

Engineering Tasmania

October 2007



ENGINEERS
AUSTRALIA
Tasmania Division

Newsletter of Engineers Australia, Tas Division - Royal Engineers Building, 2 Davey Street Hobart
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PRESIDENT'S REPORT

Excellence Awards

This monthly report comes at the end of, in my opinion, a very successful Engineering Excellence Awards held for the first time in a regional area rather than in Hobart. The decision to recognise a regional area was one made by a previous Committee and all involved in that decision must be congratulated. I am sure those who attended had an enjoyable night, well organised by Geoff Harper and Catherine Reading – congratulations to them.

I wish all our winners; Transend Networks, Datacall Telemetry, GHD & Clarence Council and Transend

Networks, Hydro Tasmania & Basslink best wishes for the opportunity to be rewarded in the National assessment.

Given the regional Award Ceremony, it was regrettable that there were not more regional applications. I am sure that there are more "Excellent" projects out there, and encourage all members to engage their organisations to participate in future Award opportunities.

Infrastructure

Infrastructure opportunities seem to be in the news a lot recently, as they always are at election time. One of the more significant opportunities seems to be the question of long haul rail which has the potential to take a lot of tonnage off our road network, if the track can be improved to modern day speed and safety standards. No doubt this opportunity is enhanced with the consideration of a pulp mill in the north of the State.

Regardless of anyone's opinion on the appropriateness of a pulp mill the opportunity to deliver an economical rail service should not be lost, but not at the expense of necessary road funding. Particularly if our transport task is to double in the next 20 years, according to the Federal Governments "Auslink" strategy documentation.

In other Infrastructure issues the State Government is still reviewing the delivery of water and sewer services. I have seen references to Engineers Australia Infrastructure Report Card as part of the justification for the review, and we should be proud of the fact that our organisation was ahead of the game in this regard. The State Government has advised that the status quo is not acceptable so it seems something must change. Tasmania needs to get the

model for this change right, but it would seem necessary to make a decision on the direction sooner rather than later. Let's hope we can move forward at a reasonable rate to remove the present uncertainty that currently exists in this service sector.

By the time I write again we may be in Federal election mode when we may have more opportunity to comment on projects. That involves all engineers being ahead of the game attempting to identify infrastructure opportunities that will be of benefit to Tasmania.

National President's Visit

October will give members an opportunity to meet our National President, Rolfe Hartley in person, in all three regions in the State. Please attend the meeting in your region to hear about what Engineers Australia is achieving at a National level and to discuss any issues you would like to raise. See page 2 for more details.

At the meetings we will be recognising engineers who have been long term members by presenting them with badges indicating that they have been members for over 40, 50, 60 or even 70 years. A separate invitation will be sent to all eligible members.

Alan Burn Lecture

I strongly encourage members to put the date for the Alan Burn lecture in their diary now for what will be a unique chance to hear a very interesting and entertaining speaker, Ms Gwynne Allan a retired NASA thermal dynamics technician. Refer to page 3 for full details.

Geoff Brayford, FIEAUST

UPGRADING MEMBERS

**CONGRATULATIONS/
WELCOME**
Members joining, rejoining
or upgrading

MEMBER

Timothy Haines, MIEAust

GRADUATES

David Butler, GradIEAust
Vedraj Chartursing, GradIEAust
Rowenna Gilbertson,
GradIEAust
Hanum Hamid, GradIEAust
Magendran Kumarappan,
GradIEAust
Adrian Paine, GradIEAust
John Porter, GradOIEAust
Nicholas Snadden, GradIEAust
Dominik Ziomek, GradIEAust

STUDENTS

(StudIEAust)

Iain Coombe
Owen Genders
Cameron Jessup
Aaron Just
Kirk Devereaux
Glenn Morris
Oliver Stannus
Kock Tan

YOUNG ENGINEERS TASMANIA & ENGINEERS WITHOUT BORDERS

2007 SUSTAINABILITY FORUM

This forum will explore young engineers' visions towards a sustainable future.

Old Woolstore Theatrette
1 Macquarie St, Hobart
3.00 to 6.00pm
Wednesday, 24 October 2007

RSVP to Catherine 6234 2228 or
creading@engineersaustralia.org.au

TIMOTHY HAINES, MIEAust

Timothy Haines received his Bachelor of Engineering (Electronics and Communications) with Honours from the University of Tasmania, Hobart campus in 2002. Whilst studying, he received numerous awards including Esso Australia Pty Ltd and Mobil Oil Australia Pty Ltd prizes for academic excellence.

Since graduating, Timothy commenced work with SEMF Pty Ltd primarily in the Industrial Engineering sector as an Electrical/Automation Engineer.

Timothy has worked on the design, documentation, programming and commissioning of numerous industrial control systems for Cadbury Schweppes (Claremont, Tasmania), Mount Gibson Iron (Koolan Island, Western Australia), Nyrstar Hobart Smelter (Lutana, Tasmania), Intec Metals (Burnie, Tasmania) and GrainCorp (Geelong, Victoria).

Work for Cadbury Schweppes has involved the development of automation systems using Siemens S7 as part of the plant's recent \$35M upgrade. He has also been responsible for the control software of the Mount Gibson Iron ship loader at Koolan Island.

Currently, Tim is developing software to integrate one of Nyrstar's major substations into its site Power Control system.

CALL FOR NOMINATIONS

Members of the Tasmania Division are invited to nominate for Division Committee, National Congress, College Boards & various Tasmanian Committees. For full details and the nomination form, please refer to the back of the address sheet of this edition of "Engineering Tasmania" or contact the Division Office for a form.

NATIONAL PRESIDENT'S VISIT

October will see our National President visit Tasmania

Rolfe Hartley, FIEAust CPEng has been working on large infrastructure and environmental projects for most of his career. He currently holds the position of facilities service manager with engineering firm KBR in Canberra.

He is interested in receiving feedback from members on what Engineers Australia needs to do to position itself so that it can continue to support members in doing their work in a changing environment.

His visit to Tasmania will see him participate in a number of local activities and visit some local engineering organisations. These will include:

- The presentation of an Historic Engineering Marker for the Launceston Water Supply on the occasion of its 150th Anniversary on 23 October 2007,
- A lunchtime meeting with Northern Group members
- A Fellows lunch in Hobart
- Young Engineers & Engineers Without Borders Sustainability Forum
- An evening dinner with North West Group members in Devonport.

Details for these events are:

NORTHERN GROUP

Lunchtime meeting at the Launceston Function Centre - 12.45 for 1.00pm
Tuesday, 23 October - Cost \$ 10.00

NORTH WEST GROUP

Dinner meeting at Gateway Motor Inn - Devonport - 6.00pm for 6.30pm
Thursday, 25 October - Cost \$ 15.00

RSVP to Catherine 6234 2228 or
creading@engineersaustralia.org.au



ENGINEERS
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ENGINEERS
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Tasmania Division

The President,
Geoff Brayford FIEAust

invites you to attend the

2007 ALAN BURN MEMORIAL LECTURE

held in conjunction with Women in Engineering &
The Young Professionals Network Tasmania



MS GWYNNE ALLAN

*Retired NASA
Thermal Dynamics Technician*



“REACHING FOR THE STARS”

Gwynne Allan was the first female thermodynamics specialist involved in gantry based launch operations for NASA.

Gwynne will reflect on her 14-year career with NASA; a career that often took her where no woman had been before. She will talk about the remarkable engineering involved in spacecraft assembly and testing, booster rocket launches and the shuttle programme.

Gwynne has many fascinating pictures to show and funny stories to tell about her career as she progressed through jobs that were considered off-limits to women.

She will also talk about life after NASA and let you in on her secrets of success.

HOBART

Date: Tuesday, 13 November 2007
Time: 5.30 for 6.00pm
Finger Food provided
Place: The Old Woolstore Theatre
1 Macquarie Street, Hobart
RSVP: Catherine 6234 2228
creading@engineersaustralia.org.au

BURNIE

Tuesday, 20 November 2007
6.00 for 6.30pm
Meal cost to be confirmed
Weller's Inn
36 Queen Street, Burnie
Catherine 6234 2228
creading@engineersaustralia.org.au

YPNT proudly sponsored by:



Railway Electrification & the Main West Coast Main Line Power Supply Upgrade Project - Part 1

This is the first of two parts covering the presentation to the August Joint Electrical Meeting. This part will deal with an overview of electric rail while Part 2 will deal with the upgrade details.



In many ways electric traction represents the best form of motive power for land-based transport, in particular railways. Electric locomotives have a favourable

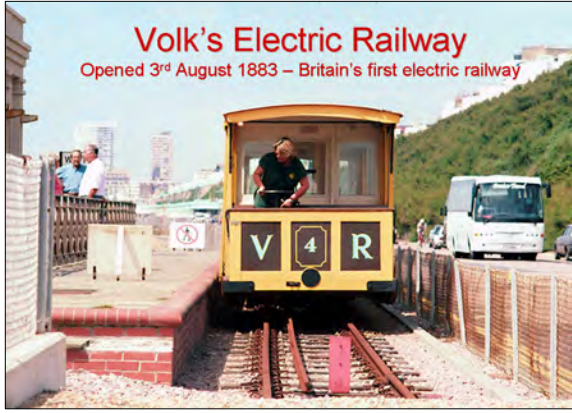
power to weight ratio relative to diesel by virtue of their not having to carry their own power station, and involve much less maintenance than diesel locomotives. Electric power is clean and efficient and can be produced from renewable sources, such as hydro and wind in the case of Tasmania. The main disadvantage is the initial capital cost of installing the overhead wiring (catenary) and the substations.

This was how Ben Johnston GradIEAust commenced his presentation to the August Joint Electrical Meeting in Hobart.



Siemens Locomotive

He gave those attending a brief history of electric traction systems starting with the Siemens electric locomotive shown at the Berlin Industrial Exhibition in 1879. Britain's first electric railway was the Volk's Electric Railway which opened on 3rd August 1883. It runs along the sea front at the fashionable south coast seaside resort of Brighton and was named after Magnus Volk who was an Electrical Engineer with the Brighton Corporation.



The line is still open. Originally it was electrified at 50v dc but in 1884 this was increased to 160v dc with one of the running rails acting as the live feed and the other as the return. However after severe problems with electricity leakage an insulated 3rd rail located between the running rails was installed for the live, with return now being via both running rails. London's Underground uses the "4th rail" system whereby the electrical return uses a dedicated centre rail, and not the running rails. This is to reduce the chance of 'stray' currents damaging tunnel walls, nearby utilities, etc. Although the underground network is nominally electrified at 630v dc the system actually works so that +420v dc is collected from the outer 'positive' (3rd) rail and -210v dc from the centre 'negative' (4th) rail.

The first overhead wire powered electric railway 'anywhere' globally opened in 1893 on the Isle of Man. Featuring tramway-style red painted trolley poles collecting 500v dc from the overhead wire the Manx Electric Railway still uses its original trains.

Overhead feeding systems are called "catenary" systems from the curve formed by the supporting cable. Hanging a wire over the track, providing it with current and running trains under it is not that easy if it is to work correctly and last long enough to justify the expense of installing it. The wire must be able to carry the current (several thousand amps), remain in line with the route, and



withstand all kinds of weather conditions. The contact wire has to be held in tension horizontally and pulled laterally to negotiate curves in the track. The contact wire tension will be in the region of 2 tonnes to resist the upwards force the pantograph on to the wires. The wire is 'zig-zagged' relative to the centre line of the track to even the wear on the train's pantograph as it runs underneath. Almost all new electric railway installations now use this type of overhead AC supply as it permits a higher voltage, hence lower current. This reduces the voltage drop along the contact wire permitting significantly greater separation between substations, thus fewer substations, and reduced cost. While 3 phase systems have been used, only a handful of routes are left - including the 9km line Jungfraubahn (Switzerland). This route was opened in 1912 and is electrified at 1125v.



The first battery rail car was used on the Royal Bavarian State Railway in 1887.

The most recent model battery rail car was the ETA/ESA series 150. The German Federal Railways were operating 216 of these vehicles in 1973.

David Brumby FIEAust CPEng



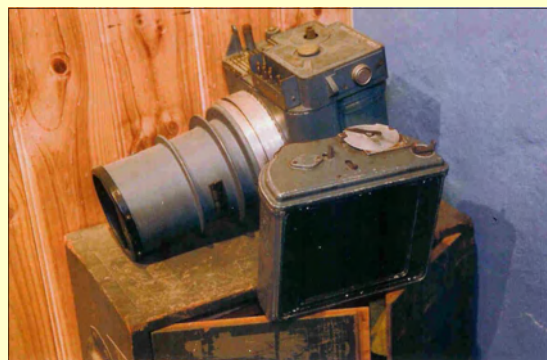
Ben Johnston is a Tasmanian Electrical Engineer with a long interest in railways.

He graduated from UTAS with First Class Honours in Electrical engineering and recently spent 10 months in the UK working on railway electrification infrastructure.

He is currently employed as a Contract Electrical Engineer working for Hydro Tasmania's Generation Division through Acutel Consulting.

A thirty-six inch telephoto lens for use in Europe

Few Tasmanians would now be aware of the significance of the Waterworth Annexe at the old university site on the Domain. During World War 2 this building was a centre charged with the design and production of high quality optical lenses for the defence of Australia. This manufacture had never been attempted in Australia before, and overseas manufacturers declared that Australia was incapable of the task. They were proved to be wrong, and later, the American military came to prefer the annexe's product to their own manufacture. This article illustrates one example of the work of the annexe in a talk given on the work by Victor Fitze to the Royal Society.



Early in 1944 England had an urgent need for a 36" telephoto camera lens for high altitude photography over Europe to help pin point the V2 rocket launch pads. The design was complete and the front lens had to be 7"-diameter. There was not a piece of the special glass large enough in the allied countries. The team experimented and joined four pieces together. The lens was made and Eric Waterworth was invited to fly with it via USA to England. It was tested over Europe and the results were very good. There was talk of additional lenses being made but VE day came and they were not needed.

Supplying this order was not easy. The front glass lens had to be seven inches in diameter with a centre thickness of about three quarters of an inch.

Continued next page.....

WOMEN IN ENGINEERING

Quite obviously this had to be made from one piece of optical glass and the only available glass of the required specifications of refractive index and V number was in the form of four flat squares about one inch thick.



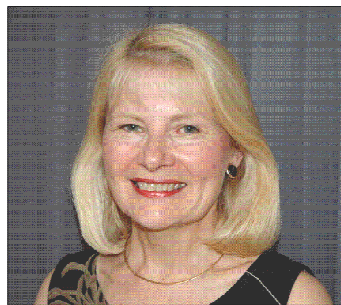
It was decided that an attempt would be made to join these together in such a way that no inclusions of foreign matter occurred during the process. Each piece of glass was heated to above the annealing temperature of the glass and was then transferred into the hearth of a rotary hearth oil burning furnace. Each piece was patted and pushed into the form of a sixty degree cone. While still hot they were put into simple chucks, each on the end of slowly rotating shafts which could be moved longitudinally together while the tips of the cones were heated in an oxyacetylene flame. This flame created a mound of molten glass on each cone and these merged together to form one cylinder of glass. The process was repeated until all four pieces were joined. These were then spread out into the form of a disc and became a glass blank which could be ground and polished and finally became the seven inch lens.

Tony Lee, OMIEAust
Engineering Heritage Tasmania



Vanessa King, MIEAust

A few months ago, we reported that the World Federation of Engineering Organizations held a **Global Colloquium for Women in Engineering and Technology in Tunis, Tunisia** in early June. Topics addressed included empowering women in decision making to enable them to overcome inequity and poverty, and tearing down obstacles to their participation and advancement in engineering and technological careers. Over 400 people from 60 countries attended, with 80 speakers and presenters.



*AVM Julie Hammer, AMC
CSC FIEAust EngExec*

Our own Julie Hammer, National Deputy President, Engineers Australia gave one of the Keynote Addresses on "Women in Engineering – the Past, Present and Future". She has very kindly given us permission to reproduce her notes from her slides on Leadership. The full presentation is available online at www.wfeo.org (follow the links to the Colloquim program).

Do you recognise any leaders you know in these descriptions below? Do you recognise yourself?

Leaders of the Past

Throughout our careers, we've all experienced leaders and managers, good and bad, strong and weak, uplifting and frustrating, inspiring and demoralising, charismatic and unassuming. It is not always easy to put a finger on what constitutes that magical mix of characteristics that works. And more than that, what worked in the past may not necessarily work today or tomorrow.

- In the past, leadership was seen as being closely aligned to **position and seniority**. Authority was derived from that status and respect was acquired as a by-product, rather than earned.
- The leaders were those who had stayed longest, who **committed to the organisation** over many years.
- The leaders were **strong**, but not necessarily overly ethical. They certainly didn't talk about their emotions, their feelings or their mistakes.
- They conceptualised the **strategic direction**, not always clearly, and conveyed it to the worker bees as a given - sometimes.
- **Communication** was not necessarily their forte. That was really a job for the HR department, if there was one.
- Success was about **delivering the outcome**, winning the game, even though there may be a cost to the people. The focus was on the destination rather than the journey.

Society evolves, generational change brings with it new expectations, and leaders must respond in different ways.

Leaders of the Present

Today's leaders are much more in tune with their team.

- Their leadership in general is based on **ethics** and they are conscious that they must be seen to practice what they preach. They must be **visible role models**.
- They are adept at conceptualising the future, the strategic direction, explaining where everyone fits into that vision, and **bringing the team along** with them.
- Their **communication skills** are well-developed and adaptive to the situation.
- They deliver the outcomes, but acknowledge and **celebrate the success of the team**.

Leaders of the Future

So what will the successful leaders of the future look like? I think they will need all the skills and attributes of today's leaders. There are some enduring characteristics that leaders must exhibit: honesty, integrity, moral courage and a sense of humour are a few that spring to mind. But there are also some new abilities that I think they will have to acquire.

- They will need to be **able to operate globally**, to understand and adapt to the opportunities and limitations that come with different jurisdictions.
- They must feel **at ease in any culture**, sensitive and sympathetic to the challenges of a multi-cultural workplace and insightful about the marketing and business implications of operating in different cultures.
- They must be **able to capitalise on diversity**, identifying strengths and weaknesses and creating cohesion across teams.
- They must be **good listeners**, open to new ideas from any source and willing to learn from those around them.

- They must create a workplace that encourages growth and **develops the talents of individuals**.
- Their workplace must **cope with unprecedented mobility** by being adaptive to and welcoming of new team members.
- And finally, the leaders must have a **solid grounding in the basic skills** set of the business. I believe we are moving away from the era of the 'generalist' where a leader and manager did not need to have background in the discipline of the work environment, but only background in leadership and management. Personally, I would debate whether this strategy was ever successful. To have credibility, the leaders of the future will not need to be specialists, but will certainly need to be knowledgeable in the business. For engineering businesses, this of course means being knowledgeable in the technology.

Implications for women - challenges

The global environment of the future will bring fresh challenges for some women, especially those who are attempting to combine career and family commitments. The global workday can span the full 24 hours of the clock and this poses challenges even more complex than that of the long executive work-day in a single time-zone. It is generally not as easy for women to be mobile in their career. Travel for short periods or relocation for longer periods can be difficult if their partners are not fully supportive at home. Acceptance in some cultures can still be problematic, despite women's unquestioned ability to do the job. And so women will continue to be faced with difficult choices between career and family, and it is unlikely that progressive workplace practices can fully resolve these challenges.

Implications for women - advantages

However, I believe that the leadership skills and characteristics that will be

best accepted and successful in the workplace of the future are in tune with women's natural strengths. Of course, that is not to say that many men do not also display these skills and characteristics. But women have traditionally been good listeners, receptive to new ideas. They have a deep understanding of the subtleties of working with all kinds of diversity, and are sensitive to negative nuances that often go unnoticed by some male colleagues. They are skilled in nurturing and developing their staff. And as has always been the case, their technical competence is impressive.

Any comments, ideas, views on the above?

Would you like to write an opinion piece yourself for the WiE page? Feedback always welcome – Vanessa.King@ghd.com.au

Also, a brief update on Tas WiE Committee activities:

Following a Committee Strategic Planning session, our Chair, Rebecca Tillbrook is continuing her hard work in pulling together our Vision, Mission and Objectives, as well as Role Descriptions for the Committee and a calendar for the rest of 2007 and 2008. Watch this space!

Vanessa King, MIEAust



2007 YEAR OF WOMEN IN ENGINEERING
Creative / Diverse / Inspiring

YOUNG ENGINEERS PAGE

*Jessica Andrewartha,
GradIEAust*



YEA Road Show 2007

The year 2007 marks the inaugural Young Engineers Australia (YEA) Road Show that saw the 2006 Young Professional Engineer of the Year, Andrew Botros, MIEAust present at events across Australia as part of National Engineering Week (17-26 August).

Who is Andrew Botros?



Twenty-six year-old Andrew is currently an engineer at Cochlear Ltd, the Australian manufacturer of the 'Bionic Ear'. Cochlear has restored hearing to over 80,000 profoundly deaf people around the world.

Andrew's principal role is to create intelligent software that makes Cochlear implant systems more effective and easier to use. In collaboration with the University of New South Wales, Andrew is currently undertaking an industry-based PhD, developing further means of simplifying Cochlear's products via machine intelligence.

Andrew is also a researcher in music acoustics at UNSW, where he models woodwind instruments to assist performers and composers. *The Virtual Flute*, his undergraduate project, uses artificial intelligence to map the 40,000 different fingerings available to play just 44 notes. *The Virtual Flute* won the 2002 Siemens Prize for Innovation and the 2003 Australian Acoustical Society Excellence in Acoustics Award.

In 2001, Andrew was awarded the University Medal for computer engineering by UNSW, and by 2004 he completed Masters degrees in biomedical engineering and information technology.

Destination - Tasmania

Very early on Wednesday 22 August, Andrew embarked on a flying visit to the Apple Isle where he resided for less than 24 hours, but managed to fit in lunch with university staff, a presentation at the School of Engineering, a talk to year 9 and 10 students at Ogilvie High School and a public presentation in the evening at the Arts School lecture theatre!



*The Ogilvie High School students
captivated by Andrew's presentation*

Andrew's presentations were centred on 'Artificial Intelligence in Music and Medicine', with each individual presentation tailored to meet its target audience. Upon UTAS engineering students Andrew imparted four pieces of knowledge... be a dreamer, be a bastard, be a charmer, and be a saint! and entertained and inspired all those who recognised this unique opportunity to appreciate engineering excellence.

Young Engineers Tasmania would like to give special thanks to [Cochlear Limited](#) for their support and sponsorship of the YEA Road Show 2007.



*Andrew showing students from Ogilvie
High School his Virtual Flute*

Jess Andrewartha, GradIEAust

MEANDER DAM IS ALMOST COMPLETE

Construction of the long awaited Meander Dam commenced in earnest in January this year, when the first of over two hundred thousand tonnes of roller compacted concrete was placed on the prepared rock foundation in the riverbed.

Preparatory work commenced onsite in late 2005 with clearing of the left and right abutments, construction of the diversion conduit; and the upstream and downstream coffer dams.

When the left and right abutments were exposed and thoroughly cleaned, it turned out the site was close to ideal for the construction of a dam, with the dolerite showing no faults and a low incidence of jointing.



Downstream face

The weather conditions the employees of the principal contractor McConnell Dowell endured included high rainfall events, which resulted in flooding of the work site on several occasions to temperatures that ranged from minus 9 degrees in the gorge during June 2006 to almost 40 degrees on the abutments in January 2007. Even with these testing conditions the highly skilled men persisted, making sure the dam had the best possible foundations by cleaning the rock by hand with grinders and wire brushes.

On the first of February this year the Minister for Primary Industries and Water, David Llewellyn placed the first roller compacted concrete to signify the commencement of the dam wall.

The speed and quality of construction of the project has underlined the advantages of using roller compacted concrete. In particular the use of a conveyer system to transport the mix from the pug mill to a hopper located on the crest and then a wheel loader to move the mix to where it was to be spread in a 300mm layer and compacted.

The RCC was in effect sandwiched between the upstream and downstream faces by over 4000 precast concrete panels, manufactured in Launceston by Duggans concrete. The panels give the upstream face a smooth vertical surface and the downstream face a stepped incline.

Long periods of fine weather throughout the duration of the project gave the contractors the opportunity to maintain the concrete placement process and keep to schedule.

The final phase of construction will be the installation of a geo-composite PVC “membrane” on the upstream face. This will be sealed against all sides of the dam, making the dam wall essentially impermeable.

Once the membrane is fitted and tested the diversion conduit will be sealed by way of a steel plate, backed by a 4 metre concrete plug. It is anticipated that under normal conditions the dam will take about 50 days to fill, however, a spring/summer rain event similar to those experienced over the past few years could see the reservoir reach full supply level in as little as a week.

Richard Gerathy

**Upstream
Face**



CIVIL/STRUCTURAL BRANCH MEETING

Structural College Eminent Speakers Program 2007

“THE ART OF STRUCTURAL ENGINEERING – AN AUSTRALIAN PERSPECTIVE”

The training of structural engineers is vital for the profession. We need to employ, train and mentor young structural engineers in their formative years. It is not by accident that most good structural engineers have had good training. Unlike graduates of the past who had an informal apprenticeship and learnt their trade over the years, younger structural engineers are expected to perform within a few months of graduating.

The process of structural design will continue to change as more sophisticated computer software and other new materials become available. In the future one can see software that designs and draws, checking that the requirements of the appropriate codes are met. The role of the structural engineer will change.

This seminar will highlight the changes in structural engineering over the past 40 years and will explore the history of structural engineering both overseas and in Australia. It will use that history to explore what we can expect in the future, and what we need to do about training young structural engineers for that future.

JOHN WOODSIDE

F.I.E.Aust, F.A.S.C.E, M.I.C.E, M.I. Struc.E

John Woodside was born in New South Wales, educated in Victoria, and attended Melbourne University, completing his degree in civil engineering. After post-graduate study at Melbourne University, he commenced work in Melbourne in 1967, working for four years with Milton Johnson and Partners before travelling overseas to the UK where he worked for four years with the UK contractor, Taylor Woodrow. He returned to Australia in mid-1975 and then worked for 24 years from early 1976 with Connell Wagner, principally in Adelaide. He retired from Connell Wagner mid 2000. He also worked in Darwin for two years during this period. He has specialised in structural design of buildings and in particular concrete buildings and precast concrete and is widely experienced in that field.

DATE: Tuesday, 2 October 2007

TIME: 5.30 for 6.00pm

PLACE: Royal Engineers Building
2 Davey Street, Hobart

RSVP: Catherine 6234 2228 or
creading@engineersaustralia.org.au

THIS MEETING WARRANTS 1.5HRS CPD

ELECTRICAL BRANCH MEETING

SITE VISIT TO “HELSAL IV”



DATE: Tuesday, 9 October 2007

TIME: 5.00 for 5.30pm

PLACE: On Helsal IV
Please assemble in the
Wrest Point Coffee shop

ROBERT SMITH, GradOIEAust

Robert is a Senior SCADA Officer at Transend Networks and has considerable experience with racing yachts.

Robert will speak about the basic electronic systems used on racing yachts. His talk will include an introduction to NMEA protocols, protocol conversion between proprietary systems and NMEA protocols, wireless systems and performance software.

Following the talk, it is planned to have a sail of about 1.5hrs. During this time apart from electronic systems there will be opportunity to look at the mechanical and structural features of Helsal IV.

**The numbers that can be accommodated
on the sail are limited to 12 places.**

RSVP to Catherine Reading 6234 2228 or
creading@engineersaustralia.org.au
indicating whether you wish to go on the harbour
sail and whether you have any sailing experience.

THIS MEETING WARRANTS 1.5HRS CPD

Joint NORTHERN GROUP IMarEST & RINA

DATE: Wednesday, 10 October 2007
TIME: 5.30 for 6.00pm
VENUE: Auditorium, Australian Maritime College
Launceston
SPEAKER: ALAN H TAYLOR OAM
CEng CMarEng HonFIMarEST FRINA

SHIPPING DISASTERS – CAUSES & CONSEQUENCES”

Alan has been associated with the Marine Industry for 50 years. He commenced his working life in 1957 with BHP as a Marine Engineer Trainee. During his career he has worked for only four companies, BHP, The Indo-China Steam Navigation Company, Jardine Matheson and the Australian LNG Ship Operating Company in the capacities of Marine Engineer Officer to Chief Engineer, Engineer Superintendent, Technical Superintendent and Manager, Manager Project Development and Environment and Crisis Systems Manager and has been involved with the design and building of over 34 ships.

He was the first President, outside of UK, of the Institute of Marine Engineers in 108 years, he was a member of the General Committee of Lloyds Register of Shipping, the Chairman of the General Purposes Committee of the Oil Companies International Marine Forum Ltd (OCIMF) and a Member of its Executive, he was BHP's Chief Representative to the Society of International Gas Tanker and Terminal Operators Ltd (SIGTTO), Deputy Chairman of the Operations Committee for the Australian Shipowners Association and was a Technical Advisor to the Australian Delegation at the International Maritime Organization (IMO), Marine Environment Protection Committee (MEPC) for 10 years. He has also been a member of various other shipping committees and working groups, both nationally and internationally.

In 2000 he left the BHP and started his own Consultancy Company. In 2003 Alan was awarded an OAM for "For Service to Maritime Engineering and the Protection of the Marine Environment", in 2004 he was awarded the Australia Museum's Sherman Eureka Prize, with his colleagues, for Environment Research into ballast water and unwanted aquatic organisms, and also in 2004 he was made an Honorary Fellow of the Institute of Marine Engineering, Science and Technology.

He is currently a Director of the Victorian Regional Channels Authority, a Member of the Australian Advisory Committee of Lloyds Register of Shipping and a Member of LR's Australian Technical Committee and remains very active in the Institute of Marine Engineering, Science and Technology.

**LIGHT REFRESHMENTS WILL BE SERVED PRIOR TO
THE MEETING IN THE LEATHER LOUNGE AT 5.30pm**

Contact Norman Lawrence on 6335 4779

Engineering Heritage Committee & Australian Geomechanics Society

ENGINEERING HISTORY IN COOMA ROCK HERITAGE OF HARD-ROCK ROCK BOLTING AND ROCK MECHANICS

Walter B Mills. BE (Elec.), MIEAust CPEng, NPER

Tuesday, 30 October 2007

5.30 for 6.00pm

Royal Engineers Building
2 Davey Street, Hobart

Fifty years ago Snowy Mountains Hydro-Electric Authority experimented and developed a better method of tunneling for utility projects. It was a safer, less costly and a quicker method utilizing rock bolts. The change of practice at the time presented challenges to convince the various stakeholders. Studies by talented engineers and scientists revealed that rock bolts could arrest ultimate further weakening of disturbed rock, so replacing alternative means of support. Rock bolts revolutionized hard-rock tunneling and quickly became a world-wide practice. The development of the engineering science of rock mechanics was greatly advanced also. It has been said that the development and use of rock bolting "was probably the most significant engineering development on the Snowy Scheme. "

A few years ago the initial experimental site in Cooma's Lambie Gorge was re-discovered along with remnants of rock bolts and drill holes where testing was carried out. It is a significant site in the history of engineering. Consequently a nomination has been prepared for its placement on the State Heritage Register, and another is in preparation for its recognition as a National Engineering Landmark.

Walter Mills has made his career in hydro-electric engineering, commencing work on the Snowy Mountains Scheme that allows management of the Snowy Mountains water. He saw first-hand the underground working for tunnels and caverns. He was part of the engineering design team; two huge power stations completely underground, and overall 130km of large tunnels. Involvement was continued with some of the same people with SMEC, consultants in water projects world-wide.

Refreshments from 5.30pm

RSVP to Catherine Reading 6234 2228 or
creading@engineersaustralia.org.au

THIS MEETING WARRANTS 1.5HRS CPD

CALENDAR 2007

OCTOBER

Tuesday 2 - Civil/Structural - Structural College Eminent Speaker Program - John Woodside - The Art of Structural Engineering, An Australian Perspective - 5.30 for 6.00pm - Royal Engineers Building, 2 Davey Street Hobart - Register with Catherine Reading 6234 2228 or creading@engineersaustralia.org.au (Refer to page 10)

Tuesday 9 - Electrical - SITE VISIT - Helsal IV - Electronic Systems on Racing Yachts - Meet at Wrest Point Coffee Shop - 5.00 for 5.30pm - Register with Catherine Reading 6234 2228 or creading@engineersaustralia.org.au - **Limited to 12 ONLY on the sail** (Refer to page 10)

Wednesday 10 - Northern Group - Shipping Disasters: Causes & Consequences - Alan Taylor - 5.30 for 6.00pm - Australian Maritime College Auditorium - Register with Norm Lawrence 6335 4779 (Refer to page 11)

14 to 18 - Engineering and Physical Science in Medicine (EPSM 2007) combined with The Australian Biomedical Engineering Conference (ABEC 2007) - Fremantle - Esplanade Hotel - For more information visit www.epsm.org.au or email enquiries@keynotewa.com

21 to 24 - 10th Annual Geomechanics Society & New Zealand Geotechnical Conference 2007 - Brisbane - Brisbane Hilton - For more information visit www.anzgeo2007.com

Tuesday 23 - NATIONAL PRESIDENT'S VISIT - LAUNCESTON - Refer to page 2 for more details

Wednesday 24 - NATIONAL PRESIDENT'S VISIT - HOBART - Refer to page 2 for more details

Thursday 25 - NATIONAL PRESIDENT'S VISIT - NORTH WEST - Refer to page 2 for more details

Tuesday 30 - Joint Geomechanics/Heritage - Engineering History in Cooma Rock (Heritage of Hard-Rock Rock Bolting & Rock Mechanics) - Walter Mills - 5.30 for 6.00pm - Royal Engineers Building, 2 Davey Street Hobart - Register with Catherine Reading 6234 2228 or creading@engineersaustralia.org.au (Refer to page 11)

NOVEMBER

1 - 3 November - International Conference on Engineering Sustainability - Perth - Sheraton Hotel - For more information email enquiries@keynotewa.com

Monday 12 - Geomechanics - AGM - Soil Environment Interactions in Geotechnical Engineering - Prof Antonio Gens - 5.30 for 6.00pm - Royal Engineers Building, 2 Davey Street Hobart - Register with Fraser White 6230 5315 or fraser.white@hydro.com.au

Tuesday 13 - Alan Burn Memorial Lecture - HOBART - "Reaching for the Stars" - Ms Gwynne Allan - 5.30 for 6.00pm - Old Woolstore Theatre, Macquarie Street, Hobart - RSVP to Catherine Reading 6234 2228 or creading@engineersaustralia.org.au (Refer to page 3)

Tuesday 20 - Alan Burn Memorial Lecture - BURNIE - "Reaching for the Stars" - Ms Gwynne Allan - 6.00 for 6.30pm - Weller's Inn, 36 Queen Street, Burnie - RSVP to Catherine Reading 6234 2228 or creading@engineersaustralia.org.au (Refer to page 3)

11 - 14 November - Energy 21 C - The 9th Energy Transmission & Distribution Conference - Sydney - Convention & Exhibition Centre - For more information visit www.e21c.com.au

27 to 28 - EEA Project Management Course - For more information visit www.eeaust.com.au

LAUNCESTON 1857 WATER SUPPLY INVITATION

Members of the Division are invited to a

PLAQUING CEREMONY

to be held at Launceston on
Tuesday, 23 October 2007

Launceston's original water supply from the St. Patricks River via Distillery Creek was opened on the 23 October 1857 and is still operating, supplying about 20% of the city's needs. Its 150th Anniversary is to be celebrated on Tuesday, 23 October 2007.

The Launceston City Council and Esk Water (the present owners) are celebrating this occasion with the unveiling of a commemorative plaque at the Princes Square fountain, which was erected to celebrate the opening of the water supply, with morning tea to follow.

The time for the commencement of the ceremony is 11.00am.

Engineers Australia is awarding a Historic Engineering Marker plaque to the Water Supply at the same time in a combined ceremony.

If you would like to attend, but have not yet advised Catherine, please do so by contacting Catherine Reading on 6234 2228 or creading@engineersaustralia.org.au by **Tuesday, 9 October 2007** and you **MAY** be sent an invitation with further details if vacancies exist.