AUSTRALASIAN ASSOCIATION FOR ENGINEERING EDUCATION

NEWSLETTER

Vol.4, No.1 Sydney, March 1992 4,12,0176

The 4th AAEE Annual Convention and Conference will be held at The University of Queensland between 13 and 16 December, 1992, with the Dean of Engineering, Professor John M. Simmons chairing the Conference. The Conference Chairman and Members of the AAEE Executive Committee cordially invite you to submit proposals for papers and to attend the Conference. Picture above shows the Brisbane river winding through the city of Brisbane, the capital of Queensland, Australia.

AUSTRALASIAN ASSOCIATION FOR ENGINEERING EDUCATION

4TH ANNUAL CONVENTION AND CONFERENCE

New opportunities and challenges for engineering education

AN INVITATION TO SUBMIT A PAPER AND TO ATTEND

Venue: The University of Queensland

Dates: Sunday 13 to Wednesday 16 December 1992

Conference Chairperson: Professor John M. Simmons,
Dean of Engineering, The University of Queensland

A new *window of opportunity* has opened for engineering educators in Australia. In its 1991 Economic Statement, the Government committed the nation to industrial revitalisation, thereby making engineering a central element in Australia's efforts to achieve industrial competitiveness. Subsequent Government initiatives have delineated our opportunities. DEET is currently developing policy on Advanced Engineering Centres, provision of advanced technical training, maintenance and enhancement of existing engineering schools and expansion of 3-year BTech degree programs.

The new challenges to engineering educators are now clear: to fill in and where necessary, reshape the Government's outlines of programs, and to respond to the new phenomenon of Quality Assurance in higher education.

The University of Queensland, the host of the AAEE 4th Annual Convention and Conference, invites you to Brisbane for the fourth in this series of vital engineering education conferences. The Association's Fourth Annual Convention will be held in conjunction with the Conference on Sunday 13 December.

Invited and submitted papers, together with open forum discussion, will be used to enhance the expertise of participants and to formulate the Association's policy on key issues. The Call for Papers will be issued in March to seek contributions from academia, industry and government.

You are urged to begin collecting your thoughts for 250-400 word abstracts on the conference theme or the wide range of topics important to engineering education.

Further information may be obtained from:

The Conference Secretariat
Continuing Professional Education
The University of Queensland, QLD 4072
Tel: +61 7 365 7100 and
fax: +61 7 365 7099.

PRESIDENT'S REPORT - AAEE 1991

This is a report of the second full year of existence of AAEE. For such a young society there is much achievement that can be proudly reported. I can report that the Association is now a larger Association than last year with healthy finances and with an impressive array of achievements.

I would like to thank Professor Peter LeP Darvall and his team at Monash University for the conference last year which was a professional, social and financial success. We thank Professor John Agnew and his team in Adelaide in advance for the obvious enthusiasm and drive they have put into the conference now open.

An outstanding highlight of the year was undoubtedly the East-West Congress on Engineering Education in Cracow, Poland. Under the auspices of AAEE, the IEAust. and The University of Sydney, this conference was succesfully organised at a distance. For those who attended there was an excellent array of papers, attendees, social events and the experience of being part of the revitalisation of engineering in Eastern Europe. AAEE achieved considerable international exposure and prestige with many delegates amazed at the success of a conference in Europe with origins in Australasia.

I had the opportunity to attend a meeting of the IEAust. Board of Engineering and present a description of AAEE activities and purpose. The IEAust. continues to be very supportive of our activites and I look forward to an evolving and deepening relationship in which AAEE benefits from the subsidy and contact with the profession while AAEE offers to IEAust. members a better perspective of the critical role of education of new and existing engineers.

During the year we had mixed results in our attempts at interaction with other related bodies. We have still to consolidate relationships with ASEE in USA, even though discussions in Cracow revealed a keenness to achieve such links. Links to New Zealand have developed more slowly than we might have liked, but AAEE presence at the recent AEESEAP conference there and at the IPENZ meeting coming up in February will, we hope, cement the position of AAEE as an Australasian Association in fact as well as spirit.

Correspondence with the Electrical and Electronic Engineering Education Group in Victoria has highlighted the need for AAEE to consider better co-ordination of conference dates and also, as it grows, to consider special sessions, conferences, sections or whatever to cater for particular branches or groups within the engineering profession.

It is with a little regret that we have not advanced our research program as much as we might, and I note that essentially no use has been made of the e-mail AAEEbulletin board.

Members will have received a steady flow of newsletters and we look forward to more contributions from the membership appearing in this outlet. I thank the editor and sponsors for making this very public face of our Association such a success.

Our Journal continues to appear with an excellent array of papers and is rapidly establishing itself as a respected part of the international publication scene in engineering education. The initial decision to proceed to publish our own Journal has been vindicated and we have full confidence that it will grow in stature.

I wish to thank the committee for the very consistent support they have given me and the Association. During the year the Committee was able to meet five times in February, May, August and after and before the two AGMs. Meetings involved telephone conferences for interstate members and I thank Telecom for its support for several of these. During the year, Professor Agnew joined the Committee on the resignation of Dr Clinch.

I have taken particular pleasure in working with Zenon Pudlowski and I know very well the amount of dedication and effort he has put into the vision and creation of AAEE and

its activities. I thank him on behalf of the Association and congratulate him again on the award of the inaugural Medal of the Association.

I wish the Association and the incoming Committee continuing achievement and success.

Professor Trevor W. Cole
Department of Electrical Engineering
The University of Sydney
Foundation Past President of AAEE

BRIEF SUMMARY OF ACTIVITIES CARRIED OUT BY THE EXECUTIVE IN 1991

We are not completely happy with the growth in membership of our Association. However, it is encouraging to see that small schools of technology and engineering, some from very remote places in Australia, have joined the AAEE and still support it. At present, there are 145 individual members, 10 institutional members and one industrial member (Telecom's Engineer Development and Recruitment Branch in Melbourne).

The Association has attracted senior members of many tertiary institutions who joined as individual members. Those individuals are particularly respected in this country and hold key positions in tertiary engineering education. The individual membership clearly demonstrates that senior academics are much more concerned about engineering education than is the junior staff. It is encouraging to see more women and students joining the Association.

Several important actions were undertaken last year and many are in progress. One of the most important tasks was a membership drive. Many copies of the Association's brochure were distributed around Australia, Asia and the Pacific region.

Publications

The Association's Newsletter was established in 1989, and so far has published eleven issues. The Newsletter gradually involves more contributors, whose experience and reputation make it a good source of information on engineering education. Not only has the quality of articles improved significantly but also has its appearance.

The *Australasian Journal of Engineering Education* was established in 1990. Four issues are in circulation by now and the fifth is in progress. Special thanks should be expressed to the sponsors: The Institution of Engineers, Australia; Telecom and NSW Education and Training Foundation for the financial support given to this journal.

International involvement

The Association has been involved in the preparation of a number of important events concerning engineering education. For instance, the AAEE was among the co-sponsors of an important international gathering called *2nd International Symposium for Engineering Deans and Industry Leaders*, which was held in Paris, France, in July 1991. This symposium was sponsored by UNESCO and the ASEE.

The 1st East-West Congress on Engineering Education, held in September, was the major international involvement of the AAEE. The congress was organised by our Association in conjunction with the brotherly Polish organisation which consists of leading tertiary educational institutions in Poland. More details on these activities may be found in several issues of the Newsletter.

Research activities

A survey concerning the status and quality of engineering education was carried out late in 1990. The results of this comprehensive survey were presented by Scott Grenquist at the 3rd Annual Convention. It is envisaged that the findings, including comments and

conclusions, will be published in a separate paper in the incoming issue of the *Australasian Journal of Engineering Education.*

It is fortunate to see that members of our Association are extremely active in the field of engineering education. The best evidence is the large number of papers to be presented at the 3rd Annual Conference in Adelaide. Forty four papers were presented at the 1st Conference, 91 at the 2nd Conference, and the last annual conference has seen over 71 papers included in the proceedings and with close to 120 in attendance. Several members of the AAEE have achieved national and international reputation for their work. We, therefore, believe that the future of the Association looks very promising.

Budget

The Association's financial situation looks extremely good. There have been three major sources of income: membership fees, donations and conferences. In addition, the Association has largely benefited from the Department of Electrical Engineering at The University of Sydney by the use of facilities, some administrative help, etc. The Association is extremely greatful for this support. We should also acknowledge the financial support obtained from The IEAust., IPENZ, Telecom Australia, NSW Education and Training Foundation and Davidson Pty Ltd.

During the 3rd Annual Convention of AAEE, held on Sunday, December 15, 1991, twelve members of the AAEE were elected to its Exectitive Committee. Subsequently, at the first meeting of the members of the Executive which was carried out immediately after the AGM, members of the Exectuve Committee elected the Executive Officers. The structure of the Executive Committee is as follows:

President: Prof. Peter LeP Darvall

Peter Darvall has been Professor and Dean of Engineering at Monash University since 1988. He graduated in Engineering at The University of Melbourne in 1963 and gained higher degrees at Ohio State University and Princeton University and a DipEd at Monash. He joined Monash as a Lecturer in Civil Engineering in 1970, after experience with Maunsell and Partners, with Freeman, Fox and Partners, as Surveyor for a glaciological expedition in Alaska and as Site Engineer for an archeological expedition in Egypt.

He has held visiting appointments at UNAM in Mexico, the University of California at Berkeley and the University of Wisconsin. He is the author or co-author of books on Mechanics and Structures, and Reinforced and Prestressed Concrete. His research papers have covered a variety of areas, but in recent years he has concentrated on softening in concrete structures, and high strength concrete. He has for many years been a member of the Monash University Council and was National President of FAUSA, 1979-81. He has acted as a consultant to a number of engineering organisations.

1st Vice-President & Executive Director: Dr Zenon J. Pudlowski

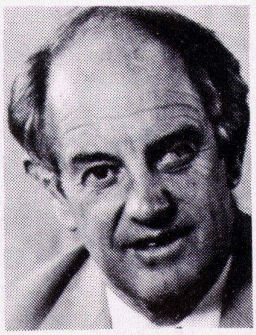
Zenon Jan Pudlowski graduated Master of Electrical Engineering from the Academy of Mining and Metallurgy (Cracow, Poland), and Doctor of Philosophy (Educ.) from Jagiellonian University (Cracow), in 1968 and 1979, respectively.

From 1968 to 1976 he was a lecturer in the Institute of Technology within The University of Pedagogy (Cracow). Between 1976 and 1979 he was a researcher at the Institute of Vocational Education (Warsaw) and from 1979 to 1981 was an adjunct (senior lecturer) at the Institute of Pedagogy within Jagiellonian University. He has been with the School of Electrical Engineering at The University of Sydney since July 1981, where he is presently a Senior Lecturer.

Dr Pudlowski is a Fellow of the Institution of Engineers, Australia. He is a member of the Editorial Advisory Board of *The International Journal of Applied Engineering Education* and Editor-in-Chief of the *Australasian Journal of Engineering*

Education. Pudlowski is the Secretary of the International Liaison Group on Engineering Education. He was Academic Convener and organiser of the 2nd World Conference on Engineering Education for Advancing Technology, held in Sydney, 1989. He was the Program Committee Chairman and organiser of the East-West Congress on Engineering Education, held at Jagiellonian University of Cracow, Poland, in September 1991. He received the inaugural AAEE Medal for distinguished contributions to engineering education in 1991.

2nd Vice-President: Mr Harry Wragge



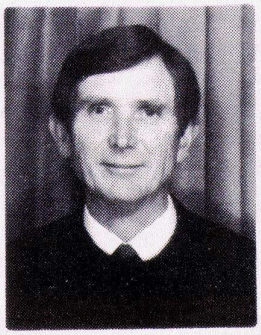
Harry Wragge was born in Melbourne in 1929. He holds the degrees of Bachelor of Engineering (Exhibition) and Master of Engineering Science (Honours) from Melbourne University.

He joined the Postmaster-General's Research Laboratories in 1955. His major interests were in switching and signalling and he led those activities from 1966 to 1979, becoming Branch Head in 1972. In 1979 he formed the Customer Systems and Facilities Branch of Telecom Research Laboratories.

From 1981 to 1983, he was part of the Telecom team involved with the Davidson Inquiry into Telecommunications Research and Development in Australia. He became Assistant Director, Business Development in 1983, before taking up his present position of Executive General Manager in 1985.

Wragge is a Member of the Order of Australia and a Fellow of the Australian Academy of Technological Sciences, The Institution of Engineers, Australia and the Institution of Radio and Electronic Engineers. He is also a member of the Committee of Convocation and the Faculty of Engineering at Melbourne University, the Council of Swinburne CAE and the Prime Minister's Science Council Coordination Committee.

3rd Vice-President: Prof. David G. Elms



David Elms started life as a structural engineer with the De Havilland Aircraft Company, after graduating from Cambridge. A few years later he switched to civil engineering, academia and the University of Canterbury, via a PhD at Princeton. For the last twenty years he has specialised in systems engineering and risk analysis among other things. He became interested in engineering education when it became clear no-one could answer the question "What is engineering about?", which he thought he should be able to answer as he was being paid to teach engineering.

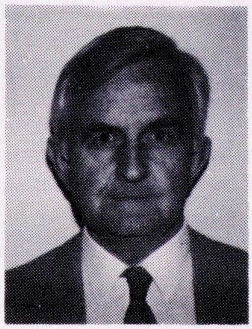
His efforts to answer it himself led to various papers and to his being Vice-President of the Association for Engineering Education in South East Asia. He was Dean of Engineering at the University of Canterbury for some years. He is also an active consultant.

Secretary/Treasurer: Dr William N. Roebuck

Bill Roebuck specialises in education and training issues. He was an aircraft apprentice and tradesman with Qantas, before qualifying as a professional engineer in electrical and electronic engineering. After several years in private and public sectors, he became an Inspector of Technical Schools in Victoria with responsibilities for secondary, trade, technician and para-professional courses in electrical, electronic and aircraft areas. For 11 years he was Deputy President of the Industrial Training Commission of Victoria. His experience also includes 20 years in the RAAF active reserve, 12 as Squadron Leader Senior Engineering Officer (Aeronautical).

His qualifications include ASTC, BE, ME (UNSW) and MEd, PhD (Monash), and the Electrical Higher Trades Certificate from the NSW Department of Technical Education as well as Victorian and N.S.W. "A" Grade Electricians Licenses. He also holds the Reserve Forces Decoration (RFD) and the National Medal. He is currently a director of the EPM Consulting Group.

Member: Prof. John B. Agnew



John Agnew is Professor of Chemical Engineering at The University of Adelaide, where in December 1990 he completed a three-year term as Dean of Engineering. He graduated BE in Chemical Engineering from The University of Sydney in 1955 and PhD from Monash University in 1967. He worked for seven years in the oil industry in the Middle East and UK and held academic appointments at Melbourne and Monash Universities before moving to Adelaide in 1983. He was Visiting Fellow, University of Cambridge, in 1975 and Visiting Professor, University of Connecticut, in 1986-87. His main research interests are in chemical reaction engineering, coal and oil processing and engineering education.

He is a Fellow of IEAust and is immediate past chairman of the College of Chemical Engineers. He is currently Vice-Chairman of SA Division, Chairman of the IEAust Working Group on MFP - Adelaide and a member of the Board of Education and Training. He is Chairman of the Organising Committee for the 1991 AAEE Conference to be held in Adelaide in December and was recently elected to the AAEE Executive Committee.

Member: Prof. Trevor W. Cole

Trevor W. Cole is currently the Peter Nicol Russell Professor of Electrical Engineering at Sydney University, a post he has held since 1980. He graduated BE(Hons) in electrical engineering from the University of Western Australia in 1966. After nine months with CSIRO in Sydney he proceeded to Paris where he intended to take out a French Doctorate. After a year, that plan was abandoned and he moved to the Cavendish Laboratory, Cambridge. He gained the Cambridge PhD in 1970 with a thesis on the radioastronomical objects called pulsars, the discovery of which he had the good fortune to be associated with.

Over a year as an engineer working with the Dutch radioastronomy group preceded a return to Australia, and CSIRO Division of Radiophysics, in 1972. The eight years to the university appointment were spent researching in the general areas of signal processing, image processing, instrumentation and optical computing.

Since joining the university, interests have included integrated circuit design and, more recently, speech technology and the innovation process by which concepts and ideas are transformed to products in the market place. He has had appointments as Executive Director of the Warren Centre for Advanced Engineering, Deputy Chairman of the Academic Board, and is Chairman of OTC's Research and Development Board, Chairman of the Australian Telecommunications and Electronics Research Board, and is a Trustee of the Museum of Applied Arts and Science (the Powerhouse).

He had a year as a Fellow of St. John's College, Cambridge in 1986/87 and more recently spent several months as an Investment Director with Hambro-Grantham Ltd, a manager of venture capital funds.

Member: Prof. L. Murray Gillin

Prof. Murray Gillin was born in Melbourne in 1935. He graduated with a Diploma from The School of Mines Ballarat, with a Bachelor of Metallurgical Engineering, Master of Engineering Science and Master of Education from The University of Melbourne, and a PhD from the University of Cambridge, UK. He is a Fellow of The Institution of Engineers, Australia, Fellow of the Australian Institute of Management, Fellow of the Australian College of Education, and a Fellow of the World Association for Cooperative Education.

Since 1979, Prof. Gillin has been Dean of the Faculty of Engineering at Swinburne Institute of Technology and has held the personal Chair of Innovation and Entrepreneurship there since January 1991.

He began his professional career in 1958 as an engineer with the Defence Industry and after study at the University of Cambridge, UK, returned to Australia as a Research Scientist with the Defence Science & Technology Organisation. After appointment as a Defence Research Attache at the Australian Embassy in Washington, USA, then a Senior Principal Research Scientist in Defence Science Canberra, Prof. Gillin accepted the appointment of Dean of Engineering at Swinburne. He is currently the Senior Vice-President of The Institution of Engineers, Australia.

Member: Prof. Peter Parr

Peter Parr was born in Belfast, Northern Ireland (UK) and educated at RBAI and The Queen's University of Belfast, from which he holds MSc and PhD degrees in electrical engineering. He has worked as a control engineer in industry. In 1968 he joined Monash University as a Lecturer, with interests in electrical machines and electromagnetism.

In 1975 he became Head of the School of Electrical Engineering at the then NSW Institute of Technology - now the University of Technology, Sydney - where he has since served as Dean of Engineering and as Deputy Vice-Chancellor. Presently Dean of Engineering, he is a Fellow of the IEAust. and in June 1991 was elected Chairman of the Australian Council of Engineering Deans for a two-year term.

Member: Prof. John M. Simmons

Professor John M. Simmons was last month appointed Dean of the Faculty of Engineering at the University of Queensland. He studied at The University of Sydney and was awarded a BSc degree in 1960 in Mathematics and Science, a BE with 1st Class Honours in Mechanical Engineering in 1963, and a PhD in 1967.

After obtaining his doctorate, Prof. Simmons worked as a Senior Dynamics Engineer for the Lockheed Aircraft Company in Atlanta, Georgia, USA. In 1969 he was appointed as Adjunct Professor at the Georgia Institute of Technology. In 1970 Prof. Simmons returned to Australia as a lecturer in the School of Mechanical and Industrial Engineering at the University of New South Wales, and in 1972 joined The University of Queensland as a Senior Lecturer in the Department of Mechanical Engineering. He was promoted to Reader in 1981.

Prof. Simmons has extensive research and teaching experience in the fields of fluid mechanics, vibration and control, aeroelasticity, hypersonics and spacecraft dynamics. He is a past chairman of the IEAust National Committee on Applied Mechanics and was founder and first chairman of the National Committee on Space Engineering. Prof. Simmons has played a significant role through the IEAust in initiating, developing and promoting the Cape York Spaceport project.

Member: Mrs Jane Varcoe

Mrs Jane Varcoe completed her BE in Mechanical Engineering at the University of Newcastle in December 1987 after a five-year traineeship with Alcan Australia. She graduated with first class honours and the University Medal.

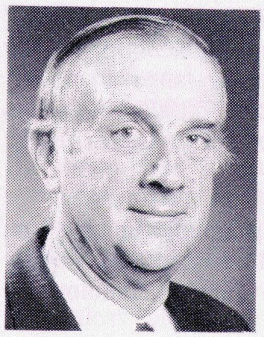
In December 1987 she took up her current engineering position with Alcan Australia at their smelter division. In this role, she works on the plant as technical advisor to a maintenance superintendent. The major areas of her experience have been in condition monitoring, vibration monitoring, lubrication, fume and dust collection, as well as general maintenance troubleshooting and failure analysis.

In her work, Mrs Varcoe has seen the potential cost savings which can be made when the engineering workforce is provided with information about materials and methods. With this objective in mind, she assisted with the production of a vibration monitoring training video and is to be involved in training engineers and tradesmen in the use of vibration monitoring equipment.

In 1989 and 1990, she presented lectures on Condition Monitoring, Vibration Monitoring and Failure Analysis to final-year mechanical engineering students at the University of Newcastle. She believes that students need to be provided with up-to-date, *practical* engineering knowledge which is relevant to their future employment.

Member: Mr Ted Whitehead

Mr Edward J. Whitehead received his BE(Aero) from The University of Sydney and a MSc from Cranfield Institute of Technology, UK. He is currently Director, Education, within The Institution of Engineers, Australia. He is a Fellow of The Institution of Engineers, Australia.



A career in engineering with the Royal Australian Air Force spanned aircraft engineering specifications and standards, maintenance and production, evaluation of aircraft, and research requirements, and culminated as the Director General of Aircraft Engineering, Air Force Office Department of Defence.

More recently he has been consultant on the Executive for the Review of the Discipline of Engineering for the Commonwealth Government. This task included participating in the on-site review of engineering schools and the appraisal of selected aspects of the national structure and curriculum for engineering schools, and of surveys of undergraduate, graduate and employers. He also examined the objectives of engineering schools and their continuing education activities.

Prior to his current appointment he was a manager with an international consulting firm engaged in defence, aviation and engineering management tasks. In his current appointment Mr Whitehead is responsible for the administration of IEAust national policies for professional engineering education including accreditation of Australian courses, assessment of overseas qualifications and continuing education.

ENGINEERING EDUCATION CONFERENCES HELD IN AUSTRALASIA IN DECEMBER 1991

The year 1991 concluded with the holding of two successful conferences on engineering education: in Christchurch, New Zealand, and in Adelaide, Australia. In the second week of December the Association for Engineering Education in South East Asia and the Pacific held its Third Triennial Conference at the University of Canterbury under the theme *Engineering Education: The Way Forward.* It was sponsored by UNESCO; the Institution of Professional Engineers, New Zealand; Motorola International Inc.; Telecom Corporation of New Zealand; the British Council; and the University of Canterbury Centre for Advanced Engineering.

The aims of the Conference were to act as a forum for educators, educational managers and employers, with the following themes : issues in research, recruitment and assessment; computer-aided design and engineering; curriculum; engineering education, the profession and industry; continuing education; teaching methods; management; computer-assisted teaching; national perspectives on broad issues; new directions and innovations in engineering education; and case studies. The Conference Chairman and Secretary, Professor David Elms and Dr Anthony J. Bowen, respectively, of the University of Canterbury, planned and organised a particularly well run programme which will long be remembered. After the Conference was opened officially by Professor A.M. Kennedy, Deputy Vice Chancellor of the University of Canterbury, 90 papers were presented from 16 countries, with 110 delegates attending. Keynote speakers were:

* Professor Sabah Al-Nassri, member of the UNESCO International Working Group on Continuing Education of Engineers and Technicians. He spoke comprehensively on *Continuing Engineering Education in Developing and Developed Countries: a Comparative Critique.*

* Dr Zenon J. Pudlowski, Vice-President and Executive Director of the Australasian Association for Engineering Education. He gave an enthusiastic and stimulating address on *Australasian Association for Engineering Education - Origins, Structure, Objectives and Activities.*

* Professor Yasutaka Shimizu of the Tokyo Institute of Technology. His topic *Re-education for Engineers of Industry in Japanese Higher Educational Institutions* summarised the findings of two recent surveys revealing that industries strongly expect universities to implement re-education programmes for engineers.

* Dr Naomi Martin, Chairperson, Commision for Higher Education, Government of Papua New Guinea. Her address on the *Papua New Guinea Higher Education Plan* drew attention to the need to serve people with both academic excellence and local relevance in the social and cultural context of Papua New Guinea.

* Professor Michael G. Hartley of the Institute of Science and Technology, University of Manchester. His presentation on *Developments in UK Engineering Education: What Relevance for Members of AEESEAP?* dealt clearly and succinctly with a range of issues from an increasing pre-occupation with resource management to important pitfalls of which AEESEAP members might be wary, for example, in the implementation of masters degree programmes.

* Mr Basil J. Wakelin, Operations Manager, Morrison Cooper Ltd. spoke dynamically on *The Education of Engineers - Fit for Management?* He clarified certain personality characteristics of engineers, and summarised some of the problem areas common to professional engineers as people.

Country reports were received and presented at the Conference by delegates from ten member nations of AEESEAP: the People's Republic of China, Japan, Korea, Phillippines, Vietnam, Thailand, Malaysia, Papua New Guinea, New Zealand and Australia. Other countries represented at the Conference were Singapore, Indonesia, Brunei, England, the USA and the Republic of South Africa.

In the People's Republic of China, plans have been announced for the intensification of continuing education in the 1990s. In Japan the decision has been made to go for more flexibility in engineering education, and the number of students applying to engineering schools is expected to decline in the near future. In Korea a long term national plan for technological self-reliance has been drawn up to strengthen industrial competitiveness. The Phillippines plans to establish a network of public and private engineering colleges and universities to develop and train highly skilled engineers and other technical people. In Vietnam in recent years most universities and colleges have been increasing the numbers of in-service students and diversifying in-service training. In Thailand the economic growth rate has been an average of 10% per year, which has led to an engineering manpower crisis.

Malaysian undergraduate enrollment in engineering courses projected to 1995 is 50% more than the 1990 figures, and engineering faculties have quickly developed an atmosphere of serious research with *nationally relevant* projects funded by government and private sector concerns. In Papua New Guinea the future of engineering and of engineering education is excellent, with an almost inevitable shift occurring from extractive to secondary and manufacturing as well as support service or tertiary industry activities. New Zealand research funding has been markedly reduced, and changes in curricula and techniques have been caused by the depressed state of the economy, and by privatisation of many areas of activity in the public service. Australian engineering education has developed extensively during the past three years as a result of the Commonwealth Government White Paper of 1988 and by 1993 three of ten proposed Advanced Engineering Centres should have been developed.

Student Essay Competition winner Kanau Iobuna of the University of Technology, Papua New Guinea, delivered an address on *The Impact of the Ok Tedi Mining Project on the Environment*. Another highlight of the New Zealand Conference was the presentation of a paper by a blind electrical and electronic student Lin Chung Pin. He and his lecturers described the special teaching and learning techniques and apparatus developed to assist him in his undergraduate studies.

Other valuable contributions elucidated the role of PCs in engineering education with applications to different types of mechanical loadings; the use of HGRAM graphs for displays in three dimensions; the incorporation of research material in teaching at undergraduate and postgraduate level (e.g. image processing applied to automatic data capture relating to road-vehicle movements); the use of video games to teach simplification of electric circuit diagrams; contrasts between normal lecturing which is deductive, auditory, intuitive and passive, and normal learning which is inductive, visual, sensory and active; the establishment and development of China's space industry; the innovative and creative engineer - his or her identification, recruitment, development, enhancement, management and organizational support; how teaching can inspire research; thought and awareness processes

involved in form design; and the need for successful alternative teaching methods for engineering students in Papua New Guinea, such as the use of a bow and arrow to explain the mechanical concept of *strain*, or the design of a turbine for a remote mountainous area under constraints which do not exist in other countries with different terrains.

In the middle of the Conference gender issues and the role of women in engineering were discussed with a degree of passion; and a second debate centred on the inter-relationship between engineering education and environmental engineering. Articulated engineering education proposals for the future also drew evocative responses in between paper sessions.

Doubtless all these friendly contenders will remember the 1991 New Zealand Conference with appreciation and affection. It was a stimulating, important, pleasant, fruitful and memorable event in the unfolding history of engineering education.

In the third week of December the Australasian Association for Engineering Education held its Third Annual Convention and Conference at the University of Adelaide under the theme *Broadening Horizons of Engineering Education.* The Chairman of the Organising Committee, Professor John Agnew, was most impressed with the enthusiastic submission of high quality papers, which augered well for a successful conference. 116 delegates attended from Australia, New Zealand, the United Kingdom and the Republic of South Africa, and 71 papers were published in the Conference Proceedings.

Keynote addesses were presented by J.M. Clark on *Future Directions for Engineering Education and the Interface with Industry*; then by P.C. Farrell on *Creating the Common Wealth of Australia*; and finally by Professor T.W. Cole on *Engineering Education for the Next Century*, and these stimulated much debate and interest which continued throughout the Conference.

The Conference had many highlights. The first of these was the presentation to Dr Zenon J. Pudlowski of the AAEE Medal for distinguished contributions to engineering education. This was a popular and well merited award which set a very high standard. Another highlight was an open session chaired by S. Johnston in which delegates were invited from the floor to prepare and share their vision for engineering education in future years, with full audience participation. The final feature was the presentation of awards for the outstanding papers of the conference. These were *How Changing Engineering will Attract a Greater Diversity of Students - Especially Women* by Elizabeth Taylor and Stephen Johnson; *Experiences of Two Problem-Oriented Courses in Civil Engineering* by R.G. Hadgraft; *Balance and Diversity in the Post-Binary Era* by K.B. Wallace and R.G. Black; and *What Can We Assume Students to Know When We Start Teaching Introductory Circuit Theory?* by Nancy Law. With the holding of yet another successful Annual Convention and Conference, it is clear that the Australasian Association for Engineering Education is going from strength to strength as it firmly establishes itself in a leading role on the world map.

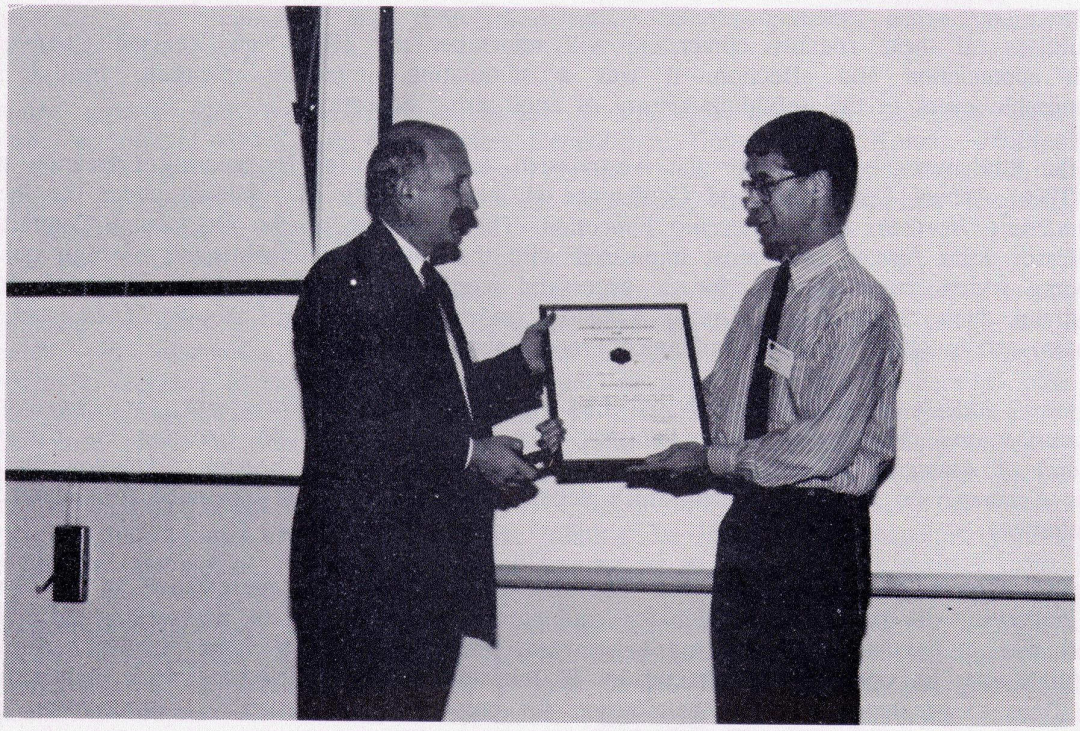
Assoc. Professor Kevin Rochford
University of Cape Town
Republic of South Africa
Visiting Scholar
Department of Electrical Engineering
The University of Sydney

FIRST AAEE MEDAL AWARDED TO ZENON J PUDLOWSKI

The inaugural medal of the Australasian Association for Engineering Education for outstanding contributions to engineering education in Australasia was presented at its 3rd Annual Convention and Conference to Dr Zenon J. Pudlowski by unanimous vote of the Executive Committee of AAEE.

In addition to being editor of the *Newsletter* of the AAEE and editor-in-chief of the

Australasian Journal of Engineering Education, Zenon has nearly 100 publications to his name, the majority of which he is the principal author. These include 29 refereed journal articles, 33 conference papers, nine manuals, seven publications as editor, three reviews, two books, two chapters in books and two reports. In addition, he has presented several keynote addresses and a number of seminars in countries such as China, Czecho-Slovakia, Poland, Spain and New Zealand, has successfully carried out nine major funded research and development projects, and has been highly active on the organising committees of twelve national or international conferences and symposia.



Dr Z.J. Pudlowski is presented with the inaugural AAEE Medal by the AAEE President, Prof. Trevor W. Cole.

Presenting the solid sterling silver medal to Zenon at the University of Adelaide in December 1991, the President of the Australasian Association for Engineering Education, Professor Trevor W. Cole, read the following citation:-

This is the first year that the Australasian Association for Engineering Education has awarded its Medal, an acknowledgement from the Association for distinguished work, achievement and contribution to the area of engineering education in Australasia.

Your Council considered the nominations received and has awarded the Medal for this year to Zenon J. Pudlowski.

Zenon is well known to all of those in AAEE but there are other aspects of his career and background which may be less well known but which contribute to the unanimity with which your Council came to its conclusion. Zenon's education in Poland culminated in a PhD from Jagiellonian University in Cracow for a thesis in the speciality of Educational Technology and Engineering Training.

He was a lecturer in the University of Pedagogy in Cracow for 8 years before 3 years as a researcher in the Institute of Vocational Education, also in Cracow. A year as Senior Lecturer at Jagiellonian University preceded his move to Australia and employment in Sydney University Electrical Engineering. He is currently Senior Lecturer with special responsibilities in the first and second year laboratory and lecturing areas but also

supervising final year students and postgraduate students.
It is in his external activities in engineering education that distinguish Zenon from his colleagues. These fall into two broad areas.

In educational organisations, Zenon has been very active locally and internationally as committee member, organiser and participant. These organisations include such acronyms as the IE(Aust), ASEE, IGIP, HERDSA etc. He is Foundation Secretary of the International Liaison Group on Engineering Education (ILG-EE) and Council Member of the SUEE Foundation in Sydney. But it is AAEE (of which he is Foundation 1st Vice-President and Executive Director) for which Zenon will be most recognised. The existence and success of AAEE is due in a most significant manner to the vision and drive of Zenon. AAEE really does stand as a tangible manifestation of the dedication of Zenon over these last few years.

But is is also in the area of educational journals that Zenon has had an outstanding contribution. One does not ignore membership of the Editorial Advisory Board of the International Journal of Applied Engineering Education. This tends to be overshadowed by his magnificent contribution in establishing the Australasian Journal of Engineering Education of which he is Editor-in-Chief. In its first years of existence this Journal has already grown in stature and readership and is well poised to take a leading role in the educational literature of the region.

Of course, it is Zenon who also brings us the AAEE Newsletter.

Finally, but far from least, many of us had the pleasure and rewards of attending the First East-West Congress on Engineering Education held in Poland this last August and it was very much the culmination of enormous effort and contribution from Zenon. To have such a successful conference staged from Australia has been a coup in itself and one which looks to be repeated in a 1993 East-West Congress, perhaps in Prague.

It is therefore appropriate that AAEE is able to use its medal as a method to recognise and reward the contribution that Zenon has made to AAEE itself and to the broad cause of enhancing engineering education in general throughout Australasia and, indeed, the world.

Assoc. Professor Kevin Rochford
University of Cape Town
Republic of South Africa

AAEE MEDAL FOR DISTINGUISHED CONTRIBUTION TO ENGINEERING EDUCATION

The AAEE Medal for distinguished contributions to engineering education was established in 1991 with its Australasian division. The inaugural medal was presented to Dr Zenon J. Pudlowski at the 3rd Annual Convention and Conference, held at The University of Adelaide. As discussed last year at meetings of the Executive Committee, this year the AAEE Medal will be extended into the international arena by introducing its International division.

The recipients of these sterling silver medals will be invited to give keynote addresses at the forthcoming 4th Annual Convention and Conference on a topic of their interests and work in engineering education. Also, the medalists will be invited to submit their addresses for publication in the *Australasian Journal of Engineering Education.*

The purpose of these AAEE Medals is to recognise outstanding contributions to engineering education, both in Australasia and overseas. Such contributions will be indentified by books, research papers, reports, journal and conference publications, engagements and achievements in activities carried out by engineering education organisations, etc.

Only members of the AAEE are eligible to nominate candidates for the award of these

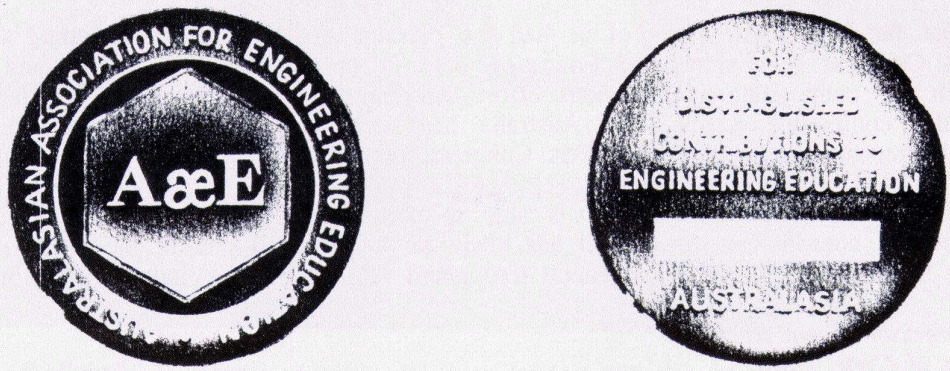
AAEE Medals. To be eligible for the award of an AAEE Medal (Australasia), a candidate must be a member of the Australasian Association for Engineering Education and his or her research and other activities must have been carried out in Australasia.

Nominations are hereby invited. They should include a comprehensive statement by a proposer(s), and should include a curriculum vitae, a list of publications, relevant samples of publications, and a thorough evaluation of the candidate's work and achievements carried out by the proposer(s). Nominations which are incomplete by the closing date will not be considered. The Executive Committee of the AAEE reserves the right not to proceed with the award of medal(s) and/or to nominate its own candidate(s) at a meeting of the Executive.

Nominations are confidential and should be addressed to:

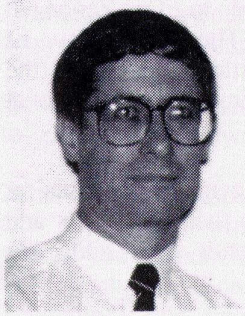
Professor Peter LeP Darvall
AAEE President
Faculty of Engineering
Monash University, Clayton, VIC 3168
Australia

The deadline for nominations is August 31, 1992.



Picture above shows the AAEE Australasian Medal (actual size).

INAUGURAL PRESIDENT OF AAEE RETIRES AFTER MORE THAN TWO YEARS IN OFFICE



Prof. T.W. Cole

Our inaugural President, Professor Trevor W. Cole, Head of Electrical Engineering at The University of Sydney, decided to stand down as President during an Executive Committee meeting carried out prior to the 3rd Annual Convention and Conference at The University of Adelaide last December.

His decision has come at a time, when our Association stands firmly on its feet, with continuosly expanding membership, the well established *Australasian Journal of Engineering Education* and the *AAEE Newsletter*, a series of successful annual conferences and the spectacular emergence at the international scene, with the East-West Congress on Engineering Education. All of these successes may be attributed to Trevor and his vision, personal drive, interest and excellence in engineering education.

I do believe that those members of the AAEE who attended the meeting at Sydney University Electrical Engineering during the World Conference on Engineering Education for Advancing Technology which was held in February 1989, may remember Trevor's

enthusiasm and initiative which he demonstrated in chairing the AAEE inaugural meeting. The fact that the Australasian Association for Engineering Education was established is unquestionably his success. As President of the AAEE, he has attended numerous local and international meetings and conferences where he has presented outstanding papers and keynote addresses. Members of the AAEE have always been proud to have had such an excellent orator and leader, and above all a real gentlemen, as our President.

I have had the pleasure of working with Trevor as the Executive Director and Editor of the AAEE publications since the beginning of our Association. His excellent ability to manage organisations was by far his most important asset during the initial stages of the development of our Association. Members of the Executive Committee have always been impressed by his ability to lead the Association. Those who have dealt with Trevor have been overwhelmed by his personal charm and style. For example, in discussing things Trevor's suggestions are presented in such a way that they always motivate rather than discourage.

On behalf of all members of the AAEE, the Executive Committee, and indeed myself, I wish to express our sincere thanks to Trevor for his time, initiative and excellence in leading the Association to its present position and status. Without Trevor this Association would not have been a success. We will miss his interesting comments on engineering education included in articles *From the President* in each issue of the AAEE Newsletter. They have addressed issues of particular importance to engineering education in Australasia and helped direct AAEE activities towards *Achieving Relevance Through Excellence*. I am personally delighted that Trevor has accepted our strong desire and invitation to remain a member of the Executive Committee. We all look forward to his continous support and contribution to the AAEE.

OUTSTANDING POLISH ACADEMICS VISIT SYDNEY UNIVERSITY

Professor Janusz Turowski, Vice-Rector of the Technical University of Lodz, Poland, an outstanding European scientist, academic and electrical engineer, accompanied by his wife Maria Turowska, Professor of Chemistry at the University of Lodz, are visiting the Department of Electrical Engineering at The University of Sydney. Prof. J. Turowski has received a Norman I. Price travelling scholarship enabling him to participate in research on electromagnetic phenomena in a single-phase linear reluctance self-oscillating motor. This new motor is a device developed at Sydney University Electrical Engineering.

Recent political changes in Poland have resulted in the introduction of a market economy and the radical restructuring of local industry. The existing labour force is inadequately prepared for the introduction of modern technology and production practices. Therefore, new education structures, with advanced education programs, are required to satisfy this need. During the last two years, the European Economic Community (EEC) has established a number of projects to assist Poland and other Central and Eastern European countries in rebuilding their labour force and industrial structures.

Australia has not yet given credence to some of the benefits which may emerge from such an international involvement. However, during the recent East-West Congress on Engineering Education held in Cracow, Poland, the Australian Ambassador to Poland, His Excellency Anthony C. Kevin, offered his help in providing funds for joint projects which would assist Polish education institutions in developing new degree programs. Several academics at Sydney University Electrical Engineering have offered their assistance in developing such education programs in Poland.

The Technical University of Lodz, which undoubtedly is one of the leading tertiary education institutions in Poland, has recently established an International Faculty of Engineering. The objective of this new enterprise is to train professional engineers in areas most relevant to the needs of Central and Eastern European countries, with particular emphasis on their sound preparation for greater international involvement. English will

therefore become the main medium of instruction. The Rector of this university, Professor Jan Krysinski, has invited Dr Zenon J. Pudlowski of Sydney University Electrical Engineering to become a Visiting Professor and the Foundation Dean of this new Faculty.

Apart from the main research activities, Profesor Turowski's visit should enable him to examine the undergraduate engineering degree programs at The University of Sydney with the objective being to introduce an undergraduate degree program (BE) in electromechanical engineering, specialising in industrial automation, manufacturing technology and process control. Professor M. Turowska's goal is to elicit information on the Australian approach to issues concerning the environment and its protection. It is envisaged that her research will be used to enrich the undergraduate programs in environmental protection back in Poland.

AAEE members interested in contributing to this new international collaboration should contact Dr Z.J. Pudlowski.

Head of Electrical Engineering at The University of Sydney, Prof. Trevor W. Cole (r) receiving in his office Prof. Janusz Turowski and his wife Prof. Maria Turowska.

For details of the Association and membership applications write to the Editor:

Dr Zenon J. Pudlowski, Department of Electrical Engineering, The University of Sydney, SYDNEY, NSW 2006, Australia, Tel. (02) 692 2000, Fax: (02) 660 4706 or (02) 692 3847

Association members and tertiary institutions are invited to contribute to the Newsletter on matters relating to membership and engineering education.

Send contributions to the Editor at the address above.