and cruising yachts. These use composite materials for blades and incorporate unique features.

Bryan served as Chairman of the Auckland Branch of IPENZ in 1980, also chairing the 1980 Conference Committee. He served on the Institution Council from 1980 and was Executive Vice President (Professional Practice) from 1982 until 1984. He was heavily involved with the IPENZ National Committee on Engineering Heritage and was also involved with the production of *Engineering Auckland*.

He served as Chairman of the New Zealand branch of the Institute of Quarrying in 1985 and became International President of the Institute in 1991.

His community service is extensive:

- board member, Building Research Association 1983–1985
- member of Auckland Electric Power Board
- President of Auckland Civic Trust 1980–84, of which he is an honorary life member
- member of the board of Auckland Heritage Trust
- Chairman of the council of Unitec Institute of Technology 1990–1997
- member of the Executive Committee of the Association of Polytechnics 1991–1998

His service to Unitec is worthy of specific mention as he governed the institute through a period of growth in student numbers and academic expansion.

In 2000, Bryan was made Officer of New Zealand Order of Merit for his services to engineering and the community.



Professor Roger Key is elected a Distinguished Fellow of IPENZ in recognition of his eminent contribution to the advancement of engineering knowledge; specifically recognising his scholarly contributions to the research areas of drying technology and engineering risk management.

His career at the University of Canterbury spans several decades. Appointed initially to develop teaching and research into mass-transfer operations, Roger developed an enviable international reputation for his research on drying technologies, particularly of natural fibres. His research and teaching has always been epitomised by the word "scholarship". His firm adherence to fundamental principles, rigorous analysis and painstaking attention to detail led to many publications in prestigious journals, but perhaps more importantly to a number of books, internationally regarded as essential reading in the field. He has been invited to speak on his research at a number of prestigious international fora, is a Fellow of the Royal Society of New Zealand and recently won the Chemeca Medal – the highest honour for chemical engineers in Australasia.

Closer to home, the New Zealand timber drying industry has particularly benefited from Roger's expertise and commitment to technology transfer. In response to local concerns about process hazards, he developed a second area of expertise in engineering risk management and in this did not take long to become established as a leading authority. As well as scholarly output, he contributed heavily to codes of practice in this field.

Roger has continued to be a role model for engineering academics – producing internationally-recognised scholarly output, but also contributing to improvements in professional practice and New Zealand industry. He has also made a number of contributions to the wider community. He thinks deeply about issues and then speaks out so that others can benefit from his expertise.



Roy Sharp is elected a Distinguished Fellow of IPENZ in recognition of his eminent contribution to leadership in the profession of engineering; specifically recognising his outstanding leadership in academic institutions, firstly within engineering and then subsequently at a high level within three universities.

As a university Vice-Chancellor in New Zealand coming from an engineering discipline, he is possibly unique in that he commenced as a lecturer and over a 23 year period came through the grades to full professor (of materials engineering), spending four years as Dean of Engineering and a year as Deputy Vice-Chancellor all at the same institution (The University of Auckland), before moving on to senior leadership positions at other universities.

In 1996 he moved to Victoria University of Wellington where he was Deputy Vice-Chancellor and Professor, including one year (in 2000) as Acting Vice-Chancellor, before being appointed to his current position as Vice-Chancellor of the University of Canterbury in March 2003.

He has served on many important educational committees looking at future directions for tertiary education in New Zealand, both within engineering and within the broader tertiary education sector. He also served for two years on the IPENZ Board from 1997–1999.



Graeme Robertson is elected a Distinguished Fellow of IPENZ in recognition of his eminent contribution to leadership in the profession of engineering; specifically recognising his role in the institutional management of research and development in New Zealand, and his contribution to advancing the interests and management of the engineering profession.

Having graduated in chemical engineering in 1968 from the University of Canterbury, Graeme spent his early career as an engineer in the paper and pulp industry, mainly at Kinleith where he rose to Manager of the Technical Department, but also at the Swedish Forest Products Research Laboratory. A mid-career change saw him take up the role of Chief Executive of the Cawthron Institute in Nelson, one of the few privately-run research institutions in New Zealand and a landmark organisation in Nelson. Over a period of 17 years, he oversaw the growth of Cawthron by a factor of more than five, and its development into a highly competitive contributor to the environmental and biological sciences in New Zealand. He has recently taken up a new position as Chief Executive of Lincoln Ventures.

In concert with these activities, Graeme was an early and active contributor to the affairs of the profession. He was an early Chairman of the fledgling Chemical Engineering Group. This led into active engagement in the affairs of

IPENZ, culminating in his election as President for the 1994–1995 year. This was a key year for IPENZ as it saw the implementation of IPENZ's transformation into the organisation it is today. In conjunction with his immediate predecessors, Graeme played a key part in achieving the "mind set" changes that were essential to that transformation. He also had a clear vision of the need to set engineering in a wider context, and to recognise the achievements of people associated with engineering. As a result, his Presidential year broke much new ground for the profession, including the landmark election of racing bike designer John Britten to the class of Honorary Fellow.



IPENZ is a professional body that is passionate about New Zealand's future. You deal with the issues that my council also believes are fundamentally important to the future of New Zealand. Like my council, this convention has a focus on planning for the future. Thinking creatively about the future is one of our responsibilities and a challenge for both of us.

Kerry Prendergast, Wellington Mayor



Honorary Fellow

Honorary Fellows are individuals who are not engineers but are professionally engaged with engineers and have made an outstanding contribution relevant to engineering.



Henry van der Heyden is elected an Honorary Fellow of IPENZ for his eminent contribution to leadership in development of the New Zealand dairy industry; specifically recognising his commitment and support for building the technological capability of manufacturing plants to world class standards.

Although holding an agricultural engineering degree, he made his career as a farmer before becoming involved in governance in the dairy industry. In the early 1990s, Henry became a Director of the New Zealand Dairy Group and immediately his interest in and support for substantial capital expenditure projects to lift the technological capability of the company became evident. He was a strong and active supporter of projects such as the greenfields Lichfield cheese factory. Prior to the formation of Fonterra, in his role as Director and then Chair of the New Zealand Dairy Group, Henry oversaw and supported the investment of over \$2 billion in engineering capital works projects, all of which were characterised by delivering leading edge and innovative dairy manufacturing plants.

That support continues in his role as Chair of Fonterra – he actively supports capital budgets in the hundreds of millions per annum. He recognises the value of the analytical skills developed in his engineering education and applies an engineer's thinking process to issues at the board table. He is an outstanding example of an engineer who has become a leader with a commitment to implementing leading edge technologies and processes to attain a world market leader position for Fonterra.

Fellows

Fellows are Members who have made a significant contribution in one or more of the following areas:

- advancement of engineering knowledge or practice
- application of engineering or technology in the community
- advancement of technological education
- innovation in creation of engineering works or technological products
- leadership in the engineering profession
- development of the Institution



Lambert Anderson is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to the development of design methods for dams, canals and other structures containing large volumes of water. He has contributed to the success of a large number of diverse projects over an extended period of time and in a number of these projects successfully pioneered new methods or procedures. Lambert has actively contributed his knowledge through long-standing involvement in the New Zealand Society on Large Dams and by mentoring many young engineers.



Pathamanathan Brabhaharan is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to developing risk management methodologies for dealing with geohazards. He has willingly shared his own geotechnical knowledge with others by presenting award-winning papers on several occasions. Pathamanathan has also been heavily involved in preparing guidelines and standards for wider use in the engineering profession. He has served as a volunteer in several organisations, including Volunteer Service Abroad and the New Zealand Society for Earthquake Engineering.



Murray Brown is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering and to the development of the Institution; specifically recognising his long-standing and meritorious voluntary service in a variety of industry technical, professional and educational committees and boards. Murray is the epitome of the committed volunteer who always finds more time to contribute. His service activities range from IPENZ's Competence Assessment Board, to advisory boards for tertiary institutions, to the governing body of Roading New Zealand. He has been a stalwart behind Works Infrastructure's long-standing commitment to the Young Engineer of the Year Award.



Fraser Campbell is elected a Fellow of IPENZ for his contribution to the development of the Institution; specifically recognising his long-standing contributions to the activities of several Branches over two decades. Fraser has given countless hours and has always willingly stepped up to do more for the Institution. Many Members have enjoyed the benefits of well-developed local programmes run by hard-working Branch Committees under his leadership. In addition to his stalwart service at local level, he has also contributed to developing guidelines and codes of practice for infrastructural assets.



Doug Dell is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his leadership in the development of the electricity industry following deregulation. Following an outstanding career as a professional engineer in the power industry, he has actively contributed to problem resolution at a governance level since industry deregulation. Doug has provided advice to government on many occasions and across a wide range of subjects. He is the only member of the Electricity Commission with an engineering background and is widely regarded as providing a sensible and balanced perspective.



Lindsay Crossen is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his leadership within the roading sector during periods of very substantial change. Lindsay brings strong vision to all his activities and he has a high level of personal commitment to ensure the success of any nationally important initiative with which he is involved. He exhibits and expects the highest ethical standards and his leadership in this respect has been a significant contributor to the increasingly positive profile that the road contracting sector now enjoys.



John Foote is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his leadership contribution in the electricity industry following deregulation. John is widely respected for “walking the talk” in terms of business ethics. He is recognised as a compassionate person who, during times of dramatic change, engendered employee support for new approaches based on commitment to sustainability and service to communities. He is a valuable role model for the business engineer by taking a leadership role and continuing to demonstrate the highest personal qualities.



Barry Darroch is elected a Fellow of IPENZ for his contribution to innovation in the design of technological products; specifically recognising his contributions to innovation in supply chain technologies. Following a successful career in the manufacturing sector, he has built a highly specialised niche consultancy which has proven to have world-class expertise in the design of distribution centres and materials handling technologies. Barry’s expertise is sought by clients throughout Australasia and the Pacific. Central to the success of his consultancy business has been a training programme for developing young engineers so that the competitive advantage arising from Barry’s own knowledge can be rapidly expanded. He was founding Chairman of the Institute of Materials Handling New Zealand.



Bill Gordon is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his contributions to developing international business opportunities for New Zealand-based engineering consultancies. Following a successful career as an engineering practitioner, he has made his mark as a far-sighted director of an engineering consultancy company. Bill has been a leading promoter of New Zealand-based capability to undertake performance-based engineering and to compete in emerging markets for engineering services. He has also participated widely in the engineering profession’s activities – mentoring younger graduates, supporting technical societies, undertaking competence assessments, and contributing through ACENZ and advisory roles.



Robert Davey is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to earthquake risk management and mitigation procedures for heavy infrastructure. He has been sought-after by both national and international clients for this expertise. Robert has shared his considerable knowledge with others both in New Zealand and internationally through his work for the United Nations following earthquakes in the Middle East. He has also contributed to IPENZ Branch Committee activities.



Chris Harrison is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to facilitating institutional strengthening of developing country government agencies responsible for delivering physical infrastructure – ranging across much of South East Asia and the Pacific. The span of this activity has included developing engineering, environmental and social impact codes and guidelines for the planning, design and management of infrastructure, tailored to local conditions. Chris has recognised the need to develop local engineering staff as part of these processes and this has contributed to the success of his work. He is also actively involved in bodies fostering international business linkages.



Ian Johnson is elected a Fellow of IPENZ for his contribution to innovation in the creation of engineering works; specifically recognising his contributions to developing standardised, pre-stressed concrete beams for bridges. He has developed a highly specialised and innovative engineering practice while being based in a provincial town. Ian has been an active contributor to the Wanganui Branch of IPENZ and is also active within ACENZ. He is heavily involved in community activities in Wanganui.



Rolfe Hartley is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his contributions to the engineering profession internationally through his leadership role as National Deputy President of Engineers Australia. In parallel with a busy professional engineering career, Rolfe has given many years of service to Engineers Australia, initially with Canberra Division and more recently on the National Council. He is now National Deputy President and is recognised as bringing a clear perspective and a passion for professionalism to his leadership role in IPENZ's sister institution. He willingly interacts with IPENZ, sharing his ideas and knowledge for the benefit of both institutions.



Fred Johnson is elected a Fellow of IPENZ for his contribution to the application of engineering and technology in the community; specifically recognising his contributions to amateur radio both in New Zealand and internationally. He represented New Zealand at several international radio spectrum management fora and has held office as the Chairman of Directors of the International Amateur Radio Union's region three. Fred's voluntary contribution spans several decades, continuing long after he retired from the workforce. He was recognised for his contribution to amateur radio in New Zealand when he became a Member of the New Zealand Order of Merit in 2002.



Rhonda Hill is elected a Fellow of IPENZ for her contribution to the development of the Institution; specifically recognising her long-standing contributions to her Branch, the governing Board and the Competence Assessment Board over many years. Rhonda has never stepped back when asked to serve her profession. She has undertaken a variety of roles within her Branch Committee and has also given many hours on national issues. She served on the Competence Assessment Board immediately after CPEng start-up, a time of enormous workload, and has always brought the voice of common sense and reason, plus strong advocacy for the provincial engineer, to the table.



Max Kennedy is elected a Fellow of IPENZ for his contribution to the advancement of engineering knowledge and innovation in the design of technological products; specifically recognising his contributions to developing leading edge facilities in New Zealand for manufacturing human pharmaceuticals. Max has a significant international reputation arising from his research into fermentation technology, but what makes his contribution unique is his integration of research with practice through developing a pharmaceutical manufacturing facility that meets international best practice standards. He has played a leadership role in developing the New Zealand Biotechnology Association and is on the Board of NZBio.



Murray Jackson is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his leadership in the electricity industry. He has occupied positions with a high level of responsibility in both Australia and New Zealand. He has worked to ensure that decisions are both technically and economically sound and also meet community needs. He has been a strong supporter of the "engineers as leaders" campaign and was recognised by Engineers Australia for his leadership before coming to New Zealand.



Trevor Kelly is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to improving analysis and design methods within earthquake engineering. As well as applying his skills within landmark building design projects such as Te Papa, Trevor has shared his knowledge through a range of technical papers which have helped develop improved codes of practice for seismic protection. His design guide is a free download from his employer's website, thereby making his knowledge available to all.



Colin Martin is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his contributions to developing New Zealand manufacturing. For more than a decade his name was synonymous with advocacy for the manufacturing sector as President of the New Zealand Manufacturers Federation and he continues his involvement today as President of the Employers and Manufacturers Association in the Northern Region. Colin's voluntary work has been epitomised by clarity of vision, well-researched analysis and passionate delivery to ensure that manufacturing, and especially export manufacturing, is recognised for its substantial contribution to our economy and that its continued growth is encouraged and supported.



Ray O'Callaghan is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his contributions to the development of the consulting engineering sector. He has displayed a clear understanding of what is important for consulting engineering businesses to succeed and has exhibited leadership on behalf of that important industry sector over a number of years. Ray was ACENZ President in 1998 and 1999, following many years on its board. He was heavily involved in developing several practice notes and led submissions to government on a number of issues.



Ross McCowan is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to developing specialised methodologies for capital projects in the dairy industry. Each year the engineering team he heads spends hundreds of millions of dollars on projects that involve high levels of technical innovation and the absolute need for adherence to a timetable. Under Ross's leadership, Fonterra has developed operating procedures and codes of practice that meet these needs but are also fair to suppliers and therefore support a wider industry. He has strongly supported graduate development programmes.



Bill Pitt is elected a Fellow of IPENZ for his contribution to the application of engineering and technology in the community; specifically recognising his contributions to preserving engineering heritage. He has demonstrated commitment and perseverance in pursuing the preservation of important aspects of New Zealand's industrial heritage, with particular emphasis on electromechanical devices and refrigeration technology. Bill's contribution has been much more than passionate advocacy – he has worked out innovative ways to make preservation possible on reasonable budgets and in ways that the restored plant can be viewed and enjoyed by all.



Bob Nelligan is elected a Fellow of IPENZ for his contribution to innovation in the creation of engineering works; specifically recognising his ability to develop leading edge solutions to very complex mechanical engineering problems. He has shown how a highly specialised and innovative engineering practice can prosper through attention to maintaining leading edge standards. Bob's knowledge has been recognised by demand for his services as an expert witness and a forensic engineering investigator. He has contributed significantly to his profession through his heavy involvement with ACENZ, in particular giving many hours to judging the ACENZ awards.



John Reynolds is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice, specifically recognising his contributions to bridge asset management methodologies. He is an expert adviser to a number of road authorities, providing peer reviews and advice, and was a leading contributor to the preparation of Transit New Zealand's National Bridge Asset Management Plan. John has shared his knowledge widely in the industry through his long-standing commitment to contribute regularly to seminars on bridge inspection and maintenance. His expertise has been recognised in Australia through his ongoing involvement in Austroroads activities.



Chris Olsen is elected a Fellow of IPENZ for his contribution to leadership in the profession of engineering; specifically recognising his leadership in building consensus on key issues within the road contracting industry. Under his leadership, Roding New Zealand has developed industry-wide approaches for researching, developing, implementing and reviewing best practice. Chris's vision in establishing industry-wide training programmes has enabled the sector to respond to increased workloads far more easily than many had predicted. His engagement with key ministers has been exemplary, giving the government confidence to increase its investment in the sector.



Neil Rogers is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice and to the development of the Institution; specifically recognising his contributions to codes of practice for road transport vehicles and his long service to both his IPENZ Branch and the Road Transport Certifying Engineers Technical Interest Group. Neil provided leadership to restore confidence in the relationship between the relevant regulator and the practising community and put considerable effort into developing the Group. He has also been heavily involved in the development of codes of practice and contributes to his IPENZ Branch on a regular basis.



Wolfgang Scholz is elected a Fellow of IPENZ for his contribution to the advancement of engineering knowledge and leadership in the profession of engineering; specifically recognising his contributions to the development of welding technologies and the metals industry in New Zealand. Wolfgang is a leading New Zealand expert on metal technologies, establishing the New Zealand Welding Centre. He has also developed collaborative arrangements with overseas agencies for the benefit of the New Zealand metals industry. His leadership ability has been illustrated by the establishment of industry sector groups to work with the Heavy Engineering Research Association, of which he is Director.



Grant Webby is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to dam break flood hazard assessment methodology. He has developed his ideas on complex physical behaviours into workable methodologies which he has researched and published so that others can benefit. Grant's expertise has been recognised by his inclusion on expert panels and in groups working on codes of practice and guidelines. He has been active as a peer reviewer of papers and as a mentor for a number of younger engineers.



Paul Stephenson is elected a Fellow of IPENZ for his contribution to innovation in the creation of engineering works; specifically recognising his contributions to breaking new ground and introducing true innovation to New Zealand process engineering. His projects have the reputation of working first time, even when breaking new ground. Although much of his work remains confidential, Paul's innovative engineering designs have received wider recognition through IPENZ and Institute of Chemical Engineers (UK) awards. He has contributed to the profession through his long-standing involvement as a practice area assessor.



Peter Xu is elected a Fellow of IPENZ for his contribution to the advancement of engineering knowledge; specifically recognising his contributions to the development of mechatronics expertise in New Zealand. His research on robotics is characterised by an analytical rigour which has enabled him to publish frequently in prestigious international journals. Peter enjoys an enviable international reputation and, importantly for a pioneer in his field in New Zealand, he has formed links to industry. He has supported the wider professional development of engineering graduates and has undertaken activities designed to promote engineering careers more generally in the community.



Elena Trout is elected a Fellow of IPENZ for her contribution to leadership in the profession of engineering; specifically recognising her contributions to meeting community needs during the development of infrastructural assets. Over the last decade Elena has displayed vision and commitment which, when combined with her excellent communication skills, has enabled significant progress to be made on many politically-sensitive transport projects in the Auckland region. Faced with many sceptics, she has been a convincing advocate for a long-term public transport strategy that will benefit the whole Auckland region.



Graham Voysey is elected a Fellow of IPENZ for his contribution to the advancement of engineering practice; specifically recognising his contributions to design methods for long-span structures that must also carry significant live loads. He has completed technically demanding building designs in several countries and has developed world best practice software to assist the design process. Graham has been heavily involved in his employer's graduate development programmes and, although he keeps out of the public eye, he has a reputation for sharing his engineering knowledge with others.



The future of New Zealand is in the hands of engineers. We don't know what the future holds but as we head towards 2020 our country will see significant changes. Forward thinking and planning for tomorrow are crucial to our economic and social prosperity.

**Charles Willmot,
IPENZ Director – Engineering**



Highlights from Convention 2006 – Vision 2020

Outgoing President Roly Frost set the tone for IPENZ Convention 2006 in his welcome address. Speaking on the theme “Vision 2020”, Roly said that he believed we can have a better country and that engineers have a dominant role to play in achieving this.

Echoing this view in her opening address, Wellington Mayor Kerry Prendergast outlined her vision for 2020 on issues including the transport system, the built environment and fuel usage, and challenged engineers to work out how to make it happen.

The four keynote speakers engaged and informed Convention delegates. Adrian Orr, Deputy Governor of the Reserve Bank, highlighted the role of the Reserve Bank in maintaining New Zealand’s financial stability. Dr Morgan Williams, Parliamentary Commissioner for the Environment and Allan Gammon, BP Oil Innovation Manager, emphasised the driving force that is climate change. “There is nothing else that is going to have more impact”, said Morgan. He went on to challenge engineers to see redesigning for sustainability as an opportunity for innovation. Allan encouraged engineers to look at all possible ideas, saying there will be no one solution to meeting our future energy needs. Following on, Transit New Zealand Chief Executive Rick van Barneveld outlined the leadership skills and attributes that will be required to meet the needs of 2020, and urged engineers at all levels to take the lead now.

Day two’s technical sessions provided tools, tips and ideas on a wide range of projects and practice areas, from an insight into the development of Genesis Energy’s 385MW CCGT to an “explosive” presentation on getting the best from PowerPoint. An interactive panel discussion on “Women and Engineering” produced a range of ideas and strategies for retaining female engineers in the workplace, which were captured by IPENZ staff for further development.



Wellington Mayor Kerry Prendergast

A highlight of Convention was the Fellows’ and Achievers’ Dinner, where Members and their guests celebrated the achievements of peers and engineering leaders. In his closing address, new President Peter Jackson highlighted the importance of Convention as the main networking event of the year, saying that it is a key part of our communication, both between Members and others outside the engineering profession.

Thank you to all Members who came to Wellington for Convention 2006 – the event would not have been a success without you.

Changing of the IPENZ Guard



Above, left to right: IPENZ Senior Office Bearers; outgoing President Roly Frost (R) and incoming President Peter Jackson; Peter Jackson handing over his badge of office to new Deputy President Jeff Jones; Jeff Jones and new Vice President Bas Walker (L)

Below: Roly Frost and Peter Jackson complete the formalities



New IPENZ Board Members

The IPENZ Board is responsible for the governance of IPENZ, establishing broad policy objectives, agreeing these with the Chief Executive and monitoring their implementation. Elected to represent the interests of the Members, the Board concentrates on IPENZ's strategic policy and planning issues.

The results of the 2006/2007 Board Election were announced during Convention 2006. Richard Haverkamp returns to the Board for a third two-year term. Joining the Board are Bas Walker as Vice President, and three new Board Members: Steve Abley, Nicki Crauford and Chas Charlton.

The IPENZ Board for the term April 2006 to March 2007 is:

President	Peter Jackson	
Deputy President	Jeff Jones	
Vice President	Bas Walker	
Immediate Past President	Roly Frost	
Board Members	Ross Major	Richard Haverkamp
	Chris Mardon	Steve Abley
	Deane McNulty	Nicki Crauford
	Debbie Scott	Chas Charlton



Bas Walker DistFIPENZ has had extensive experience at very senior levels in the state sector and as an independent consultant. Bas was most recently Chief Executive of the Environmental Risk Management Authority (ERMA New Zealand). Prior to this Bas was an independent consultant and carried out a variety of assignments including business analysis of CRIs and SOEs, developing performance indicators for the Fire Service, developing management frameworks for small departments, providing advice on frameworks for the funding and development of research for the Ministry of Research, Science and Technology, and management training for Commonwealth governments.

In the early 1990s Bas had the key start-up role as Chief Executive for the new Ministry of Research, Science and Technology. Bas was also assigned the role of carrying through the reorganisation of the Ministry of Defence in the late 1980s, in line with the outcomes of the Quigley review. Prior to this, Bas had a variety of key roles in the energy sector in New Zealand and this culminated in a period of three years as Secretary of Energy (Chief Executive).



Steve Abley MIPENZ, CPEng, IntPE(NZ) is a self-employed transportation consultant based in Christchurch. Steve completed a New Zealand Certificate in Engineering while working for Royds Garden (now MWH), before moving to Fulton Hogan. In 1996 he graduated with a Bachelor of Engineering (Honours) from the University of Canterbury.

Steve spent over four years living and working in London before returning to New Zealand in 2003

where he has continued to specialise in transportation. He undertakes consultancy commissions from local authorities, non-profits, other consultants and developers. In 2005 he was awarded a Hume Fellowship to travel overseas and study successful sustainable transport initiatives.

He has been significantly involved in the IPENZ Canterbury Branch since returning from overseas. In 2004 he was elected Chairman and he will continue in this role while also being a Board Member. Steve says his election to the Board provides him with the ability to increase Membership and provide tangible Member benefits. He's looking forward to contributing on national issues and representing Members' views.



Nicki Crauford FIPENZ is a senior executive with over 20 years' experience in the oil, gas, electricity and banking sectors in the United Kingdom and New Zealand. She is currently the Chief Executive of the Institute of Directors. Prior to taking on her role with the Institute, Nicki was with Transpower New Zealand for nine years where she was General Manager Strategy. After leaving Transpower in 2003 she operated as an independent consultant in business.

She has experience in project and performance management, business planning and strategy development as well as a practical understanding of network infrastructure management. She has a Bachelor of Science in chemical engineering and a Doctorate in Engineering in the area of fluid mechanics and combustion.

Nicki is a Director of Genesis Energy, the Centre for Advanced Engineering, and a Trustee and member of the New Zealand National Committee for UNICEF. She is looking forward to working with the IPENZ Board.



Chas Charlton AIPENZ is the Board-appointed candidate for this term. Chas is a Major in the New Zealand Army and the Director of the Queen Elizabeth II Army Memorial Museum in Waiouru. In the last 10 years Chas has held a range of appointments, including Station Engineer at a government radio receiver site, the officer commanding the army's field supply company, management roles in manufacturing products and packaging for the dairy industry, and staff officer at

the headquarters of the army training group.

After 28 years in engineering and engineering management roles, his career moved into general management. He is currently a member of the Museum Executive Management Committee and is ex officio on the Museum Trust Board.

Due to the vagaries of distance, Chas has not been able to participate in Branch activities and sees this appointment as an opportunity to significantly contribute to the Institution and its Members.

Convention delegates got a chance to view the inner workings of Wellington Brewery at Shed 22



2006 Fellows



The "fresh crop" of IPENZ Fellows together with Honorary Fellow Henry van der Heyden (far right)

2006 Distinguished Fellows



2006 Honorary Fellow



Above:

Honorary Fellow Henry van der Heyden with President Roly Frost

Left:

Distinguished Fellows with President Roly Frost (clockwise from top left) Bryan Bartley, Graeme Robertson, Roy Sharp and Professor Roger Key

Snapshots from the Fellows' and Achievers' Dinner



Sisters Elena Trout and Janis Swan –
both Fellows of the Institution



A chance to catch up with old friends
and make new ones



Kathy and Roly Frost



String quartet



MC Todd Scott as Frank Spencer was made an
"Odd Fellow" for the evening



Our ever-ready MC Todd Scott,
saves the day during the fire alarm

Photos from Convention 2006 are available at <http://www.ipenz.org.nz/convention/conventionphotos/index.html>



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