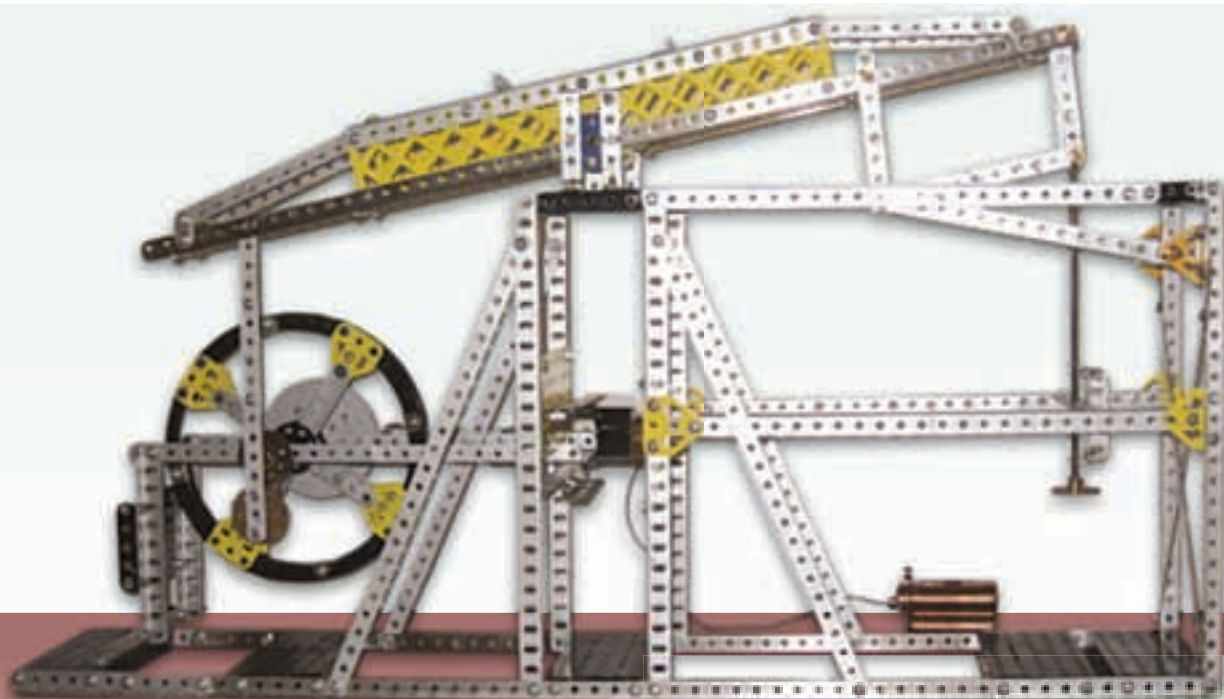




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Welcome to the second edition of the *News Bulletin* (NB) in our 50th year. Since my last contribution to the NB, several events have occurred, including the George Stephenson Lecture (GSL) tour by our President, Keith Millard; an Australian Branch Committee Meeting (ABCM); an Annual General Meeting (AGM); the final of the National Speak Out For Engineering (SOFE) competition; and the signing of the Mutual Recognition Agreement (MRA) with Engineers Australia.

At the time of writing, the President has recently completed his Australian GSL tour, news of which was given in NB 157. Keith Millard visited the WA Panel first, followed by SA, Victoria (for the ABCM, SOFE and AGM), Queensland (for the signing of the MRA) and, finally, NSW. I believe that all members who participated in the tour agreed that it was a resounding success. Details of each Panel visit are given elsewhere in this *Bulletin*. I should like to express a big thank-you to all those Panel members who were involved in the organisation of the tour.

The Australian Branch AGM was held in Melbourne on 27 March and, as there were no nominations for Executive Committee positions, the current committee remains unchanged.

This comprises Chairman Clive Waters, Hon. Sec. Ian Mash, Hon. Treasurer Ken Tushingham and Assistant Hon. Sec. Roshan Dodanwela. Ian Mash now also becomes Deputy Chairman and the Immediate Past Chairman, while Brian Carter drops off the Committee. The newly elected committee members will take up their roles following the IMechE AGM, which will be held in London on 26 May 2010.

Also on 27 March, the 77th Australian Branch Committee meeting (face-to-face rather than a teleconference) was held, at which our President, Keith Millard, was present. As well as the Executive, Panel Chairs and the New Zealand Representative were present, with apologies from John Pumwa, the PNG Representative, and Mark McKenzie, the Young Member Chair. It was good to have the President at this meeting, as Keith was able to shed light on some issues that had been difficult to close over the past several meetings. Perhaps we should invite the President to more of our future Branch Committee Meetings!

In spite of the Global Financial Crisis, I believe the Australian Branch has managed to operate quite successfully during the past year, with lower value budgets, assisted no doubt by the use of teleconferences.

The Australian final of the Speak Out For Engineering competition was held in between the committee meeting and AGM. Four young members (the winners of the Qld, NSW, Victoria and SA competitions) took part. The winner was Jared Holmes from NSW, who went to Singapore to compete in the Asia and Oceania Regional Competition on 10 April. There were six other contestants: one each from China,

Hong Kong, Singapore, Malaysia, India and Sri Lanka. Jared did very well, competing against some high-class contestants, and came second overall. Our congratulations go to Jared for such a fine performance. More information on these events is covered elsewhere in this *Bulletin*.

On behalf of the Branch Committee, I should like to express our thanks to John Burt, the Victoria Panel Chairman, and his team for their excellent organisation in making these meetings at the Glen Waverley Novotel Hotel such a success.

In the previous edition of the *Bulletin*, I reported that the Trustee Board had temporarily suspended supplying the monetary component of the Frederic Barnes Waldron prize. Happily, this has not greatly affected the uptake of prizes from the universities for the academic year 2008, as fifteen universities have nominated for twenty-eight prizes.

Our 50th Anniversary celebrations started in February, when the SA Panel organised a debate entitled 'Global Warming – Are we to blame?' The two academics engaged in this debate were Professor Anthony Kelly of Churchill College, Cambridge and Professor Wasim Saman of the University of South Australia.

The GSL tour by the President was a major event for this special year and we hope to stage one or perhaps two more eminent speaker tours later this year.

On the history front, the original Branch Aims and Objectives can be viewed on page 3.

All this work is now handled by the Branch Executive and Committee – how times have changed!

Clive Waters

Editorial

The editorial and Chairman's Message in *News Bulletin* 157 covered a bit about the formation and history of the branch. In this issue, we are publishing a statement of the original Aims and Objectives of the Branch and a list of past chairpersons. I would like to remind our members to submit anything that would be of interest with regards to the formation and history of the Branch.

As we celebrate our past, it is also vital to focus on the present and plan for the future. In this sense, the 77th Australian Branch Committee Meeting held on 27 of March 2010 was very encouraging. The committee comprised of a great mix of ages and professional backgrounds. In my 10 years in the profession, I have seen a lack of enthusiasm in my contemporaries and perhaps the younger generation to obtain membership

with professional bodies such as IMechE. The future of the branch and IMechE depends on providing value to members and adapting to attract younger members. The Branch is fortunate to have an active Young Members' group in South Australia and younger members coming forward to take responsibility in SA, NSW, WA and QLD.

I had the pleasure of interviewing President Keith Millard (see pages 4, 5) and I came away feeling very positive about the future of IMechE. Apart from the fact that there was a growth in membership during the last year, despite the GFC, the UK-based program to promote engineering schools, and providing school children a challenge to come up with a solution to future demands on energy, transport and buildings gives great encouragement.

Finally I would like to acknowledge and thank David White of the South Australian Young Members' Section for designing the special anniversary cover for all of this year's editions of the *News Bulletin*, and his excellent designs for our banners and posters.

Roshan Dodanwela

The World of Meccano

The interesting model on the front cover is a beam engine designed by James Watt. It uses a sun-and-planet gear rather than a simple crank, as the crank was protected by a patent owned by someone else.

This model, made by Victorian Panel member Patrick Russell-Young, will be on display at the Melbourne Meccano Club annual exhibition on 9 and 10 October 2010



at the BriPhil Hall in Brighton (cnr Gardenvale Road and Magnolia Street), Victoria. The models on display vary from simple to quite large and complicated. A typical example of the latter is the working example of Charles Babbage's calculating engine. Enquiries to Lindsay Carroll (03 9872 4543) or Mike Wright (03 9802 5306).

Aims and Objectives of the Australian Branch

In accordance with the constitution of the Institution of Mechanical Engineers, the principal aim of the Branch is to further the interests of the professionally qualified Mechanical Engineer by maintaining a high standard of ethics in the profession and by fostering means to establish his proper standing in the community.

The more important activities which will lead towards this main objective are listed below:

1. To provide opportunities by way of meetings, conferences and visits for members to meet for the purpose of discussing matters of common interest.
2. To provide opportunities for lectures to be given and papers to be read and published, and to encourage the full participation of all members to submit material of the requisite standard.
3. To maintain a close relationship with other professional engineering institutions in Australia and other parts of the world.
4. To make more widely known how the best interests of the community are served by the profession of Mechanical Engineering by encouraging a closer relationship with schools and universities and by arranging exhibitions and public lectures to awaken general interest in the science of engineering.
5. To take an active interest in the training of Mechanical Engineers to an appropriate academic and practical standard with a view to gaining recognition and a wider acceptance of the need for these standards.

Formation of Sub-Branches

At the request of the Australian Branch Committee, the Council of the Institution gave permission for the formation of a Northern and Southern Sub-branch. The activities of the Southern Sub-branch will extend over Victoria, South Australia, Tasmania, Western Australia and the Northern Territory while the Northern Sub-branch will cover New South Wales, Queensland, Australian Capital Territory, Papua and New Guinea.

Sub-Committees

Papers and Publications Sub-Committee

Members of the Australian Branch are advised that a sub-committee on 'Papers and Publications' has been set up to encourage and advise on the preparation and presentation of technical information of an original nature or useful reviews of existing knowledge in fields related to mechanical engineering.

The Convenor of this sub-committee is Professor H. H. Davies and other committee members are Messrs. W. A. Copsey, N. Sag and W. H. Schneider.

Corporate members in Senior Positions are requested to encourage younger members engaged on projects involving advanced design, development or research, to contribute technical papers for publication in the I. Mech. E. proceedings or other appropriate Journals and/or for presentation to meetings of Professional Engineering Institutions.

Such presentation of new material of use or interest to other engineers might be regarded as a professional obligation towards advancement of knowledge and practice. Publication also reflects credit on the author and assists his advance in status. Prizes and merit awards which are given by I. Mech. E. to authors of papers of exceptional value, are an additional incentive.

Advice on these matters may be obtained from members of this sub-committee or from members of the Australian Branch Committee in various states.

Engineering Education Sub-Committee

The Australian Branch Committee resolved that the heads of Mechanical Engineering Departments of Australian Universities, who are members of the Branch Committee, shall form a sub-committee to consider all aspects of academic and practical training of professional mechanical engineers in Australia.

The Convenor of this sub-committee is Professor A. H. Corbett and other members are Professors H. H. Davies, M. Shaw and A. H. Willis with power to co-opt.

News Bulletin Sub-Committee

The responsibility for producing the Australian Branch News Bulletin was given to the South Australian Panel and Mr N. Sag was nominated as the Convenor with the power to co-opt. The postal address of this sub-committee is 8 Caloroga Street, Wattle Park, South Australia.



SOFE Finals – From L to R: Dan Burdett, Daniel Mitchell, Joshua Brimblecombe, Keith Millard, Jared Holmes and John Burt

Speak Out For Engineering Australian Finals 2009/10

Congratulations to Mr Jared Holmes from NSW on winning the Australian Speak Out For Engineering competition 2009. Jared's presentation was based on his final-year project: 'Design and testing of a race-car crash zone'. Jared went on to compete in the regional finals in Singapore in April 2010, and was placed second. It was a very close competition. The winner was Mr Jimmy Chan from the Hong Kong Branch.

The Australian finals were held in Melbourne on 27 March and the event was well attended. The standard of all presentations was excellent and we would like to thank Dan Burdett (SA), Joshua Brimblecombe (Qld) and Daniel Mitchell (Vic) for their presentations.

The competition was judged by Dr Patrick Russell-Young (Victorian Panel Minutes Secretary), Paul Walker (HR Manager, CSIRO) and Philip Jago (Rostrum).

IMechE President Keith Millard awarded the prizes.

Interview with the President Keith Millard



*President Keith Millard with Roshan Dodanwala,
News Bulletin Editor*

Thanks to Keith for agreeing to take part in an interview for the *News Bulletin*. This interview was done in March this year during Keith's visit to Melbourne.

What have been the highlights in your year as President?

Thank you for the opportunity for an interview. When I took over as President, the new Chief Executive, Stephen Tetlow, had just started (in February 2009) and I am very pleased to say that one year on, he has settled in very well. He is moving the Institution forward with pace and he has struck a good rapport with staff and members in a year which has in many ways been challenging.

The second highlight, which has relevance to my visit to Australia, is the establishment of a framework for international growth. If all steps in the new international structure are satisfactorily achieved, we should have a structure which is right for the growth of international membership.

I am also very pleased with the increase in digital engagement of the membership. One of my areas of focus has been membership engagement. Web hits and access to the website have increased by 59% in 2009, which is very encouraging.

A couple of other things I am very pleased about is that membership went up in 2009 from about 82 000 to 88 000 – primarily with new affiliates, but it's still a significant increase. We also registered more chartered engineers this year in the UK than any other institution, which I think is very positive.

Finally, I am very pleased that we are now taking the initiative to look at our education strategy: to create a more holistic approach to education and support of education in promoting engineering in schools etc. This initiative should be delivered before the end of my term as President.

What do you see as the key benefits of joining IMechE? For example, what can be cited as some benefits of becoming a member (particularly outside the UK) at recruiting events? And what value for money does membership provide (apart from PE magazine).

By joining the IMechE, you are joining one of the premier mechanical engineering professional bodies in the world. I would say that IMechE, along with ASME and JMSE, are at the top of the premier league. That gives you access to a network of engineers around

the world. Seventeen thousand of IMechE's members are international members.

Many engineers first join IMechE to obtain registration as chartered, incorporated engineers or engineering technicians; this is a benefit of membership and there is a recognised rigour in the UK that means an engineer registered through the UK is greatly recognised.

By joining here in Australia, I think members have the benefit of a substantial organisation – a strong network with more than 1500 members. By joining in the various lecture programs, you are able to add to your own continuous professional development. This could also be achieved by accessing IMechE's online material, which literally grows on a daily basis. Much of our library is archived digitally so that members have easy access. I think that where work is done in schools and the like, this also gives engineers an opportunity to give something to the community.

In Australia, many young engineers do not seem keen to join professional institutions. How do you see this impacting on the IMechE, and do you think the IMechE needs to change the way in which it operates to attract new members?

There has been a great improvement in the UK in terms of the number of young members coming out of university and becoming active members. From what I have seen, particularly in this year, young members involved with branches or groups that have active social programs tend to be more progressive than those where there is no active social program. I would commend to any young member branch or group that they develop an active social program and realise this is not only about serious work but can also be great fun.

How can IMechE globalise its marketing material and campaigns? At the moment, all brochures are UK-centric. The global aspect of

IMechE is a major selling point in Australia and it needs promoting from HQ.

I am a great believer in self-help and the local branches have to take some of the initiative here. I was delighted to see the 50th anniversary banner designed by you [David White of the SA Young Members' Section]. I also think that now we have a framework in place for international development, that needs to make itself work through the International Strategy Board (ISB), and one of the things it can be doing is lobbying for more internationally focused material. I think it's probably quite difficult to do that from HQ and has to be done locally. I certainly think there can be a greater international flavour to the Institution than we have at present. It's for the members of the ISB, including your own Regional Chairman, to press for that and make sure it happens.

The Australian branch is run by volunteers and serves around 1100 members of all ranks and ages. How can we get more support for marketing and recruitment (perhaps full-time paid staff)?

I think more support is certainly a possibility but, as always with such matters, it comes down to a budget issue. If you would like to get more support, it needs to be budgeted. I think it's a case of asking and negotiating the best you can. The Institution, I am sure, will not stop you from taking on someone full-time, part-time or maybe even a retired engineer.

Always with anything like this, it has to be looked at from a business perspective. If someone is going to be employed full-time, what is the return going to be? I was very pleased to see that membership in Australia has gone up in 2009, but when you look at it closely, most of that increase has come from PNG and the Northern Territories. Will future increases be driven by the same patterns or will you see growth in more established and bigger panel areas?

IMechE is supporting engineers to deal with challenges of global warming. How have young engineers responded to this approach?

From all that I have seen, most members have responded positively and IMechE has generated a lot of information in the last 12–15 months to make the case for climate change and the way in which engineers need to respond to it. Various reports that were produced in 2009 culminating in the mitigation, adaptation and geo-engineering report are all available through our website. Young engineers, I think, do understand the threat that climate change presents to us, and most of the debate is around the rate of change as opposed to whether or not it's happening. Many can see that it's beginning to happen; although there is no conclusive evidence, the recent storm in Perth (22 March) may be an example of where climate change is having an impact. There are many ways in which young engineers can be involved – for example, the design, installation

and operation of renewable plants, wind farms etc. An example from the UK where IMechE and young members are involved is that we run a competition in schools called 'Our world in 2050' in which school children have to devise solutions for managing energy, transport and buildings. This competition needs support from young engineers (children respond much better to young engineers) and there is no difficulty in getting them involved.

Fields of engineering seem to be changing at a rapid rate and many new engineers (either graduates or students with double degrees) in Australia and elsewhere have cross-disciplinary degrees (biomedical engineering, mechatronics etc.). How do you think IMechE should respond to this (perhaps mergers with other professional bodies)?

There are a whole range of degrees offered in the UK, which are quite popular. Australian degrees which are accredited by Engineers Australia are acceptable to IMechE as well. That said, double degrees do not pose a problem; the profession is now set up to recognise either a three-year BEng honours degree followed by a relevant master's degree or a four-year integrated MEng degree. For many years, we also recognised that mechanical engineers often work in close association with engineers of other disciplines, so the processes of gaining membership recognise the relevance of many broad but mechanical relevant engineering

degrees (eg. mechatronics). We don't consider degrees in isolation. Also, if more mature engineers who have, say, got a BEng degree originally, can demonstrate that they are doing work at a masters level and they have done it for a period of time, they may qualify as a member and become chartered.

You have extensive experience in desalination. This is a hot topic in Australia at the moment and will play an important role in securing Australia's future water supply. Do you think desalination is a sustainable method of producing water (considering the energy intensity of the process)? I am more interested in an Australian context, where it has to compete with rainwater harvesting and efficient water management, as opposed to the Middle East, where there is little or no choice.

It depends on how you define 'sustainable'. The method of generation of energy required will define how sustainable it is, and there is also the efficient use of that energy to consider. I was very pleased that the WA Panel included a visit to the Kwinana desalination plant (one of the largest reverse osmosis plants in the world) and I was very interested to see that the energy recovery system enables them to save 30% from what would be the normal energy consumption.

I am sure the first thing Australia has to consider is how much water it has, and once

rain conservation, pumping from aquifers in the ground that are suitable for human consumption and recycling of waste water is exhausted, there is no option but to go for desalination.

The editor has had a few requests to feature interviews with members who have interesting experiences to share. Be it an interesting career that has lead to many innovations and travel or an interest or hobby that has lead to creations of intricate to large-scale models or be it service to the branch or a charity, this is an opportunity to share your story. If you would like to nominate an interviewee, please send me their name and contact details with a brief description of their area of expertise/interest. You can also nominate yourself as an interviewee. If you would be willing to conduct and write up an interview, I would appreciate some help with this exercise, so please also let me know.

State News



President Keith Millard signing the MOU with IE Aust President Professor Douglas Hargreaves

eagerly for graduation. The Panel Chairman briefly explained IMechE's history, membership, objectives and benefits to the audience and then presented the Best Student (FBW) Prize to Mr Christopher James and the Best Project Prize to Mr Alexander Grainger (both were the University's highly recommended students).

AGM

The Panel held its AGM on 17 February. The same committee was re-elected. Humble thanks from the committee to all members for the confidence and loyalty placed on us.

Branch Activities

The Panel Chairman attended the Australian Branch Committee Meeting, Annual General Meeting, Dinner and the National Speak Out For Engineering Competition held in Melbourne.

SOFE 2009

The Panel held its Queensland Competition for the first time. Queensland winner Joshua Brimblecombe from UQ competed in the National Competition. His topic was 'Nocturnal Cooling Tests'. The aim of his research project is to experimentally determine the radiative heat losses from selected surfaces to the night-time sky.

Presidential Visit

The end of March were the busiest days for the Panel as President Keith Millard and his wife, Anne, visited Brisbane. On the way from the airport, the President was driven through Brisbane's brand-new 4.8-kilometre tunnel, Clem 7, which bypasses Brisbane city and runs 60 metres below the Brisbane River.

The same afternoon, the President visited the University of Queensland. UQ hosted afternoon tea, a meeting with Professor Mee, his staff and students, and a tour around the engineering faculty.

The following morning, the President visited the Queensland University of Technology. QUT hosted a meeting with Professor Hargreaves and his staff, and a tour around the engineering faculty.

The same afternoon, the President visited Engineers Australia Queensland Division Office. The Mutual Recognition Agreement between IMechE and EA was signed by our President and Engineers Australia President Professor Douglas Hargreaves in front of a large gathering of members from both institutions. The President then delivered the 19th George Stephenson Lecture to the same audience, followed by questions.

State News QLD

Student Awards

The Panel presented its 2009 University of Queensland Awards on 18 December, the day of the engineering students' graduation ceremony. It was a full house and a warm gathering of students and their families waiting

State News

Following the GSL, the President visited some of Brisbane's famous landmarks, including Mount Coo-tha Summit. The Panel is grateful to Mrs Mary Peden for kindly volunteering to conduct an exclusive guided tour in Mount Coo-tha Botanical Gardens.

As part of our 50th anniversary celebrations, a Members' and Guests' Dinner with the President was held that evening at Summer on the River, a restaurant boasting fantastic views of Brisbane River and the city skyline. All past Australian Branch Chairmen from Queensland since the Branch's inception in 1960, except the late Professor Mansergh Shaw, were present at the dinner. Professor Mee, representing UQ, and Professor Hargreaves, representing QUT and Engineers Australia, were there as our guests. Those who attended found that it was an exceptionally enjoyable event and a great opportunity to meet old friends and make new acquaintances.

Dagaratne Dharmasiri

Queensland Panel Chair

State News NSW

Firstly, we would like to congratulate the NSW contender Jared Holmes, this year's national winner of the Speak Out For Engineering competition.

Wednesday 31 March and Thursday 1 April was the NSW Panel's turn to host the Keith and Anne Millard on their tour of Australia during the 50th year anniversary celebrations.

On the Wednesday, Geoff Stone and his wife Suzanne accompanied Keith and Anne to the Powerhouse museum, where they were given a personal tour by one of the curators. They saw a number of the exhibitions, including:

- Engineers Australia Engineering Excellence Awards
- innovative projects by some of New South Wales' most talented young design students
- Boulton & Watt Steam Engine, the oldest surviving rotative steam engine in the world
- Australian International Design Awards, showcasing 'excellence in design as well as innovative use of technology or materials'

In the evening, the President presented the George Stephenson lecture. There was a successful turnout, including Mr George Fox, who was the IMechE Branch Chairman from 1964 to 1965 and has been a member for over 45 years.

Ian Mash also presented Geoff Stone and Neil Gillies with bottles of champagne to thank them for their years of service (five and seventeen years respectively) and their contribution to the NSW branch. The GSL was followed by dinner at one of the local Chinese restaurants.

On the Thursday, we had an early start, with a train cab ride alongside the driver down to Macquarie Park station, where we got to experience the new Epping to Chatswood rail link and see the new tunnel and rail line up front. It was a glorious morning and having the opportunity to sit in the cab whilst travelling over the Harbour Bridge with views over the water to the Opera House was a truly unique experience, all thanks to Jason Groombridge.

The train ride was followed by an excellent presentation on the Epping to Chatswood Rail link project, with emphasis on the noise aspect, followed by a station walk-through.

In the afternoon, Keith and Anne were given a tour to Manly by ferry to have lunch and see some of the sights of Sydney, including the Opera House and the Harbour Bridge, from the water.

Keith and Anne left for London on Good Friday, after a successful trip down under!

Other news – NSW have had a couple of very popular technical presentations of late, in conjunction with EA and ASME. One of these was February's slot, where Geoff Stone presented 'Pumps with VF Drives – Do they deliver value?'. We had 100 people attending, with standing room only. Well done, Geoff!

Monika Sud

NSW Panel Chair

State News VIC

Saturday 27 March was the Victorian Panel's turn to host Keith and Anne Millard on their Australian visit, together with the other associated activities reported elsewhere – namely, the Australian Branch Meeting, the Australian final of Speak Out For Engineering, the 50th Annual General Meeting and, finally, a formal dinner. The entire list of Victorian members was invited, together with the interstate visitors, and we were joined with guests from the Mechanical Branch of Engineers Australia, the Speak Out finalists, totalling fifty-four people. It was pleasing that a number of members who have not attended other activities in Melbourne made the effort to attend the dinner.

Since it was Grand Prix weekend in Melbourne, all the activities took place at the Novotel Hotel in suburban Glen Waverley so that we were away from the crowds associated with the race. The meal consisted of three courses with drinks supplied and coffee afterwards. During the meal, Australian Branch President Clive Waters proposed various toasts, culminating in a toast to the Institution. IMechE President Keith Millard responded, and gave an after-dinner speech outlining his view of the future for the Institution. Finally, immediate Past

President of the Australian Branch, Brian Carter, moved a vote of thanks to the speaker and closed proceedings.

Earlier, on Saturday morning, some of the women from the group took the train to central Melbourne and spent the day at the International Flower Show in the Carlton Gardens and the heritage-listed Exhibition Buildings. Sunday was nominally a free day, however a group of interstate members and Keith and Anne attended the Grand Prix – I am told they had a good day, and I hope they took suitable ear protection! Monday morning saw the President and wife departing Glen Waverley at 6 a.m. to fly to Brisbane to continue their visit.



Keith Millard presenting Dr Patrick Russell-Young with a certificate of appreciation

The Victoria panel also took this opportunity to recognise the dedicated services of Dr Patrick Russell-Young, who served as Panel Secretary from 1962 to 1987. He has served (and continues to do so) as Minutes Secretary of the Panel since 1989. It's also worth noting that Professor A. Burstall (Professor of Engineering, University of Melbourne) who in 1946 wrote to the Council requesting the formation of a Victorian Branch of the Institution, was Patrick's uncle. Keith presented Patrick with a certificate from IMechE recognising his contribution and commitment to the Branch.

John Burt

Victorian Panel Chair

State News SA

The 19th George Stephenson Lecture was presented at Adelaide University on Thursday 25 March by the IMechE's 124th President, Keith Millard. His address, 'Managing to Improve the World Through Engineering', is available on the IMechE website. For a CD of his address, please contact the Victorian Panel Chair, John Burt, (j_w_burt@hotmail.com, 03-9560 0763)

Keith's talk was based on his global career experiences, including time spent as a seafaring

State News

marine engineer, and later as a consultant to major engineering companies, including Balfour Beatty and Parsons. His presentation was ably supported by his wife, Anne, who caused appropriate graphics to appear on the screen in perfect synchronisation with the spoken word. There was a spirited Q & A session at the end, only curtailed by the need to proceed to the 50th Anniversary Dinner.

The dinner was held in a function room at the Coopers Alehouse in Adelaide. The 50th Anniversary banner, designed by YM David White, was prominently displayed near the entrance. Diners included several 'senior' members and their partners, YM Panel members, businessmen and representatives from academia and kindred institutions, as follows:

University of South Australia: Dr John Fielke.
Engineers Australia: Doug Gillott (SA President) and Dr Michael Evans (SA Mechanical Division Chair).

Stan Gafney



L to R: Stan Gafney, past Branch Chairman; Dr John Fielke, UniSA; Doug Gillott, SA President, Engineers Australia; Keith Millard, IMechE President; Dr Michael Evans, Chair SA Mechanical Division, Engineers Australia; Ken Sumpter, past Branch Chairman

A Paradigm Shift in Electricity Supply

Address by Lasantha Perera, Director, Electricity Markets Research Institute to the Victoria Panel on 12 October 2009.

In his address, Mr Perera provided a brief background to the electricity industry restructuring that happened in Victoria. He highlighted the point that while the electricity supply grid was mostly confined to population centres along the eastern, southern and western seaboards, the gas supply pipelines covered the Australian continent more extensively. He also explained that bulk energy transport in the form of gas pipelines was cheaper than in the form of electricity transmission lines. Speaking on the workings of the electricity wholesale market, Mr Perera touched on the extreme price volatility in the electricity pool market and showed that about 25 per cent of the pool market revenue resulted from supply during a few hundred half-hour periods.

Mr Perera suggested that, in order to address the threats of global warming and renewal of aging assets in a timely manner against a background of capital and water constraints, the energy supply industry should rethink the traditional energy supply model. He pointed to the opportunities presented by developments such as: a significant increase in availability of gas; bulk energy transport being cheaper in the form of gas than as electricity; vast improvements in technology and availability of communications, controls and meters; improvements in technology and availability of heat pumps; Energy Pool Markets providing enhanced opportunities for Demand Response and Distributed Generation, including co-generation.

Mr Perera briefly described the concepts behind the Energy Arbiter™, which combines the functionality of two energy efficient technologies: co-generation and heat pumps. Commercially available co-generation systems were presented, some of which are small enough to sit under the kitchen sink. The manufacturers claim that GHG emissions from co-generation systems are no higher than from traditional gas-boiler water heaters. Examples of commercially available heat pumps that achieve a coefficient of performance over six in water-heating applications were presented. Mr Perera provided a worked example based on energy consumption data for a typical four-bedroom house in Melbourne, where an Energy Arbiter™ system that has thermal storage facilities can provide price-responsive electricity export to the mains grid, thereby achieving a payback period of less than one year. By superimposing converted gas wholesale market prices in Victoria over electricity wholesale market prices, at gas turbine conversion efficiency and then at co-generation conversion efficiency, Mr Perera demonstrated that customer co-generated electricity can be cheaper than electricity produced predominantly from coal.

A lively discussion followed the presentation. One pertinent question was why such innovations are not getting the support they deserve. Mr Perera suggested that since these innovations amounted to a paradigm shift, current industry players fail to recognise the new technological landscape and tend to resist change that threatens their vested interests.





AUSTRALIAN BRANCH FOUNDED ON 19TH MAY 1960

Year of Office	Name of Chairman	Panel
1961–1962	Prof. P. L. Henderson	VIC
1962–1963	Prof. Mansergh Shaw	QLD
1963–1964	Mr Roderick Ross	VIC
1964–1965	Mr E. C. Fox	NSW
1965–1966	Mr E. Godfrey	VIC
Two years' tenure established		
1966–1968	Prof. A. H. Corbet	NSW
1968–1970	Mr J. G. Holmes	VIC
1970–1972	Mr W. N. Stafford-Gaffney	NSW
1972–1974	Mr S. K. Dean	VIC
1974–1976	Mr H. W. Hiscox	NSW
1976–1978	Mr E. Szomanski	VIC
1978–1980	Mr W. Downes	NSW
1980–1982	Mr D. Pugh	VIC
1982–1984	Mr W. A. Pullman	WA
1984–1986	Prof. G. de Vahl Davis	NSW
1986–1987	Mr P. A. Mills	SA
Note: Peter Mills did not complete his tenure in office and Professor G. de Vahl Davis took over as acting Chairman during 1986.		
1987–1989	Mr P. Russell-Young	VIC
1989–1991	Mr K. W. Sumpter	SA
1991–1993	Mr J. J. Spillman	WA
1993–1995	Mr J. M. Taylor	QLD
1995–1997	Mr K. Tushingham	WA
1997–1999	Mr B. J. Cowley	NSW
1999–2001	Mr M. Cardew Hall	ACT
2001–2003	Mr S. Gafney	SA
2003–2005	Mr W. Swinson	VIC
2005–2007	Mr I. Marshall	QLD
2007–2009	Mr B. Carter	VIC
2009–2011	Mr C. R. Waters	SA

Membership Database

HQ has developed a database known as *Informers*. This database contains all the member data that has been entered by members. The database has had some teething problems, as members have not been guided in how to consistently enter their address. The database is used by the *Australian Branch Bulletin* Editor for mail-outs and errors result in you, the member, missing out on a valuable publication.

If your details change, please go into the database and enter the correct information.

In the address fields you will see five places to enter your address. The following suggestions are made to help us with your entries:

Address Line 1: Company name or retirement village name

Address Line 2: PO Box, Unit/House/Level # and street address e.g. 24/55 Engineers Lane or Level 5, 53 George St or PO Box 132

Address Line 3: Suburb (Please do not put a city name in this field unless it is a suburb), e.g. Glebe not SYDNEY unless your postcode is 2000

Address Line 4: State or territory – NSW, SA, VIC, WA, QLD, NT or ACT (Please use upper case and do not put your postcode here)

Address Line 5: Postcode, e.g. 4154

General rules:

- 1 Do not put your name or title in any address line.
- 2 Please do not ask your local representative to change your data as they do not have access. Either log in and change the data yourself (preferred), email membership@imeche.org. (or phone, if necessary, on +44 20 7304 6999).

Near You Website

The Near You website (<http://nearyou.imeche.org.uk>) is administered by your state panel Web Officer. If you want any information posted about events, please contact the Web Officer shown on the state page or your Hon Secretary. The information is only current if members advise the right people.

www.imeche.org.au

This is a defunct web address and is only kept current as a link to the Australian **Near You** website. There is no active content on the site.

Applying for C.Eng in Australia or PNG

Unfortunately, applications cannot be carried out using IT. This is a commonly asked question so the process is detailed below:

- 1 Download and complete the Existing Registrant Application Form using the [Guidance notes](#) for assistance.
- 2 You will notice on the form that you require two sponsors for your application. They

need to be registered Chartered Engineers with the IMechE or other Engineering Council institution. We also accept sponsors who hold registration with [FEANI](#), [EnglRE](#), [EA](#) or [HKIE](#).

- 3 If you are applying under the EMD or Mutual Recognition Agreements between the IMechE Australia, Ireland and Hong Kong, note that your sponsors will be asked to complete the [Chartered Engineer Sponsor form](#) to accompany your application.
- 4 You will need to provide an up-to-date and comprehensive CV (max. four pages), including evidence of continuing professional development and your current company details.
- 5 Provide an application fee payment by cheque made out to 'IMechE' or inform us on your application form that you wish to pay by credit card, and we will contact you to take payment.
- 6 If you hold a foreign professional registration, please include a photocopy of a letter signed by your registering institution or your certificate, signed by a senior manager or a registered engineer, with the statement '[This is a true and fair copy of the original](#)'.
- 7 You are welcome to include copies of your qualifications with your application, but this is optional.
- 8 We have provided a [Check List](#) to help you make sure you have all the correct documents together before sending them to us.
- 9 Post your application to:

Membership Applications

**1 Birdcage Walk
Westminster
London SW1H 9JJ.
UNITED KINGDOM**

Geoff Stone

Branch IT Coordinator

Application of Reengineering Principles

'Reengineering Vs Engineering' appeared in the last *Bulletin* (NB no.157, January 2010), as defined by Michael Hammer and James Champy in *Reengineering the Corporation* (1993). Many people have used the term since, to the extent that we have lost sight of the intended meaning. 'Reengineering' has coupled with other business buzz words that refer continuously to some form of business enhancement.

According to Hammer and Champy, reengineering is 'the **fundamental** rethinking and **radical** (root) redesign of business **processes** to achieve **dramatic** improvements'. The four bold words are the key to this definition. They deny that other business improvement

programs – such as restructuring, downsizing, automation and total quality management – are reengineering. However any new model arrived at by undertaking tasks involving the four key words can be defined as reengineering. It is relatively easy to apply fundamental rethinking to the root cause of a problem and develop a business process to solve it, but achieving dramatic improvements is often very difficult. Some feel that the implementation of reengineering should not be revolutionary but it should be evolutionary, to match staff pace. This idea developed mainly from failures of revolution in many countries. In fact, many companies that have chosen rapid implementation of reengineering in an attempt to undergo revolutionary change have failed drastically and gone bust.

Other organisations have benefited tremendously from implementing reengineered plans. Performing reengineering based on 'lessons learned' and radically designing the project execution before kick-off is popularly adopted in engineering industry to achieve dramatic improvements. But, as mentioned, there have been failures, and the intended result is not always produced. Many of the poor results have been attributed to mishandling of business issues. Employees are often unimpressed with reengineering, mainly because they do not understand what the term means and have been misled. In some organisations, employees found their responsibility/authority reduced, or they even faced retrenchment. In some cases, covert restructuring plans were implemented under the guise of reengineering, but in fact were nothing to do with reengineering at all; instead, these were methods of getting rid of unwanted employees. As a result, in some fields, employees tend to be determined to undermine any form of 'reengineering'. Other failures were a result of rapid pace of reengineering implementation, inflexibility in execution and inappropriate plans.

In fact, reengineering is one of the best ways to achieve better results – but it is vital that the principle is applied correctly. The first step is to analyse the existing system. Business systems contain many sub-systems and, further down, major components. Each component is made up of several elements or activities. One way to ensure better results is to look into improvements at element or activity level. It is always best to handle one element or activity at a time; this allows a closer focus on the issue. Such analysis is likely to make critical elements for reengineering obvious. Empowering employees to propose reengineering ideas for dramatic results is another way to pick the best method of implementation.

Human capital is the key for any business success and it is the most complex element to manage in a business environment. As long as they have no previous bad experiences, any fair-minded person will embrace improvements to achieve superior results. Thus any

reengineering plan will be welcomed, provided the plan is genuine. Management should be aware of the sentiment of their staff, and this can only be achieved by having appropriate communication channels in place. Any plan should focus on productivity as well as improvement of quality, whilst ensuring no negative impact on workers' positions/conditions. Such reengineering will satisfy staff aspirations by bringing success to business.

So, the success of reengineering is assured if an appropriate plan is developed from employees' ideas, for one element or activity at a time, and with appreciation for human capital. Employees should also be empowered to implement at their pace.

In future *Bulletins*, the author intends to share some failure cases of reengineering in engineering organisations.

Varan Karunakaran

Discrimination Towards UK Pensioners

Discrimination Towards UK Pensioners Living in Australia and Other Commonwealth Countries

If you worked in the UK, you and your spouse are entitled to a non means-tested UK pension. There are different rules based on your date of birth. A maximum pension is paid when your national insurance contributions reach 30 years. There are provisions to top up your NI contributions even though you live overseas. (Details can be found on the <http://www.britishpensions.org.au/> or <http://youle.info/bpia/websites/>.) It pays to join one of these organisations to get help. Write to the *HM Revenue & Customs CAR Residency, Benton Park View, Newcastle upon Tyne NE98 1ZZ, United Kingdom*. They will advise you what your entitlements are in terms of the pension. Make sure you receive your entitlements.

The UK *HM Revenue & Customs* has a practice where any UK pensioner living in Commonwealth countries such as Australia has their pension frozen at the time they reach 65 years of age. Pensioners living in other countries such as the EEC countries, USA, Haiti, Turkey and Israel have their pensions indexed in line with the CPI.

This discrimination is unacceptable in principle even if you are not a pensioner or you do not wish to draw a pension. Think of your fellow IMechE members and join the petition against this discrimination. You can add your voice at <http://www.pension-parity-uk.com/how-you-can-help.htm>. If you do not have email facilities, write to the Membership Secretary of IMechE to voice your support.

Efforts have been made to have IMechE HQ fight against this discrimination. However,

they need goading into action and this can be achieved by a common voice expressing its disapproval of discrimination in this form. Contact Colin Brown, the Engineering Director IMechE, now. He has expressed sympathy to this worthwhile expression of discontent at C_Brown@imeche.org. Let your local Panel committee know of your concern about this discrimination.

Yours faithfully

Geoffrey D Stone F I E Aust C P Eng: F I Mech E C Eng RPEQ
Immediate Past Chairman NSW Panel IMechE



Global Warming and Challenges to Engineers

Dear Editor,

It has been concerning me for some time now as to why some of my fellow IMechE members are so vociferously opposed to the concept that global warming has been exacerbated by the burning of fossil fuels. It seems to me that the debate about whether global warming is or isn't made worse by our current way of doing things is diverting our attention from solving some of the challenges which have been thrown down to us. Aren't more fuel-efficient cars something that we would like to have, regardless of their benefit to the environment? Won't using less energy at home and at work reduce costs? If we use generators powered by renewable energy as part of the generation mix, won't it make our reserves of fossil fuels last longer? Isn't an energy-efficient house more comfortable to live in? Isn't it a challenge to design a more advanced process which uses less energy rather than a simpler one which uses more?

If we think about it, people have been striving to achieve these worthy goals long before the greenhouse debate reached its current levels. I recall as a young engineer reading the text book *The Efficient Use of Steam* by Oliver Lyle. It was published in 1947 and I feel certain that Mr Lyle didn't write the book because of the greenhouse effect. However, the messages it contains are highly relevant today. The *Whole*

Earth Catalog, published in 1970, promoted the idea of a sustainable lifestyle to a generation of hippies. The publishers didn't come up with their ideas because they were worried about the greenhouse effect, but they were concerned about the effects of the modern lifestyle on the planet and they wanted to make a difference. Their ideas may have been considered radical then but are the topic of lifestyle TV programs today.

Here are a few suggestions. Let us stop jumping at shadows. Let us stop arguing over whether the greenhouse effect is real or a great big conspiracy by most of the world's scientists. Let us concentrate on what we do best. Let us improve the energy efficiency of the machines and processes we design. Let us design processes that recover waste heat and put it to good use. Let us try to reduce waste wherever we can. As engineers we have a great deal more influence than we realise. Your customers will thank you. If the spin-off from what you do is beneficial to the environment, then your grandchildren will thank you, too.

Yours faithfully

Brian Carter
Immediate Past Chairman
IMechE Australian Branch

SA Joint Technical Programme Visit

On 11 May, a group from the Joint Technical Programme visited the Maintenance Group of No. 11 Squadron at the RAAF Base, Edinburgh. No. 11 Squadron is an operational flying squadron based at the base that provides maritime and overland surveillance and reconnaissance capability through maintaining and operating the AP-3C Orion aircraft. This platform is also capable of anti-submarine and anti-ship warfare, naval fleet support, and search and survivor supply. No. 11 Squadron was formed in 1939 and has operated the AP-3C Orion aircraft since 1968.

The group visiting the Maintenance Group was treated to an intimate tour of an AP3-C Orion parked in the hangars. Specialist engineering personal was on hand and, over two hours, explained every detail of the aircraft in regards to maintenance and operation. The visit was thoroughly enjoyed by all taking part.

Yours faithfully

Michael Riese
SA Panel Chair

"The scientists of today think deeply instead of clearly. One must be sane to think clearly, but one can think deeply and be quite insane."

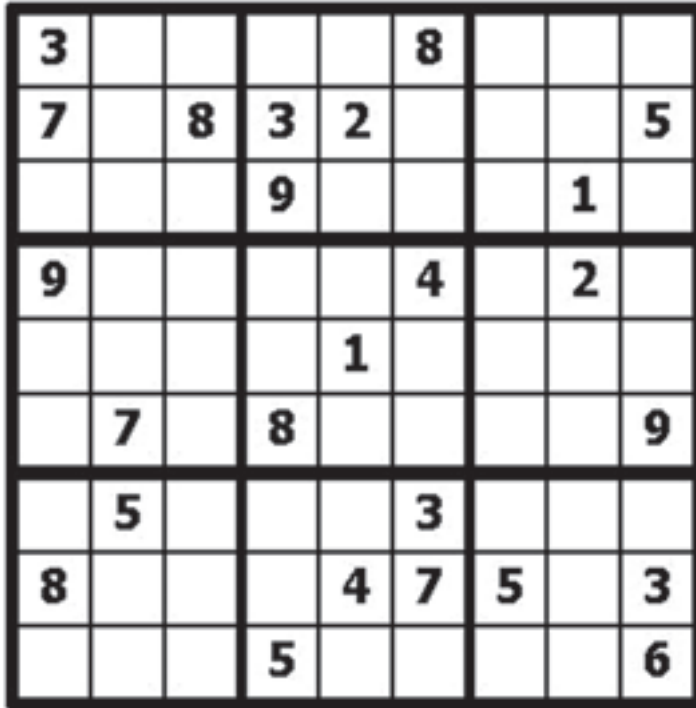
– Nikola Tesla

Something to Think About – Sudoku

For those who are not familiar with Sudoku, a Sudoku puzzle consists of a 9 x 9 box subdivided into nine 3 x 3 boxes. Some of the squares contain numbers ('givens'). The others are blank. The object is to fill in the blank squares so that every row, every column, and every 3 x 3 box contains each of the numbers from 1 to 9 just once. Sudoku means 'single

number' and refers to the unique place on the grid where each number correctly fits.

To solve a Sudoku puzzle, you require only logic – no guesswork. A properly designed Sudoku has only one correct solution. Send your solutions to the editor (refer back cover for contact details) before 31 July 2010. An IMechE study holder awaits the lucky winner!



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Sportsfest

For some thousands of years, and in various parts of the world, civilisations have developed well beyond a mere subsistence level. A consequent surplus of labour and materials has allowed the development of not-strictly-essential activities. These may be either physical or mental, both giving rise to 'icons' peculiar to that civilisation.

In the physical case, we have the creation of sizable structures; typical examples are the Egyptian pyramids, the Grecian and Roman temples, the mediaeval cathedrals and, more recently, the Eiffel Tower in France. Curiously, this is one of the few modern structures erected solely because 'It is there'.

In the mental case, we have an enormous range of endeavour, including all the fine arts, literature, music and acting. So far, quite interesting, but what about an icon that is not quite either – that is, all the activities known as 'sport'. Once again, a formidable variety, in two formats: with or without the vital ingredient of a mobile target, usually some form of spheroid. Alternatives might include firearms, fishing rods or powered vehicles. Examples of sports where no hardware is involved are athletics or bush walking.



Now, a vital factor in all these activities is the competitive element. Maybe this reflects a sublimation of a civilisation's original 'struggle for existence'. All the primitive ingredients are there: a team effort in hunting, some form of reward (usually food), a body of rules for best efficiency and specialised hardware such as bows, arrows, spears, traps etc. But how does all this relate to the iconographic game of cricket?

Pulcan

Something to Think About – Mystery Object



Identify the function of the mechanical device in this picture.

Please send your answer to the editor.

No responses were received for the problem in NB157. It was an interesting little problem that required a bit of geometry and a few iterations. The problem was:

On the edge of a circular field of unit radius, a goat is tethered. What is the length of the tether such that the goat can graze exactly half the field area?

The answer is 1.16 approx.

The mechanical device is the *Arithmomètre*, the first commercially successful mechanical calculator. It was patented in France by Charles-Xavier Thomas de Colmar. From 1851 to 1878, the *Arithmomètre* was the only mechanical calculator in commercial production and it was sold worldwide.



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IMechE UK Website
www.imeche.org

NOTICES

AFFILIATE MEMBERSHIP

The Affiliate Grade of Membership is available, with no joining fee or annual subscription, for students studying an approved Mechanical Engineering degree course. Upon Graduation, the student can apply for Associate Membership. For details, students should contact their nearest Panel Hon Secretary.

MEMBERSHIP

For information on how to apply for membership of the Institution, or transfer membership grade, refer to the website at www.imeche.org. Alternatively, contact Membership Helpdesk, c/o IMechE, 1 Birdcage Walk, London SW1H 9JJ. Telephone 001144 84522 69191. Email: membership@imeche.org

Sponsors for membership should be Chartered Engineers, although not necessarily members of IMechE. Sponsors must be satisfied that the applicant should be considered for election to corporate membership and may be contacted for further information regarding the applicant at any time during process.

Applicants for grade of Fellow must be sponsored by at least one Fellow.

Engineers Australia members are eligible to apply for the equivalent grade of IMechE membership under the terms of the Mutual Recognition Agreement.

UPGRADE OF MEMBERSHIP

Those Australian members having the necessary experience and qualifications are urged to upgrade from Member to Fellow. The appropriate forms can be downloaded from the above website, or hard copies can be requested from the Branch Hon Sec.

SUBSCRIPTIONS

Payment of subscriptions by MasterCard or Visa can be made by registration on Other methods of www.imeche.org/imember/login.asp. Other methods of payment include bank transfers in UK Sterling, bankers drafts and cheques made payable in UK Sterling.

CHANGES OF ADDRESS

If you change your address, please log in to www.imeche.org/imember/login.asp to make the changes. Alternatively you can write to IMechE, PO Box 87 Oakengates DO (District Office) TS3 3WT UK. (Phone number: 001144 1952 214060).

IMECHE PRIZES

The Following Prizes are administered by Australian Branch and details can be obtained from the Branch Hon Sec or from your nearest Panel Hon Sec:

- The Frederic Barnes Waldron Best Student Prize
- The IMechE Project Prize
- The Speak out for Engineering Prize
- The Paul Henderson Prize
- The Andrew Frazer Prize (PNG)

ARTICLES FOR NEWS BULLETIN

This Australian Branch Magazine is published three times a year. It features news of events being held at Branch level and in the various Panel areas. The Editor is constantly on the lookout for good articles on a wide variety of engineering topics. If you have an interesting theory, mechanical engineering experience or invention, please contact the Editor.

Articles or Letters for publication in *News Bulletin* should not exceed 3000 words, and are preferred in Microsoft Word format. They can be sent by email or posted on compact disk. Alternatively, clearly typed hard copies can be submitted.

Articles should be accompanied by good quality diagrams or photographs of about 1Mb for clarity, with captions, and not embedded in the Word document.

CIRCULATION

The *News Bulletin* is circulated free of charge to all Australian Branch Members. Should you prefer to not receive a copy of the *News Bulletin*, please advise the Editor, using the contact details in this publication.