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FUTURE FORMAT OF NEWS BULLETIN?



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Welcome to the third edition of the *News Bulletin* in our 50th year. Following in the same vein as previous issues, I should like to describe some events that have occurred since the May issue.

A few days after the President departed for the UK, Ken Tushingham (Branch Hon. Treasurer) and I flew to Singapore to attend the second Asia and Oceania (A&O) Forum over the weekend of 10–11 April. On the Saturday morning, the first part of the meeting was conducted, with Ken Tushingham as Chairman and other delegates from Singapore, Hong Kong, Malaysia, India, China, Sri Lanka. The Forum Young Members' representative and Maria Taylor from HQ were also in attendance. (see photo, page 3).

Apart from the general line of regional topics discussed, the major topic debated at length concerned the proposed restructuring of the A&O Forum. Prior to the meeting, the International Strategy Board (ISB) had decided to enlarge the Forum by splitting it into three parts and renaming these for 'Regions'. The new structure would consist of East Asia, West Asia and Oceania, with Australia included as part of Oceania. However, it was pointed out that East Asia should again be split into N-E Asia and S-E Asia, which would provide more even membership numbers (of 3400 to 3670 respectively). It was decided that this proposal would be presented for ratification at the ISB meeting in May 2010 (outcome mentioned below).

On Saturday afternoon, the Regional Speak Out For Engineering competition took place and, as reported in the last issue, Jared Holmes from Sydney came second.

On Sunday morning, all delegates gave brief presentations on achievements since the last Regional Meeting. Further discussion continued, again focusing on general regional issues, although debate was fairly lively on the subject of new financial reporting requirements by HQ.

In May, Ken Tushingham, as A&O Chairman, and myself, as Branch Chairman, attended the ISB meeting in London. The meeting was spread over four days (24–27 May) and involved representatives from across the whole International Division.

Day one involved a review of the international structure, followed by workshops on various subjects. It should be noted that the revised proposal for seven Regions was ratified by the Trustee Board.

Day two was spent on setting strategic aims, targets and activities together with costs to achieve these strategies. This was followed by further workshops on various subjects and presentations on future climate, licensing and the corporate website.

On day three, Regional roles and responsibilities, Regional and Branch operating guidelines,

aims and activities, and Affiliate to Associate conversions were all discussed.

Day four was a summary of the seminar, where various Regional groups were given action items to complete over the ensuing months.

During the seminar, we met John Wood, the incoming President; Stephen Tetlow, the Chief Executive; Professor Joe McGeough, the ISB Chairman at the time; and various other senior members of the Institution.

Following on from a workshop at the ISB, HQ are in the process of developing a toolkit to assist in the process of recruiting student members, engaging these members during their studies, and then helping them convert their membership to associate level.

A Regional membership breakdown list and global map are shown on page 3.

On 8 July, I took part in an ISB teleconference with Stuart Cameron, the new ISB Chairman; Paul Arora, the new Vice-Chairman; and various Regional members from around the world. The intent of this conference was for Stuart to introduce himself and provide the international group with his aims and objectives for the forthcoming year, including the regular issue of a newsletter.

I also took part in a teleconference on 19 July with SA and Victorian Panel Committee members, together with Young Members Matt Springer and Rhett Winston, who are keen to form a Young Members' Section in Victoria.

A further teleconference took place on 26 July, when Branch Committee members conducted the 78th Australian Branch Committee Meeting. This was in keeping with our current policy of keeping costs down, since funding from HQ post-Global Financial Crisis is still tight. However, the Branch Executive Committee still aims to have at least one face-to-face meeting each year, as there are often issues that cannot satisfactorily be addressed by teleconference.

And now for some history. Whilst browsing through the early editions of the *Bulletin*, I came across some interesting articles, which are reproduced as follows:

Bulletin No. 1 of June 1961: 'The election of the next Australian Branch Committee will be by postal ballot of all corporate members in Australia. The election will take place towards the end of this year and nominations will be called about September. The newly elected committee will take office at the next Annual General Meeting of the Branch . . .'

This was the first AGM of the Branch since founding and it is interesting that officers for Branch Committee were to be determined by ballot – a process we re-introduced in 2008.

Bulletin No. 2 of September 1961 (from the Editorial): 'Since many of our members are also members of the Institution of Engineers Australia, there has naturally been close co-

operation with the Mechanical Branches of that Institution... Social functions held and planned ensure that members get to know not only each other, but also their families.

It is encouraging to see such a healthy start and we can be confident that the Branch will justify its existence in the years to come.' It is nice to know that we continue to support these events.

Bulletin No. 2 of September 1961 (from the news section): 'A project of interest to all members is the use of **solar energy** for domestic air-conditioning. Mr. N. R. Sheridan, a Sub-Branch Committee member, is currently engaged on this research project, which has reached the stage of fully instrumenting a half-scale model house on the roof of one of the Queensland University buildings.'

So, the idea of solar energy is not so new after all!

Bulletin No. 3 of February 1962 (from Branch News): 'Members will be pleased to know that the President, Sir Kenneth Hague, LL.D., will be visiting India, Singapore, Australia and the U.S.A. during February and March 1962, on a business trip in his capacity as Chairman of Babcock & Wilcox Ltd. Lady Hague will be accompanying the President...' (This was the first visit of an IMechE President to the Australian Branch.)

'The material forthcoming for publication is gradually increasing and for this reason Mr. R. K. Vinycombe, Associate Member, has been co-opted to the sub-committee, which now comprises four members including the convener.'

Today, this job is conducted by one person, our *News Bulletin* editor!

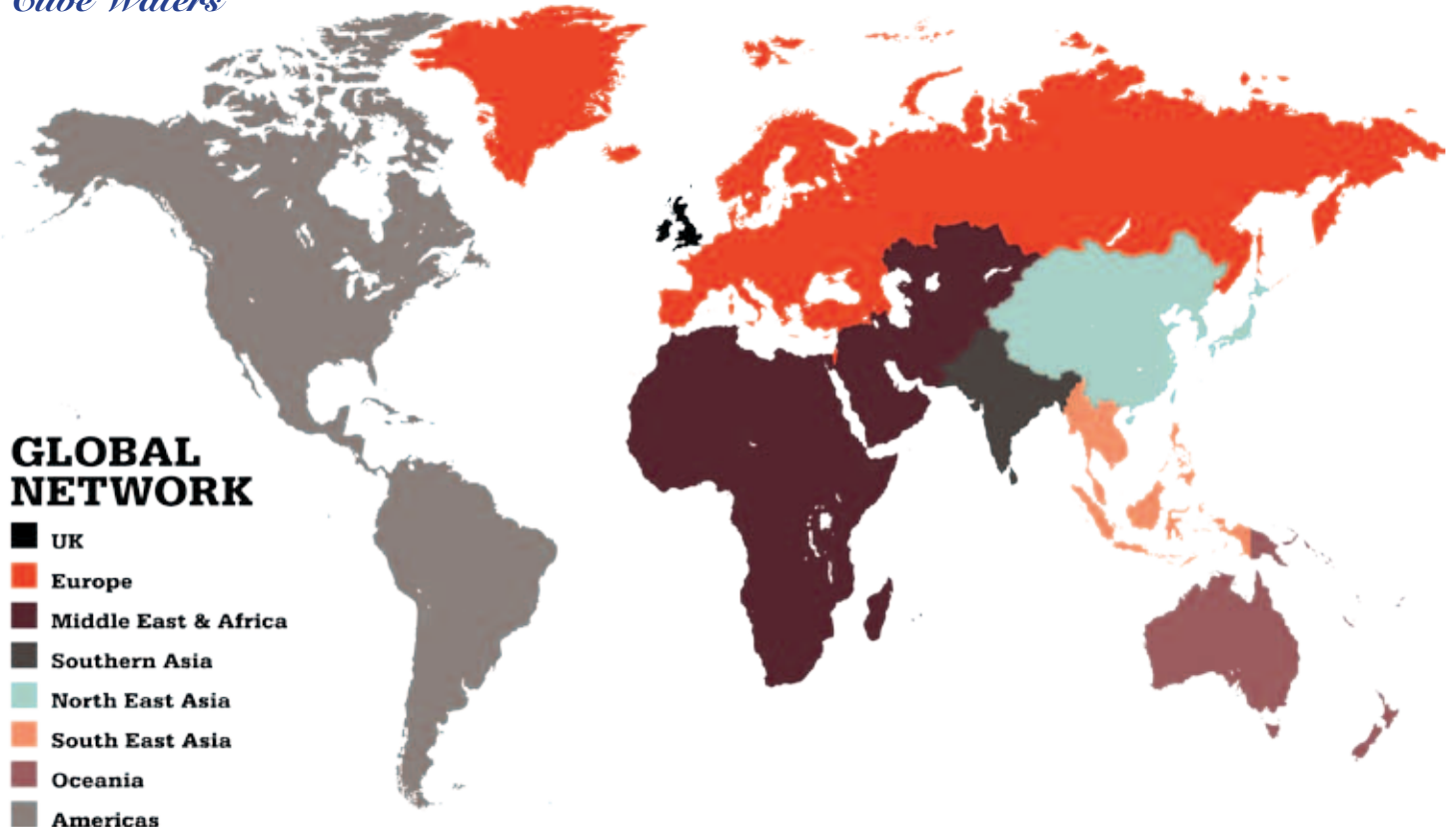
Bulletin No. 5 of August 1962 (under 'Change of Name'): 'We wish to bring to the notice of members that the **Mechanical Engineers Association (Australia) Incorporated** had applied for a change in name of the Association. After representations by the Institution of Engineers Australia and the Institution of Mechanical Engineers, it was agreed that the new title should be the **Society of Mechanical Engineers of Australasia**. The Australian Branch Committee was very happy to have this opportunity of collaborating with the Institution of Engineers Australia and would particularly like to record its appreciation of their help in bringing the matter to a successful conclusion.'

Finally, on a slight deviation from mechanical engineering, I returned from the London meeting via Zurich, after spending some days in Europe. Whilst in Switzerland, my wife and I travelled on the Swiss rail system (SBB). On the journey to Zurich, the train travelled between Brig in the south and Spiez. Most of this sector was the Lötschberg Base Tunnel that, at 34.6 kilometres, is the longest land tunnel in the world (see Wikipedia for more details). Also, mention was made during our Glacier Express

trip (more of that in a future edition) of the Gotthard Base Tunnel being bored through the Alps, which, on completion in 2018, will be the longest tunnel of road or rail in the world. The Swiss don't mess around when it comes to building railways, do they!

Institution of
**MECHANICAL
ENGINEERS**

Clive Waters



Left to Right: Ong Kok Seng - Chairman Malaysia Branch
 Clive Waters - Chairman Australian Branch, Dr Chan Kuan Yoong - China Corresponding Member
 Ken Tushingham - Chairman Asia & Oceania Forum and SOFE Judge
 Maria Taylor - Regional and International Operations Executive (HQ) and SOFE Judge
 Paul Arora - Chairman India Branch, Graeme Britton - Chairman Singapore Branch
 Dariusz Skowronski - Independent SOFE Judge, W K Chow - Chairman Hong Kong Branch
 Ricky Kan - Asia & Oceania Young Member Representative
 P E Chong - Immediate Past Malaysia Branch Chairman (observer)
 Mathew Thomas - Previous Malaysia Branch Chairman (observer)

The Future of the News Bulletin

This issue is the final of the 50th Anniversary series. The Branch has had a busy programme with President Keith Millard's visit and the George Stephenson Lecture tour. I would like to use this editorial to reflect on the future of the *News Bulletin*. There have been discussions about the format, content and method of distribution of the *Bulletin*, to keep up with the fast-changing digital age.

I need not mention the massive changes to the technology and nature of publishing since the first *Bulletin* was published in June 1961.

Firstly, I would like to acknowledge all the editors throughout the *Bulletin*'s history, who have worked tirelessly not just to keep the publication alive but to make it an enjoyable read. Given the constraints of a small budget and a team consisting of only the editor (a voluntary role, like all Branch positions), I believe the *News Bulletin* has done a fantastic job of keeping Branch members updated with news and items of professional interest. Upon saying that, I also feel that it's vital to listen to the needs of members, and to take into account the changes in technology that drive print media. Almost all publishing houses around the world are in the process of developing

electronic books that can be downloaded onto laptops, iPads and even mobile phones. Initially I was sceptical of the success of electronic media, but since my wife, who is an editor by profession and an avid reader, informed me that she will quite happily swap a hard copy book for an iPad or a similar electronic reader, I have changed my mind. Included in this edition is a survey form which I encourage you to fill out and submit (reply paid envelope provided). It will help us work out what form/s the *News Bulletin* should take in the near future, in order to best serve our members' interest and needs.

Roshan Dodanwela



Interview with Monika Sud – Panel Chair NSW

1. What (or who) inspired you to pursue engineering as a career?

A number of people have inspired me towards a career in engineering but it all started with my father, who practised as an electrical engineer, so I have been interested in engineering from an early age. Whilst growing up, I spent a lot of time with my father helping him fix things around the house – from plumbing in the bathroom to changing the brake fluid in the car – so I have always had hands-on experience and an interest.

At the age of sixteen, I decided to take a different route to others in my class. I left the traditional schooling route of A-Levels and took on an apprenticeship with Foster Wheeler Energy Limited in the UK (where I was living). This involved an intense course involving an ECITB (Engineering Construction Industry Training Board) certificate and my first year of the ONC (Ordinary National Certificate) in Mechanical/Plant Engineering. The ECITB certificate involved practical experience in welding techniques, benchwork skills, machining and piping, whilst the ONC was more theoretical, with subjects including mechanical equipment, thermodynamics and mathematics. I then completed my HNC (Higher National Certificate) – all within four years of part-time study whilst working four days/week

at Foster Wheeler. Working alongside a number of multi-disciplined engineers, designers and managers inspired me to continue with my studies so Foster Wheeler sponsored me through my full-time degree at the University of Nottingham, where I graduated with a masters degree in mechanical engineering.

During my time at university, I was nominated to enter the Whitworth Scholarship program (which is now run by IMechE). I was successful in my application and, in 2001, I became a Whitworth Scholar.

After graduating from university, I started work as a full-time Piping Engineer back at Foster Wheeler where, eight years earlier, I had begun my career in engineering.

About the Whitworth Society

In 1923, the President of the Institution of Mechanical Engineers and a Whitworth Scholar, Dr H. Hele-Shaw, founded the Whitworth Society. The society provides an informal contact between all ages of Whitworth scholars and a means to promote outstanding engineers and engineering in the UK. The aim of the society is to bring closer those who have benefitted from Sir Joseph Whitworth's generosity, so that his memory may be kept alive.

2. Why did you choose mechanical engineering, in particular?

I found my route to becoming a fully qualified and chartered mechanical engineer very inspiring. From the age of sixteen, when I started working at Foster Wheeler, I was working with such a large variety of engineers from various backgrounds that I had the opportunity to really explore different areas of engineering, from mechanical plant equipment, electrical, control and instrumentation through to chemical engineering. I found the mechanical engineers to be the most rounded of all, so I decided that was the route I wanted to take. I knew

that I wanted, eventually, to manage teams and projects, and I believe the route I took to becoming a mechanical engineer – including my degree – has given me a broad base and an excellent platform to manage multi-disciplined projects and teams.

3. What is your current role, and what aspects of it do you especially enjoy?

My current role at KBR (Kellogg Brown and Root) is within the Strategy Group and I am working on commercially in-confidence projects, so I can't talk about them. However, what I can say is that I am enjoying all aspects of my role and having a solid engineering background really helps by providing me with a good strategic approach to problems.

Prior to this role, I was the Water and Environment Group manager in the KBR Sydney office and also worked as the lead pipeline engineer on the Eastern Pipeline Interconnector project, which was part of the Southern Regional Water Pipeline project in South East Queensland.

Last year, I also worked in project management on the Water Delivery Alliance Project, which was part of the Sydney desalination project. I was part of the Botany Bay crossing team: the Alliance opted to build a large pipe-laying barge to continuously weld and lay twin 1400 mm weight-coated steel pipes across the bay. This linked to the single 1800 mm land-based pipeline via a bifurcation piece. My main responsibility on the project was managing the installation of the bifurcation piece into Botany Bay. It was very rewarding to be part of such an iconic project. The bifurcation piece was on the critical path of the project and I really enjoyed the challenges we had to face to get the bifurcate installed.

4. What made you move to Australia?

In 2003, I had a career break and decided to travel the globe for thirteen months, and Australia was one of my stops. I really liked the lifestyle that was on offer and there were

a lot more job opportunities available in the engineering world. I moved to Sydney in 2004 and started working for KBR; six years later, I am still with KBR and have married an Australian and settled in Sydney.

5. What do you do when you're not working?

I have an extremely active outdoor lifestyle. I'm a surf life-saver with Coogee SLSC. I enjoy surfing, running, scuba diving and spending time with my family and friends. I also love to travel and have travelled all over the world on numerous trips to explore what the world has to offer. I have recently taken up the role of Panel Chairman of the NSW Branch of IMechE. Part of this role is promoting engineering as well as helping organise speakers for monthly Mechanical Chapter sessions with Engineers Australia.

6. What do you see as the major challenges to young mechanical engineers in the future?

In the twenty-first century, young engineers will be key to solving the great challenges facing humankind.

I think one of the biggest challenges that all young engineers will face – but especially mechanical engineers – is developing

sustainable solutions through new technologies and techniques under the huge environmental pressures we currently have and will continue to have.

One of the main areas under pressure is the energy industry. There is a finite amount of resources and there is a need to develop new sources of energy. Mechanical engineering skills will be paramount in the design of new energy resources as well as cleaning up and making more efficient the existing resources. But the energy sector is not the only area under pressure that relies heavily on mechanical engineers; as population grows, infrastructure like transportation, buildings and water, as well as manufacturing and many other sectors, will find themselves under immense pressure.

7. As perhaps the youngest the Panel Chair of NSW, what do you see that IMechE Australia could do better?

I have only been Panel Chair for the last six months but, as with many other organisations, IMechE Australia could be better at enhancing student interest in engineering and being more involved in events targeting schools to promote engineering as an exciting career. It is important for companies – especially

engineering institutions – to explain the potential of an engineering career.

IMechE Australia could improve their current communication and marketing materials so that they appeal more to younger members, and to be more inspirational and exciting. The *Bulletin* could be made to look more modern and have more articles that appeal to affiliate and associate members as well as to the younger chartered engineers. It's important to ensure we keep the older members on board and engaged, but it's the younger members and the potential new members that we need to keep motivated to join and to keep their membership.

The *Bulletin* could possibly include a job search section where companies can advertise roles as well as more articles on high-profile exciting Australian projects. Having a section profiling some of Australia's leading engineers would also interest and inspire readers.

The *Bulletin* should be used to reach out to our members to find out what they want. Maybe an online or postal survey should be sent out to all members asking what they would like to see in the IMechE material releases and what would benefit them.

State News

State News VIC

Since last reporting, we have organised two technical meetings, presented some of the 2009 student prizes, are about to hold the Victorian Panel Speak Out For Engineering competition, and have carried out some professional review interviews for London HQ.

The first technical meeting was presented by Professor Simon Watkins from RMIT University on the Formula Student Racing Car competition. We made a special effort to invite undergraduate students from the local universities and Professor Watkins outlined some of his experiences with recent highly successful RMIT teams. The meeting was well attended and the average age of the audience was much lower than usual!

The second technical meeting was presented by Mr Andrew Lazala and was entitled 'Running Melbourne's Rail Network'. Andrew is no stranger to IMechE, having served on the Trustee Board in London. Now resident in Melbourne, Andrew is CEO of the MET, which recently took over the franchise for running Melbourne's trains from Connex. In the course of his presentation, Andrew outlined the problems that his organisation has found, and their proposals to overcome them as well as to develop and improve the service.

This presentation drew a larger than normal audience who were interested in the content, and was followed up with a lively questions and answers session.

As Panel Chairman, I have attended functions at Deakin, Monash, Swinburne and RMIT Universities to present the Barnes Waldron Best Student and Best Student Project prizes to the previously announced 2009 winners.

We are proposing to run the 2010 Speak Out For Engineering in late October and are about to send out publicity seeking young engineers willing to enter. If you are aware of any young engineers who may be interested in entering, please bring the competition to their attention. It is a worthwhile experience for them, and financial rewards are also available for the winner and second place-getter.

Occasionally, members resident in Victoria require a professional review and interview to enhance their membership grade. The application is made to London but the interview is conducted locally. Dr Patrick Russell-Young and Bill Swinson form the nucleus of a team who can assess the professional review report and conduct the interview locally – often at the workplace of the candidate. Similarly, I can organise proposers for new members locally, if required.

Finally, we are making some efforts in Victoria to form a Young Members' group and have two

younger members looking into how this might be achieved.

J. W. Burt

Victorian Panel Chairman

Advance Notice:

Exhibition of Engineering Books at the State Library of Victoria

As part of our 50th anniversary celebrations, the Victorian Panel, in conjunction with the staff of the State Library of Victoria, has organised an exhibition of some of the vast collection of engineering books held by the library. This includes thirty books written by former presidents of IMechE.

The exhibition will be held at the Redmond Barry Reading Room during normal library hours for two weeks commencing 22 November. Further details will be posted in early November.

State News NSW

Firstly, we would like to congratulate the NSW contender, Jared Holmes, who came second in this year's regional finals of the Speak Out For Engineering competition, held in Singapore. In 2009, Jared was the USYD Formula SAE race team leader and he presented on the design

State News

of a formula race car impact attenuator using finite element non-linear analysis.

Student Prizes

A special ceremony was held at the University of Wollongong on 18 May, where the Frederic Barnes Waldron Best Student prize and IMechE Project prize were awarded to Nicholas Hoye and Ben Williams respectively. The awards were presented by Professor Paul Cooper on behalf of IMechE.



Nicholas Hoye, Frederic Barnes Waldron prize winner, and Professor Paul Cooper.

Technical Presentations

NSW have had some recent popular technical presentations of late, in conjunction with EA and ASME.

In April, Scott King, a Director at PR King & Sons, presented on 'Safety issues with inclined lifts'. Scott outlined the safety issues associated with inclined lifts with reference to AS1735 Part 8. In particular, he described safety features of the rack-and-pinion and wire-rope types of drives, with comparison to the vertical lift code. He also touched on friction and hydraulic drives and overall maintenance issues.

In June, Andrew Lowe from Shelston IP presented on 'Who owns your ideas and inventions?' In practice, an engineer often creates a new idea or an invention, but does the engineer it? Andrew answered this question using interesting case studies.

Monika Sud

NSW Panel Chair

State News QLD

Following the President's visit in March, the Queensland Panel has had a reasonably quiet time. Our Past Branch Chairman, Ian Marshall, was invited to join the University of Queensland's School of Mechanical and Mining Engineering Industry Advisory Board. He accepted the invitation. Congratulations, Ian!

Annual Awards – USQ

For the third consecutive year, the Queensland Panel presented its 2009 annual awards at the University of Southern Queensland. The awards were presented on 16 April at the University's Annual Awards Night, held at the Toowoomba Campus.

Panel Secretary Lesley Yeow presented the Best Student (FBW) Prize to Mr Mustapha Jamal Eddine and the Best Project Prize to Mr Geordie Cameron Milne; both were the University's highly recommended students.

IMechE is grateful to the University and Dr Selvan Pather for their continuous support. This is now an annual event with USQ.

Speak Out For Engineering

On 21 April 2010, Queensland Panel held its 2010 SOFE competition at the University of Queensland. As a result, eleven new affiliates joined IMechE. A total of twenty-two affiliates participated in the competition.

The SOFE winner was Miss Belinda Herden, who presented on the topic 'CFD investigation of mixing enhancement in a new scramjet combustor using shock/jet interactions'. In Belinda's words, 'This thesis project examines the fuel/air mixing which occurs in a new scramjet combustor. The combustor design utilises a naturally occurring oblique shock, which creates additional axial vorticity when intersecting with the fuel jet. This interaction acts to enhance the rate of fuel/air mixing, and may potentially allow flight at Mach numbers beyond those currently considered viable.' Belinda will now compete in the 2010 Australian competition.

The runner-up was Mr John Munro, who presented on the topic 'Measurement of total temperature in short duration facilities'. In John's words, 'Ground testing of scramjets requires an extremely rapid method of fuel injection due to the short test times (<10 ms) involved. This is achieved through use of a "Ludwig Tube", which temporarily simulates an infinite reservoir. The short duration means that measurement capabilities are limited, and thus theoretical assumptions are currently used to calculate fuel mass flow. It has been found that fuel total temperature rises considerably during injection, which was not expected. The primary aim of this thesis is to find the reasons behind these changes.'

On the day of competition, Belinda and John were congratulated by Panel Chairman and presented with IMechE engineers' data books. Prize cheques and certificates for winners and participants were handed over on 3 June at the University of Queensland.

IMechE is grateful to the University, Professor David Mee and Dr Bo Feng for their continuous support.

Dayaratne Dharmasiri

Queensland Panel Chairman

State News SA

Joint Technical Programme Visit to AMCOR Glass presented by IMechE SA Young Members

On 13 July, a party of the SA Joint Technical Programme from the IMechE, EA, RAeS and IET had the opportunity to visit the AMCOR bottle manufacturing plant. Starting from a greenfield site, Amcor Glass, a part of the global Amcor packaging business, entered into the glass container market in May 2002 with the construction of a manufacturing facility located at Roseworthy near the Barossa Valley north of Adelaide. The plant is situated strategically, in close proximity to major raw material and energy sources and numerous bottle-filling plants. The plant incorporates three of the largest dedicated glass-manufacturing furnaces in the world. Servicing the wine and beer industry of Australia and New Zealand, Amcor Glass is producing over 2 million units a day, with a keen focus on product quality and innovation to exceed customer requirements.

The visitors were treated to an in-depth presentation by a group of senior engineers and managers, who explained each step of the manufacturing process and the challenges involved in producing a 100% fault-free product. Following the presentation, the group was split into three and shown through the entire facility by members of the engineering team. Special emphasis was placed on work safety due to the high temperatures of the product and the inspection regimes, which include automated checking of each individual bottle for faults and defects as well as statistical sampling by employees. These measures ensure that the work environment presents a minimum level of danger to both the plant employees and the general public when they use the bottles manufactured there. The tour was organised by the SA Young Members' section, with a great deal of effort from the Special Events Coordinator, Natalie Harsch. The JTP Organising Panel would like to express their gratitude for Natalie's efforts.

SA Antipodean Christmas Lunch

In line with an annual tradition, a group of members from the South Australian Panel convened at the beginning of July for the annual Antipodean Christmas Lunch at the Feathers Hotel in Adelaide. The attendance was slightly smaller than usual (the dinner was held at a later time and some of the usual attendees were interstate or overseas), but those who were there were treated to traditional Christmas fare. The dinner provided the attendees with a light-hearted atmosphere in which to catch up with old friends and to discuss the remainder of this year's programme, both for IMechE and the Joint Technical Programme.

Michael Riese

South Australian Panel Chairman

SA Panel: Codan Visit

The South Australian Joint Technical programme electrical/mechanical event for this year was a visit by a party of 35 engineers to the premises of Codan Limited at Newton, South Australia, on 15 June. Codan was founded in 1959 by three entrepreneurial engineers: Jim Bettison, Ian Wall and Alistair Wood. Today, Codan employs 500 people, designing, manufacturing and marketing a diversified range of high-value-added electronics products for global government, business, aid and humanitarian, and sophisticated consumer markets.



The company's core products are HF radio, satellite communications radio subsystems and metal detectors. The Codan Group includes Minelab, Codan Broadcast, Parketronics, Imp Electronics Solutions and Locus Microwave. Turnover for the year 2009–2010 was \$189 million.

Minelab metal detectors cater for two market areas: (i) professional prospectors through to weekend hobbyists and (ii) de-mining. Equipment for the latter market is used by humanitarian and military organisations in current war-affected regions and areas known to have been mined in former conflict zones.

Codan Broadcast produces equipment for television, video and post-production houses. It has manufacturing facilities in Adelaide, Melbourne and Pennsylvania. Imp and Parketronics focus on the production of printed circuit boards for the Codan product range and contract manufacturing for other companies.

Following a promotional video that outlined the company's progress and current product range, our party was split into two groups for a tour of the manufacturing area during the second shift. All were impressed by the spotless layout, lighting and housekeeping. Automated equipment is being utilised to load components on to printed circuit boards, and the subsequent automated wave-soldering process ensures the very high quality needed for vitally reliable equipment. In the main production area, the equipment is hand-assembled by skilled personnel working to a stringent quality-control programme. During our tour, even the despatch area was working to clear the shipping schedule. We were

advised that such is the demand for metal detectors that an intending purchaser would need to shop online, at a premium, to secure one! Of special interest to members of our party was the *Auto-tune* self-tuning antenna, which effectively combines the mysteries of electronic engineering with easily understood simple mechanics.

At the end of the plant tour, our hosts took a number of questions from the audience and, judging by the response, we came away with the impression that this was a company on a very solid footing, and headed in the right direction. A vote of thanks was carried and special thanks are due to SA Panel member Derek Marley and Group Commercial Manager Phillip Marley for making the visit possible.

Stan Gafney

News from PNG



The photo above shows the winner of IMechE's Andrew Frazer Prize, Mr Andrew Hemetsberger, with the Chancellor of the University, the President of the Institution of Engineers Papua New Guinea, and the Chief Executive of the Institution of Engineers Papua New Guinea. Note that Mr Hemetsberger was also the winner of the Institution of Engineers PNG Prize for the best engineering student among all the four engineering departments (mechanical, civil, electrical and mining). Mr Hemetsberger has been very hard-working over the four years of his study and has consistently been a top student. The department is very proud of his achievement and we have no doubt that he will be one of the top mechanical engineers in PNG.

I take this opportunity to thank IMechE for their support because without this kind of support there would be no competition and the quality of graduates would not be good. So, thank you IMechE and those who are facilitating it!

We look forward to your continued support in the years to come.

Professor John Puniwa

Book Review

Developing Attributes in Australian Mechanical Engineers by Dr Clive Ferguson

(published by VDM Verlag;
ISBN 978-3-639-25833-2)

This book is a role-based study of Australian mechanical engineer attributes and the technologies used to deliver them through proximal and distance education. The author is a Victorian member of IMechE. The target audience is the academic world, where trends in tertiary education requirements for engineers are under constant consideration. The report contains lots of references and associated data and, as such, is fairly heavy-going for a mechanical engineer like me, who is not directly involved in the academic world. Nevertheless, from my perspective, there are many interesting facets to this study.

I have not attempted to comment on the chapters relating to distance education and R&D, as these issues tend to be university-specific.

Much of the report relates to the late 1990s and early 2000s, so some of the data is dated and reference to 'IEAust' should now be 'Engineers Australia'.

History

The history of mechanical engineering covers the UK, Germany, France, USA and Australia, with insights such as:

'Scottish universities started teaching mechanical science as part of "natural philosophy" (physics) in the mid 18th century. The University of Glasgow had the first chair of engineering in Britain with the creation of a Regius professor of civil engineering and mechanics in 1840.'

Early British mechanical engineers achieved much with little formal education. At the start of the Industrial Revolution (circa 1750), scientific knowledge in the sciences that now comprise mechanical engineering science was still rudimentary.

Critical skills for these early engineers were business and project management, craft, experimentation, pragmatism, creativity and innovation.

'Eighteenth and early nineteenth century British engineers carried out works pragmatically and within appropriate fiscal constraints. In doing so they demonstrated great organisational and entrepreneurial skills. Their roles demanded excellent communication skills and the management attributes of planning and organisation skills, leadership, project management skills including costing and budgeting. However, probably their most essential attributes would have been political

awareness (to muster financial backing for their projects) and entrepreneurship.'

Changing Nature of Mechanical Engineering

Internationally, the professional practice of mechanical engineering is in the midst of momentous change, including organisational, technical and societal expectations.

Developments that are transforming the role of the mechanical engineer include:

- the wide acceptance of computer technology and resulting information revolution;
- the focus on product life cycle from concept to disposal;
- global design and research; and
- environmental and safety awareness.

Evolution of Engineering Education

As mentioned, scientific knowledge in the sciences that now comprise mechanical engineering science was still quite basic in the mid-18th century. Deficiencies in knowledge of engineering analysis were often overcome through 'over-engineering'.

By the early 20th century, however, the range of sciences (and business skills) that was to form the recognised knowledge base of the profession had been largely defined. A sound theoretical knowledge base in the mechanical engineering sciences was becoming essential for mechanical engineers to maintain industrial competitiveness.

Attributes and Competency

Mechanical engineering demands a range of attributes that include both explicit and tacit (insights, perceptions etc.) knowledge. The attributes engineers need in their careers can be broken down into:

- general attributes (e.g. communication abilities, business skills);
- appropriate basic engineering science (e.g. mechanics, electrical principles);
- attributes specific to the career role (e.g. project management); and
- knowledge and skills relating to the particular industry.

Attributes underpin the role performance competencies defined under CBET. Generic and cognitive competencies link directly with attributes, or 'higher level competencies'.

Performance-based competencies

- Set outcomes that can be reliably observed, allowing little latitude in interpreting that the competency had been demonstrated.

Higher level competencies

- More abstract generic communicating, planning and organising
- Cognitive – structure and process of organising information and relating specific information to general concepts

Australian Experience

'As a proportion of the population Australia has the greatest number of mechanical engineers with approximately 1420 per million compared to 1040 per million in the UK and 760 per million in the USA' (Australia survey, Dec 2002).

It is interesting to note that 1999 IEAust Accreditation Attributes were defined as:

- Ability to apply knowledge of basic science and engineering fundamentals
- Ability to communicate effectively with engineers and the community
- In-depth technical competence in at least one engineering discipline
- Ability to undertake problem identification, formulation and solution
- Ability to utilise a systems approach to design and operational performance
- Ability to function effectively as an individual and in multidisciplinary teams
- Understanding the social, cultural, global, environmental, and business responsibilities of the Professional Engineer
- Understanding and commitment to professional and ethical responsibilities
- A capacity to undertake lifelong learning

Not included were:

- An understanding of the process of innovation
- An understanding of entrepreneurship
- Critical thinking
- Accessing and managing information
- Time management
- Language skills
- Broader engineering education

In 2005, IEAust added 'An understanding the business environment' to the Accreditation Attributes. (This was in recognition that the proportion of Australia's working-age adults involved as owners of start-up or young businesses had reached 13.4%, placing the nation third out of the twenty developed nations in the Global Entrepreneurship Monitor.) Creativity and innovation are major enablers of entrepreneurship, so developing teaching strategies to embrace the effective development of entrepreneurial skills will integrate and support the development of these attributes.

International Recognition

Accreditation of engineering courses with international standing is now (as of 2005) provided through the Washington Accord, in which the professional engineering bodies of nine countries recognise the substantial equivalence of each other's accredited academic programs. The countries of the nine signatories are Australia, Canada, Hong Kong, Ireland, New Zealand, South Africa, UK, USA and Japan.

Inherent within the guidelines of the Washington Accord and under the International Engineering Alliance (IEA) are graduate profile exemplars, associated range statements and contextual definitions.

The IEA Graduate Attributes and Professional Competencies definitions can be found at www.washingtonaccord.com.

Summary

This book represents an important and extensive source of information that will enable universities to better tailor their courses for relevance in the marketplace.

The role and requirements of mechanical engineers has changed significantly since the 18th century, when little formal education was available and skills such as business management, political awareness and entrepreneurship were to the fore. Contrast this with today's mechanical engineer, where much greater emphasis is placed upon knowledge and technical competence along with problem solving skills and the ability to disseminate large amounts of information. Layered on top of this are ethical, social and environmental issues, together with the need to undertake lifelong learning. Consequently, the demands on the modern mechanical engineer and their educators are far more complex. This of course comes at a cost: the scope for entrepreneurial activity is limited.

Formal recognition of the mechanical engineer profession started in the early 19th century, with the foundation of the Institution of Mechanical Engineers, and is now established worldwide through the International Engineering Alliance. The required attributes and competencies referred to in this report will no doubt continue to evolve as technology develops, and as environmental, social and resource constraints dictate.

Ian Marshall

(Ian is a past Chairman of the Australian Branch of the Institution of Mechanical Engineers and Queensland representative on the Mechanical College of the Australian Institution of Engineers)

Quotation

A person filled with gumption doesn't sit about stewing about things. He's at the front of the train of his own awareness, watching to see what's up the track and meeting it when it comes. That's gumption. If you're going to repair a motorcycle, an adequate supply of gumption is the first and most important tool. If you haven't got that you might as well gather up all the other tools and put them away, because they won't do you any good.

- Robert M Pirsig

Zen and the Art of Motorcycle Maintenance

This is the third and final article in the reengineering series published over the last two *News Bulletins*. It looks into lessons learnt from four unsuccessful cases of reengineered business. Unsuccessful cases are more valuable, in terms of learning and future planning, than the success stories. The reengineering plan is primarily influenced by internal system (strength/weakness) and external environment (opportunity/threat) via human and/or natural impact. Some of the elements swaying the outcome of any reengineered business can be foreseen while many unforeseen elements can also cripple the plan.

Case 1 – Relationship

One of the world's largest engineering companies in the construction industry was impressed with the concept of reengineering when the idea was coined. This company provided Engineering, Procurement, Construction and Management (EPCM) services to the construction industry for executing any type of engineering project. Business-wise, this company was ranked number one globally for several years by *Engineering News Record* (ENR). Their engineering and construction arm was merely for enhancing the profit from procurement of materials, equipment, components and construction services (sub-contracts). Before reengineering their business in the 1990s, the company executed projects on an individual basis.

One of the key complaints from vendors was that they had to supply separate items to meet different requirements from staff for the same operation. These differences were neither a project nor a functional need, but simply a result of individual choice. Vendors advised cost-savings when function dominated the supply with no trivial issues. For the same type of plants, the only variation to be catered for was ground and environmental conditions.

The company considered reengineering aspects, had internal discussions and ensured everyone's participation by emphasising communication. They realised the importance of relationships within their business and externally, and attempted to sustain these by using the same team with same external parties. The company set up two divisions: a Project Execution Group (PEG) to handle project-specific issues and a Project Acquisition Group (PAG) to handle routine tasks. Staffs who loved challenges were assigned to PEG, which evolved the project, while those who preferred routine tasks were assigned to PAG, which included engineering, procurement, commercial and administrative staffs. PEG acquired the elements and delivered them to the site for incorporation into the project. PAG assigned a custodian for each document and developed standards documents in line with the subject code or standard published by various institutions to make the implementation simple for all the parties involved.

Initially, this arrangement worked very well. Later, a market downturn due to external factors resulted in a breakdown of power in the reengineered structure. Problems such as delays in schedules and poor workmanship became complex issues for resolution along the new lines of reporting. When loss of employment became likely, trust and relationship became the casualties. New relationships between internal and external staff needed to reflect staff movement. Moreover, new design approaches in the industry as well institutional revision of documents warranted completely new work. To accommodate the new standards, suppliers' costs rose, impacting schedule and quality of delivery. In addition, political changes in the countries, nationalist feeling etc. hurt the business. The company went on reducing staff and, ultimately, reverted to project-based execution.

Case 2 – One-Stop Purchase

One of the largest ground engineering companies in South-East Asia expanded its business during an economic boom. Its shareholders were very enthusiastic about enlarging the business further and went on acquiring many other companies until the group had the capacity to provide services in all aspects of ground engineering.

Many of the services were awarded by clients as individual contracts and many of the subsidiaries of the parent company were involved in providing services for the same projects. The clients had to deal with many different people within the same group to complete each of their projects. These dealings frustrated the clients and the group began losing business. To prevent more loss, they decided to reengineer the business.

Based on the popular concept of Total Quality Management, the executives of the group developed a 'one-stop purchase' option (Total Ground-Engineering Solutions). The idea was well-received by shareholders. With a well-developed business plan, the group acquired several small companies to supplement their business needs and formed joint ventures to complement complex projects. The projects were acquired by offering the client an accelerated schedule, improved cost and assured quality. Initially, this concept worked well. However, many of the projects were driven by individual packages that made them difficult to execute. Also, there were no other organisations running along similar lines, and clients were frightened of relying solely on a single company without any competition. Internal squabbling, together with an economic downturn, unforeseen ground conditions and workmanship errors/mistakes cost the group business. Mistrust and deterioration of relationships ruined many of the joint ventures. Ultimately, the group had to downsize to meet financial needs. Many of its subsidiaries – more than the number acquired as part of the reengineering plan – were sold.

Similarly, another global company wanted to provide total services to oil and gas-field development by mergers. The oil companies did not like the idea as there was no competition. Furthermore, the oil companies didn't want to change the way they did business, nor did they want to delegate the decision-making process. This total-solution company later separated its business into several different companies in order to survive. Sometimes, overly innovative ideas come out of reengineering and cannot stand up in the market.

Case 3 – Regionalisation

In the early 1990s, various companies in Singapore were booming and reached saturation level in the local market. The Singaporean government encouraged local companies to 'regionalise', i.e. to set up business within the ten countries that are part of the Association of South East Asian Nations (ASEAN).

One of the civil and building engineering contractors was very impressed with this idea. The company had executed several projects in this region and already had some project staff spread over the area. The company's management reengineered a business plan for regional expansion and also acquired local businesses to gain a foothold on these countries. In the initial period, business did very well, based on the regionalisation plans.

Later, due to economic crises with political changes in each country, many of the potential projects were abandoned and even ongoing works were suspended. The company's cash flow suffered and it had to sell assets and reduce staff to cut cost. Mismanagement in the regional office resulted in misappropriation of cash and the company had to downsize considerably to survive.

Case 4 – Functional Centres

One of the consulting firms in Singapore had a few successes in executing new projects. All the works need to be certified by a registered Professional Engineer (PE) before being submitted to the statutory board for approval. The principal, a registered PE, attempted to set up a regional business, but was not successful. Next, he tried establishing functional centres for his business in the region.

He had carried out several studies on regional resources and had also spent time finding out how call centres operated in the region. Considering the high wages in Singapore, he wanted to use regional resources. He reengineered his business strategy by having functional centres and coordinating the work from Singapore.

He set up a drafting centre in Manila (Philippines), a centre for performing engineering analysis in Chennai (India), a centre for performing design works in Kuala Lumpur (Malaysia), a centre for costing and quantity surveying in Jakarta (Indonesia), a centre for writing specifications and reports in Bangkok

Reengineering

(Thailand), and a centre for accounting and management in Singapore. He demonstrated his concepts to several clients, who were impressed with his cost-effectiveness, speed of delivery and quality. As a result, he won more projects and, initially, his business expanded significantly.

However, this regional expansion plan was not adequately explained to the staff working in Singapore and they feared that their roles might become redundant. They began working secretly on plans for their own benefit, thereby undermining the business. Many of the projects performed by functional centres were passed directly to clients without undergoing any checking. Errors in the documents upset the clients. Also, the staff in each functional centre were lead by a local engineer (management felt they could rely on this engineer because his appointment was on a profit-sharing basis), but the local engineers misused staff for their own private work, causing resentment in the offices. Furthermore, salary scales were not uniform among the local staff; boasting about salaries resulted in sacking of some staff and resignations by others. In the end, the business owner in Singapore was spending more time trying to keep the staff in order than managing the business and delivering the projects. Ultimately, he had to shut down his business because of defaulted payments.

Lesson Learnt

Reengineering is a valuable tool for business enhancement and should be considered for business improvements. Some of the outcomes can be predicted while others cannot. Of those that can be predicted, the following factors need to be attended to in order to gain positive results:

- the internal power transformation that occurs and the *fear* (False Evidence Appear Real) among staff that their position could be affected
- the ability of the management to correctly reengineer the business and administer it
- bona-fide communication among all parties involved.

More important than finance and the materials needed for business are know-how, human resources, business systems and relationships. Before the implementation of reengineering, other relevant analysis – such as strength, weakness, opportunity and threat (SWOT) analysis – should be applied.

The economic cycle created by external conditions is the single most significant factor in determining the success or otherwise of the business, while political changes and nationalistic sentiment can affect the business on the ground. One-stop solutions with too many innovative ideas will not be received favourably by the clients.

Varan Karunakaran

You are Only as Safe as the Hazard You Walk Past

One of the catch-cries of modern safety culture is that 'You are only as safe as the hazard you walk past'. It is easy to miss hazards when you are concentrating on the task in hand or are perhaps unwilling to interfere with someone else's work. Depending on the safety culture of the organisation you work with pointing out a hazard can often be considered 'interfering' and be met with indifference or even hostility.

I am an advocate of transferring the safety lessons you learn at work to the home environment. Recently I had my roof repaired, and since my house is built on an incline, one end of the roof is over four metres from ground level. When I had the job quoted, I was assured that when working in this area of the roof, safety harnesses would be worn and the tilers are paid a bonus for this extra requirement.

I noticed that the roofers were not wearing a harness when they came down for their 'smoko' break so I went to speak with them. Rather than threatening to report them to their boss for not following safety procedures (which just produces defensive responses, and no doubt they would take the harnesses off when my back was turned) I engaged them in what is known as a LEAD conversation.

L = Look and observe

E = Engage

A = Ask questions

D = Discuss consequences

I opened with 'I noticed that you were up on the roof without a harness. Aren't you concerned about falling off the edge?' They responded with some typical tradesmen bravado: 'I have been roofing for 15 years and I have never fallen off a roof'. I paused for a moment then said, 'You know, I have never met a roofer that has fallen off a roof... How many times can you fall four metres and still be a roofer?'

This was followed by a sheepish silence. I said, 'From what I understand, you only get one fall. I wouldn't risk my life for my job. Do you have kids?' He said he did and I asked, 'What would they do if you couldn't work?' By now, he had appeared to have got the message, so I left them with, 'If you don't wear a harness for me, wear it for your kids so you can go home safely.'

After their break, when they returned to the roof, they used harnesses. I hope that I made an impression and they will work more safely in future – not just on my roof but every time. This is my contribution to changing people's attitudes towards how they work and for everyone to consider safety in everything they do.

Remember, safety doesn't happen by accident.

Andrew Gagg

Member, WA Panel

Letters to the Editor

Responding to your invitation for items relating to the formation of the Branch, the following might be of interest.

The Institution of Automobile Engineers had an active Australian Centre from prior to World War II and this Centre continued after the Institution merged with the Mechanicals in 1947. In March 1958, the Secretary of the Automobile Division, Brian Robbins, visited Australia and met with the Centre Committee at my workplace, British Motor Corporation, in Sydney. In attendance were: W. Hiscox (Chairman), A. G. V. Parker, P. J. Taylor, W. B. Burnett, C. H. Napthali, J. M. Hamilton, and N. Prescott (Secretary), with apologies from S. J. Young, A. Dixon, and C. W. Rose. I still have the minutes from this meeting.

Subsequently, the decision was made to 'throw in our lot' on the formation of the Northern Sub-branch, and Messrs Hiscox, Parker and Prescott were elected to the Sub-branch Committee. The Automobile Division Centre library, with Institution Proceedings dating back to 1906, was donated to the University of NSW.

I should mention also that throughout this period, we maintained friendly contact with the Institution's Corresponding Member, Professor W. H. H. Gibson of University of Sydney.

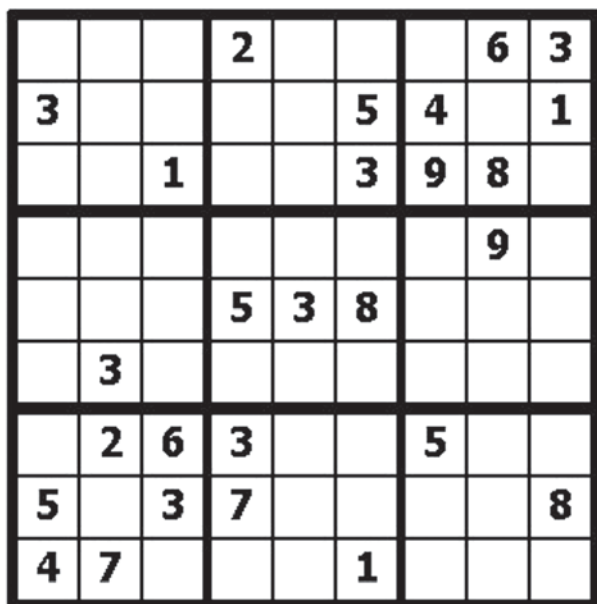
Norman Prescott

The mystery object in NB158

The mystery object is a very early oval-shaped English watch by Francis Nawe, London (1590). Nawe fled to England from the Netherlands to escape the Spanish persecution of Protestants around 1570. The oval-shaped movement is fusee (a cone-shaped pulley with a spiral groove) driven with a (now missing) verge escapement and unsprung balance. The fusee is cut for cat gut rather than a chain. The hour wheel and hand are driven by four pins on the lower fusee arbor. The balance cock is pinned in position as is usual on early watches.



Something to Think About – Sudoku



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Solution to NB158 Sudoku

3	1	9	4	5	8	7	6	2
7	6	8	3	2	1	9	4	5
5	4	2	9	7	6	3	1	8
9	8	5	7	3	4	6	2	1
6	3	4	2	1	9	8	5	7
2	7	1	8	6	5	4	3	9
1	5	7	6	9	3	2	8	4
8	2	6	1	4	7	5	9	3
4	9	3	5	8	2	1	7	6

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Something to think about

Would a candle burn in the cabin of an orbiting space shuttle? (not that it would be allowed!). If so what would the flame look like?

Note: The editor does not have a solution to this problem. It's open for discussion.



Nominations for 2011/2012 Office Bearers

Included in this edition is a nomination form for 2011/2012 Office Bearers. A ballot paper along with a brief bio of the nominees will be included in the January 2011 edition of the *News Bulletin*. The closing date to submit ballot papers is 31 January 2011. Results of the ballot will be announced at the AGM on 26 February 2011. **Please note that there will be no election or voting at the AGM.** The newly elected Office Bearers will take up their duties during the third week of May 2011.

All positions are declared vacant. The positions to be filled are:

- Branch Chairman
- Branch Hon Secretary
- Branch Treasurer
- Branch Assistant Hon Secretary/*News Bulletin* Editor

The first stage is for members to nominate a person of their choice for a specific position, using the nomination form contained in this issue of the *News Bulletin*. The form must be countersigned by the nominee, to ensure his/her acceptance.

Please send the nomination form to the Branch Chairman, Clive Waters, at the address on the form, to arrive no later than 30 November 2010.

A list of nominations will appear in the January 2011 issue of the *News Bulletin*.

Notes:

- **In the interests of a seamless transfer of responsibility for Branch activities, it has been found that the Branch is best served by appointing the Branch Chairman from among those who have served an immediate previous term as a Branch Committee Member, most usually Honorary Secretary.**

Life at Sea



Statistically, 1958 was an ominous year – more people crossed the Atlantic by air than by sea. Only a few years later, this was true of all long-distance passenger sea routes. Let us reflect on a conquest phenomenon; 1958 is now two whole generations in the past. Hence a dwindling number of people alive today have any experience of sea travel. We exclude, of course, those patronising the quarter-mile-long floating cities promoted as cruise ships.

Real sea travel involved quite tight schedules between waypoints. The luxury of significant detours to avoid rough weather was not often an option. Furthermore, the standard of accommodation could be less than desirable for all but the rich. If the ship were relatively small, the malady tactfully known as 'motion sickness' could be quite deplorable. Vulcan is well-acquainted with nautical matters, having once made the voyage from Liverpool to Melbourne in a 12-passenger 10,000-ton cargo ship.

There were pros and cons. Yes, there was rough weather, but one coped surprisingly well. Accommodation and food were excellent; meals were taken with all other officers (Vulcan always sat next to the chief engineer), and the whole atmosphere was relaxing. But there was one minor snag: virtually nothing was provided to pass the time, except... well, there was only one female passenger under the age of 60 or so, and she was rather too anxious to play the field.

After dabbling briefly with the bachelor passengers, her attention apparently focussed on the second radio operator until about the Suez, but for the rest of the voyage, the senior electrical foreman was the clear winner. (Somerset Maugham once wrote a story along these lines, subsequently used in the film *Trio*. It was very true to type.) Not altogether surprisingly, a year or two later, the company's brochure 'Information for Passengers' concluded with the proviso: 'Female passengers will not be conveyed unless accompanied by an adult male relative.' *Sic transit gloria mundi*.

Vulcan



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IMECHE Australian Branch Website
www.imeche.org.au

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/member/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/member/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.