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## Chairman's Message

The year is racing along and there's a lot happening.

The Rotorua conference is going to be great with a lot of relevant content. We are busy organising it. Please support our industry and show the Ozzies our best Kiwi hospitality. Thanks go to the team at Business New Zealand for their ongoing professional support, the CTNZ board and to Steve Welburn who is helping out by stitching together an impressive business programme and organising the "Cast Metal Achiever of the Year Awards"

The China trip exceeded my expectations. A report is included later in this edition.

Mike Alston  
Chairman

## 2006 Australasian Conference Rotorua - 15-18 October



Planning is well underway for the 2006 Australasian Foundry Conference to be held in Rotorua over 15-18 October.

Those of you who attended the Queenstown conference and the ones before that will know what a great event these Australasian conferences are.

We have got some great presenters. Any one of them would justify your time and cost in attending.

For example Dr Ian Brooks will give 4 presentations. One of them is "How to persuade your customers to pay more". See him at <http://www.ianbrooks.com/>

Ralph Bingham is a World Class Manufacturing Coach with a proven track record in training, facilitation and implementation of all forms of lean manufacturing methodology. Companies he has worked with include Rolls Royce and Howmet. He specialises in overcoming the difficulties faced when trying to change mindsets and implement new ideas. He'll be giving an extended seminar on practical applications that will also work in smaller foundry operations.

Dr Howard Frederick was a fantastic speaker in Queenstown. He has agreed to give us a presentation on *Succession Planning and Continuity of Business*.

Doug Harland is the philosopher of the Australian Foundry Scene. He will give a

presentation on the *Successful Regeneration of a Foundry Facing Closure* as well as lead a debate on *How do we Ensure a Future for the Australasian Cast Metals Industry?*

And there's a lot more....

The conference will have the usual excellent social events allowing time for networking with your friends in the industry.

Rotorua has come a long way in the last 20 years and is a world class tourist destination. If you have time it'd be worth spending the rest of the week in the area with many different activities available especially if you like thrills in the great outdoors.

As always, the success of a good conference relies on your support and we encourage you to participate by taking a trade stand, providing sponsorship and of course attending the conference. For the trade stands and sponsorship please contact Rex Baynes at [rbaynes@ihug.co.nz](mailto:rbaynes@ihug.co.nz)

The best resource keeping you informed about the latest conference developments is our website at [www.castingtechnologynz.org](http://www.castingtechnologynz.org) Keep your eye on the site for registration forms as early registrations will go into the draw to win a free night's accommodation.

If you have any queries regarding the conference you can ring Linda Boland on (04) 496 6555 or by email at [lboland@businessnz.org.nz](mailto:lboland@businessnz.org.nz)

We look forward to seeing you in Rotorua!

### **Training Update – July 2006**

The review process for the Metal Casting Level 4 qualification is nearing completion following consultation with the metal casting industry. The structure of the reviewed qualification has basically remained the same but with additional flexibility. The compulsory section can be delivered by polytechnics with apprentices either attending night classes or studying via distance learning. The elective units allow more choice for the smaller foundries and pattern shops making training more relevant and achievable for apprentices in smaller business.

Casting Technology members will have recently received a draft of the reviewed qualification from Competenz and are encouraged to comment as it will be five years before this

qualification comes up for another review.

Competenz plan to launch the reviewed Metal Casting Level 4 qualification at the 37th Australasian Foundry Conference 15-18 October 2006.

*The above report was prepared by  
Warwick Fyfe*

### **Cast Metal Industry Achiever of the Year Award**

It is a foundation responsibility of every association of industry professionals to facilitate and encourage the continuous professional development of its members. To coincide with this year's conference CTNZ will run the cast metals industry achiever of the year awards to recognise the best of our new talent. The winner will be funded travel, accommodation and registration costs to "Extreme Thermal Activity" October 2006.

Those nominated will typically be young and new to our industry and have demonstrated excellence in their training and development in cast metal technology. The winners will be selected from nominations, by the CTNZ Board of Governors in September.

At the conference the winners will display their winning achievement alongside those of the winners from each of the Australian States on a trade display stand at the conference. This exceptional opportunity will also provide access to network with the conference speakers and the cream of the Australasian cast metals industry.

Further details of the Cast Metals Industry Achiever of the year awards will be published shortly, in the mean time if you have an industry trainee that has shown you something special this year you might wish to consider nominating them for the award.

*The above report was prepared by  
Steve Welburn*

### **Regional Roundup**

- **Auckland**

Regional activity in Auckland has been slow this year to date, however we have a few events in the pipeline for the second half. To

kick things off we have an interesting presentation from Vladimir Ivanov who will discuss his thought provoking contribution to this month's News and Views. The meeting will be advertised separately, shortly, and it will be the start of increased activity in the Northern region. Other events are the AGM, Mike's report on the recent group visit to China and we are working on a site visit to the University of Auckland's Light Metals Research Centre.

*The above report was prepared by  
Steve Welburn*

- **Canterbury**

On Tuesday 13 June 24 Canterbury Branch members met for an evening with Inductotherm. Chris Buck (National Sales Manager, Australia & New Zealand) discussed "The Worlds Largest Hydraulic Tilting Coreless Induction Furnace".

Chris' paper raised many questions both during and at the conclusion of the presentation.

The Canterbury Branch are grateful to MetCast Services Limited for providing supper and refreshments – thanks MetCast!

*The above report was prepared by  
Ian Close*

### CTNZ Website

Have you checked our new website yet??

It is important that we have your correct company detail so please take a moment to log onto [www.castingtechnologynz.org](http://www.castingtechnologynz.org) to check that your company's information is correct. Please send any corrections or other improvement suggestions to [lboland@businessnz.org.nz](mailto:lboland@businessnz.org.nz)

### Trade Fair

- **Aluminium 2006 – Germany**

We have received information on the 6<sup>th</sup> World Trade Fair and Conference to be held in Messe Essen, Germany from 20-22 September 2006. If you would like a copy of this information, please contact [lboland@businessnz.org.nz](mailto:lboland@businessnz.org.nz) or check their website [www.aluminium2006.com](http://www.aluminium2006.com)

### GIFA 2007



The Australians tell us they have sold 54 cabins and there are only 9 left so if you want to join them you had better get in quick. To make a booking contact Tod Morgan [tod.morgan@calderys.com](mailto:tod.morgan@calderys.com) or Ian Mountford [imountford@castmetal.com.au](mailto:imountford@castmetal.com.au)

### China Industrial Tour Report

The China trip was great. We managed to achieve all of our objectives – attend the Congress of Foundry Directors, go to the Metal + Metallurgy Asia 2006 trade expo, visit some foundries, see unbelievable sights, visit the Canton Fair and meet the people (not all of them!!). We thank NZTE for their assistance.

The people are friendly. The food was great with much more attentive service than you usually receive in New Zealand. The foundry trade show was smaller than GIFA with about 28,000 people but still huge, just as professional and buzzing with more business energy. You'll see lots of photos of it in the latest Metal Casting Technologies magazine.

The Canton fair, with around 200,000 foreigners attending, was also incredible. The iron foundry, aluminium foundry and magnesium ferro silicon manufacturing plant visits were very interesting. We gathered useful data that tells us a lot about their cost structure.

We will be organising 2 or 3 China evenings for you soon to discuss our findings.



*An 88 metre high bronze Buddha near Wuxi*



*Grounds of the Beijing Beiyong Casting Co*



*Metal + Metallurgy China 2006*



*Low Pressure Casting Hardsand Moulds at Wuxi Aluminium Technology Co Ltd*

*The above report was prepared by  
Mike Alston*

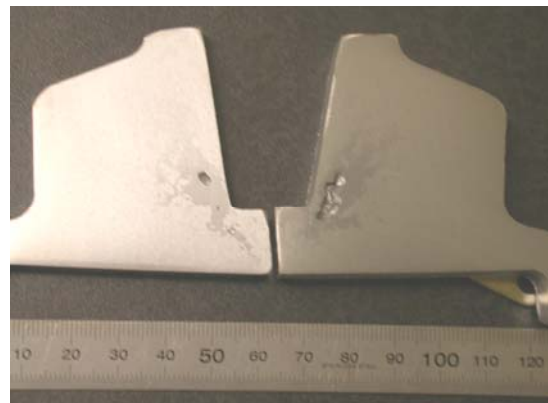
## **Gas or Shrinkage?**

### **History**

There were two points of view within a low pressure die casting Company on aluminium wheel's rim/spoke/junction (RSJ) porosity: one insisted that these pores are trapped air bubbles, another – that they are shrinkage. The strongest points of each opinion were the weakest points of the opponents: the "Air Bubble" struggled to explain why air always trapped in exactly the same location, whereas "Shrinkage Porosity" had problems in justifying the pores' shape – smooth roundish contour.

### **Results and Discussion**

The examined wheels were cross-sectioned and polished along each spoke – porosity of various sizes was observed in all RSJs (picture below).



Surprisingly, the polished samples have revealed a microstructural segregation, which turned out to be eutectic pools, and porosity was located within these pools (7× magnification is shown below).

Presence of eutectic pools explains the smoothness of the pores – if, for example, there is a hot spot in the casting and melt in this spot consists mainly of eutectic, the latter will solidify in a concentrated (pipe-like) pore and not in a dendritic (dispersed) porosity, simply because there is an abundance of eutectic and not a lack of it.

The question is how these massive eutectic pools were created. There are two mechanisms for this to happen. One is so called direct liquation and based on directional solidification, when first crystals that solidify contain higher melting point phases (in our case it is  $\alpha$ -solid solution) enriching more and more the rest of the melt with the lower melting point constituents (in our case it is  $\alpha/\beta$  eutectic). Another probability of getting fully eutectic structure in the hypoeutectic alloy is based on phase diagram study: when hypoeutectic alloy is considerably super-cooled, nucleation and growth of  $\alpha$ -crystals are suppressed and  $\alpha/\beta$ -eutectic nucleation and growth is favoured. Although microstructural appearance of both eutectics is similar, they have different chemical composition. That's why the latter is called "false eutectic" because it has a hypoeutectic alloy composition whereas liquation eutectic has a true eutectic composition (Si 11.6% for the A356 alloy).

The results of spectro-analysis have shown that Si concentration within the eutectic pools was ~ 12%, which confirms the liquation mechanism. Although, in general the A356 alloy is not subjected to liquation, in this particular wheel model intensive chills were connected to RSJs opposite to the hot spots, which, probably, promoted the liquation.

## Conclusion

Even if it does look like a gas pore, it doesn't mean that it is one.

*The above report was prepared by  
Vladimir Ivanov*

## Business New Zealand

The following employment issues have been prepared by Business New Zealand:

- **Holiday Act: 4<sup>th</sup> Week of Leave**

From 1 April 2007 the Holidays Act 2003 provides all employees with an entitlement to 4 weeks annual leave. Because of the way the Act is worded this will mean that employees who leave after that date will have to be paid at the rate of 8% of gross earnings for annual leave untaken since their previous date of entitlement. (Prior to 1 April 2006 payment is at the rate of 6% of gross earnings.) Employers will, therefore need to accrue for the costs of the extra week's leave prior to the 1 April date.

The Department of Labour has publicised the above matter but the change to four week's leave could lead to a further problem. Employers may not have realised that if an employment agreement merely specifies "an extra week's leave" without referring to the current entitlement to 3 weeks' leave, unions are claiming that an employee who works under such an agreement is entitled to five weeks' leave. And for employees who are also currently entitled to a week's shift leave on top of an existing four weeks leave, this could translate into a total of six weeks' leave.

At this stage most employers are trying to deal with the issue in collective bargaining by seeking agreement to have annual leave capped at four weeks. Understandably, unions are reluctant to agree, seeing the unfortunate way some leave clauses have been drafted as providing their members with a windfall. The matter will probably, in the end, have to be decided by the courts but in the meantime any employer faced with a union that will not agree to cap leave at four weeks is advised to record in a relevant collective agreement's terms of settlement that the absence of any change to the relevant clause does not constitute agreement with, or even tacit acceptance of the union's preferred interpretation.

If the union refuses to sign terms of settlement including such a statement, the employer should write to it setting out the same statement *before* signing the terms of settlement. If this is not done the conclusion could be that the employer has agreed to the offending clause because it remains unchanged.

- ***Minimum Wage (Abolition of Youth Rates) Amendment Bill***

The bill proposes to abolish the youth minimum wage except for individuals working under training agreements. Business New Zealand has argued that if all employees from 16 on (other than trainees) must be paid the adult minimum, employers will be discouraged from employing under 18s since many are inexperienced workers yet to develop good work habits. Instead, employers are likely to look to employ older workers with greater work experience.

- ***Employment Relations (Probationary Employment) Amendment Bill***

The bill was introduced by the National Opposition and would suspend a new employee's right to take a personal grievance claim for the first 90 days of employment. Both the Government and the union movement are strongly opposed to the bill with the latter proposing to hold stopwork meetings in order to register disapproval. Industrial action of this kind would be unlawful (industrial action is lawful only in pursuit of a collective employment agreement or on health and safety grounds) and Business New Zealand is preparing advice on how to respond to such an eventuality. Business New Zealand believes that having a probationary period would encourage employers take on employees currently at some disadvantage in the labour market because they could be "given a go" without the probability of a personal grievance claim if things did not work out.

- ***Planning Forecasts***

We have a copy of the Planning Forecast for the June quarter 2006. If anyone would like a copy of this, please contact us.

- ***Regulation Perspectives***

Enclosed is a copy of *Regulation Perspectives*, Business NZ's latest publication for your information.



Linda Boland  
Executive Assistant