



**Casting Industry –
the career choice for
makers, creators, and
innovators**

Melting Moments – September 2023

Presidents Report

Welcome to the latest edition of Melting Moments. The 57th AFI National Conference is almost upon us, and the AFI Victoria committee has been putting in long hours to make sure every contingency has been covered to ensure a great event. I would like to take this opportunity to thank them all for the hard work they have put in.

As a prelude to the conference proper, John Campbell has agreed to deliver a free, open to all presentation on the basics of Bifilms. For those that haven't had the pleasure of listening to his presentations at previous conferences, this is a vital opportunity to learn about his theories before he addresses the applications to control and eliminate bifilms at our current conference. Take this opportunity to attend - you will not regret it. While the focus of the technical program will be on the application of John Campbell's methods at various metal casting businesses, diverse current topics confronting all of us are covered as well, giving wide ranging interest for all foundries - ferrous and non-ferrous.

Our members are continuing to report full order books, with some continuing to quote over 6 months delivery. Though healthy, this in itself can potentially become a problem if our metal casting businesses can't expand their employee numbers and skill base to reduce the lead time that may eventually drive customers elsewhere.

Our monthly meetings continue to be well attended; with very high numbers attending the September site visit to AW Bell to inspect their new Titanium casting facility, with the added bonus of a meal at a microbrewery post site visit.

If you haven't done so, register for the conference now !!

Wolfgang Maier – AFI Victoria President

AFI National

The start of Q3 sees many economists concerned about discretionary spending falling as a consequence of financial pressure for a reasonably large proportion of the country. However, our industry appears fairly busy and is in alignment with the economy wide non-discretionary spend strength. The likelihood of higher-than-normal wage increase claims will need to be factored into forecasts for the next 12 months.

From a foundry perspective, the order books for the 3rd quarter are generally fairly strong, with many foundries continuing to quote 14 - 20+ weeks lead time for many products. The positive from a costs perspective is a downward trend on many raw materials and freight, particularly export / import, as well as a reduction in lead time for many routes. The electricity & gas pricing and supply for every State except WA has continued to see significant decreases in pricing compared to the equivalent period for 2022 following Federal & State Government intervention through the implementation of a gas & coal price cap. However, the energy regulator (AEMO) has forecast generation shortfalls over the next 2-3 summer periods particularly for SA & Victoria. The consequence for high energy using businesses such as our industry is the potential for higher pricing or decreasing demand in peak periods.

From an AFI National perspective we look forward to the 2023 conference being coordinated by AFI Victoria. The 2024 conference is planned to be hosted by CTNZ. Feedback from the organising committee of this year's conference is very positive in relation to attendees and is definitely a catch up many of us are looking forward to.

From an international conference perspective, the 16th Asian Foundry Congress coordinated by the

Japan Foundry Engineering Society is planned for Muroran, Hokkaido 1-3 December 2023. Please remember we need to know the issues each member is facing to enable the State & National bodies to advocate on your behalf, to enable the AFI to represent the industry effectively.

I look forward to the opportunity to see you all in Melbourne so we can solve all the problems of the world one drink at a time 😊.

Brett Lawrence – AFI National President

Apprentices and Training

The previous 2 newsletters detailed the various courses (from Cert II to Diploma level) that are available through SkillsTech and AIE. There are gaps between what our industry requires and what is currently being offered. Identifying and documenting these gaps is an important next step before we can begin to address the gaps.

The process to deliver the course content that we want is cumbersome and opaque. Multiple organisations at both Federal and State level need to be engaged, and there are many blockers. One major blocker is our industries designation as a “thin market”.

This means that our student (and potential student) numbers are very low, making it difficult for RTO’s (Registered Training Organisation’s) to develop an economic argument to offer the courses we need. The positive is that we have demonstrated that it can be done!!

SkillsTech and AIE are actively working with our industry to cover our needs. We do have a voice with the Federal body that controls the current and new qualifications that can be offered in Australia. In Victoria, AFI(Vic) sit in regular meetings with the VSA (Victorian Skills Authority), the State Government authority that controls course funding of TAFE’s and RTO’s.

Access to these authorities is essential to deliver the results that we seek. An example of this, has been the issues that we’ve been experiencing with GOTafe. Cutting a long story short, the training progression of our apprentices enrolled with GOTafe had come to a halt. A lack of communication on what the issues were and when they’d be addressed resulted in a high level of frustration for our apprentices, employers and the (excellent) GOTafe trainer.

With help of the VSA, AFI(Vic) were eventually able to arrange a meeting with the acting CEO of GOTafe. From this we learnt that GOTafe had just begun a discussion with AIE, which – pending the satisfactory resolution of multiple blockers and regulatory requirements – will result in our apprentices being enrolled with AIE. We consider that this will be a good long-term solution, with AIE proven as an RTO that is proactive in working with our industry.

As previously indicated, nothing happens quickly when dealing with government authorities.

Hosico site visit Wed 19/7

AFI and ADCA was recently fortunate enough to get an invitation to tour the Hosico plant in Breaside. Just to make people aware, this is not something that Hosico has ever done before (at this scale) in its almost 50 years of operation. So it was a great opportunity for many people that may have known about the business, but not ever really understood what they do, to see the inside of the operation. Craig Arnold – COO/CTO of Hosico showed the group through the entire plant explaining its diversity as a “one stop shop” manufacturer of OEM parts for various customers.

Hosico Engineering Group delivers world class manufacturing solutions to customers across a range of industries including aerospace, defence and medical and Mining. Developing end to end manufacturing solutions using state-of-the-art technologies, complex tooling, materials engineering and a range of manufacturing processes, HEG specialises in difficult to manufacture products for extreme mission critical environments.

The group was shown through a multiple of divisions including Plastics Injection Moulding, CNC Machining, a fully equipped Toolroom, Cleanroom Assembly areas and finally the Die Casting facility explaining how there are multiple material flows between divisions for some parts that are finally fully assembled and supplied to customer as a finished item.

Vale Bill Lovell – CTNZ Industry Champion

It is with great sadness that the CTNZ Board advise the passing of Bill Lovell (in late May 2023). Bill will be greatly missed by the CTNZ Board and our CTNZ members alike and by anyone that knew him. We are very grateful for his enormous contribution to the success of Casting Technology NZ. Bill was heavily involved in the wider metals industry over numerous years. Bill gave a lifetime of service to our industry. A private memorial service was held in June.

Bill was greatly adored by his family and enjoyed being involved in many sports including golf, fishing and rugby. Bev kindly provided this photo of Bill for this newsletter which sums up what a great man he was.



DHDS Site Visit Wed 16/8

AFI and ADCA members recently had the opportunity to visit possibly one of our most diverse member businesses. DHDS - Deep Hole Drilling Services located in Thomastown not only specialises in Deep Hole Drilling offering Gun and Ejector head drilling as well as a Double Tube System in both Australia and New Zealand – they also service and supply the 5 Australasian Smelters with Composite Copper /Steel Cathode Bars and Ready to Install Cathode Assemblies.

A further part of the business recycles the spent Copper and Steel Cathode Bars recovering Copper for further refining and steel cast iron used in processing New Cathode.

We finished the evening with a load of discussion about what we witnessed and a couple of light refreshments with our meal. Many thanks to Michael Hallet for allowing us to tour.

AW Bell Titanium Casting Facility Site Visit Wed 13/9

From their origins as a patternmaking business in 1952, AW Bell has transitioned into a leader in casting solutions.

In this rare site visit, guests were able to see first-hand the wide range of capabilities that AW Bell have invested in which extends beyond investment, sand and prototyping castings and machining. This included AW Bell's new titanium 50kg pouring capacity furnace, robotic dipping system and specifically designed titanium cut off and grinding equipment developed by AW Bell Machinery. With the intentions to be operational in October, this will make AW Bell the first titanium investment foundry in Australia. In addition, AW Bell has invested in specialised welding capability and digital X-ray to support their NADCAP certified NDT and welding capabilities. On show was also new to market foundry equipment by AW Bell Machinery; a robotic dipping shell system aptly named the Dip Mate and a robotic pouring system. The robotic pouring system is capable of up to 41kg pours, greatly improving safety and job flexibility.

Many thanks to all at AW Bell for allowing us to tour their new facility and to the very special guest Tour guide - Geoff Bell.

The evening finished at Frankston Brewhouse with a continued appreciation of local manufacturing, one thoroughly enjoyed drinking with a delicious meal.





Foundry in a Box Activity

The hands-on experience that FiaB workshops deliver students, continues to be a winner that fully mesmerises even the most disengaged students. We don't take on every request to deliver a workshop. Consideration needs to be given if the school is actively encouraging students to manufacturing roles or simply using the workshops as an "entertainment" activity. FiaB activity in the last quarter follows -

1/8 Sydney Rd Community School workshop –

This school's cohort do not fit in the standard education system. They have a variety of social issues that make classroom engagement difficult. The feedback we've had both last year and again this year, is that the FiaB activity engages the students better than anything that they've ever done before. One student is now actively pursuing a role at Beckwiths.

17/8 Patterson River Secondary College

workshops – 2 workshops were conducted. This school has the potential to be a feeder for our SE Melbourne based metal casting businesses. I'd strongly recommend that those businesses with unfilled vacancies contact this school through Cameron McLeod, Headstart.

28/8 ECG Secondary College workshop –

Pakenham is a long drive to do a workshop, but again we met with great enthusiasm and a school that genuinely aims to encourage students into manufacturing roles. A staff member indicated that the 2 students that showed the greatest engagement, worked through the afternoon break and helped pack up all of the equipment were

known to be the 2 most disengaged students in the school. I saw great potential.

29/8 Monterey Secondary College workshop –

The student cohort for this school do not fit into the main stream education system. For much of the activity, the impression was that we were simply there to "entertain" the student group. This thought was flipped on its head when one student had a short discussion with me. He enquired about the work in the metal casting industry, what apprenticeships applied to the industry and how could he get work experience. This exemplifies why we do school workshops.

Bifilms For Beginners

AFI(Vic) are pleased to offer a great opportunity to attend a presentation from John Campbell on Thursday 26th Oct, 10:00-12:00 at RMIT University (Venue: RMIT 445 Swanston St, Cinema Theatre, building 80, level 1, room 02). And it's free!! This presentation is aimed at those with little or no metallurgical background. It will leave attendees with an insight into how to produce castings of superior quality.

The most damaging defects for liquid metals, bubbles and bifilms, are entrained into the liquid metal during the turbulence of pouring. For both bubbles and bifilms there are techniques to avoid these major defects which are built in to (i) contact pouring, together with (ii) the naturally pressurized design of filling systems; both of which are strongly recommended. Separate, additional techniques are needed and will be described for slowing the metal to a safe speed prior to entering the mould cavity. These include the vortex gate (not recommended) and the flush filter and spin trap combination (highly recommended). By applying this filling knowledge (and appropriate feeding), the outcome should be castings of excellent quality.

Registration for this **free event** is through the AFI National Conference Try Booking link below
<https://www.trybooking.com/CGORA>



AFI CONFERENCE - SEPTEMBER UPDATE

Rarely has it been said by Industry Conference Organisers that we have been overwhelmed by the response, support and generosity of our Industry cohort.

This year the AFI Vic Committee finds ourselves in the position of a sell-out for one of our events on the program, requiring us to modify our registration options as a result. With the venue room full to capacity for the Banquet, we've had to close off the registrations that include the Banquet dinner.

For those that are late to register – don't despair!! We have added a new "Limited" registration option. With this one registration purchase click, you'll have access to each of the Presentation days, the Presidents Reception and Happy Hour. The option to register for individual events (Day registration, Presidents Reception, Happy Hour) still remain if that suits your circumstances better.

The bonus activities of Bifilms for Beginners and Beckwith Site tour will still need to be registered for separately.

We're excited. Our Technical Program is bursting with progressive, challenging and thought-provoking real-world case studies and experiences that will help you add value to your business.

See you all at the 57th AFI National Conference!!
<https://www.trybooking.com/CGORA>

CTNZ 2023 Conference - "Successful Root Cause Analysis"

September 8 – 10 2023 CTNZ hosted their annual Conference at the Novotel Ellerslie Hotel, Auckland. The event started with a tour of Buckley Systems <https://www.buckleysystems.com/> - an amazing New Zealand business success story. Buckleys is a manufacturer of large spectrometer and analyser magnets weighing tens of tons to quadrupole magnets weighing less than a kilogram.

Saturday provided a full day of presentations from an esteemed selection of industry professionals and experts sharing insights, learning processes and developments, new innovations and case studies.

During the evening at the Banquet dinner CTNZ presented Bev Lovell with a spectacular "Cast Metal" plaque honoring Bill and his contribution to the industry over many decades.

The Paperless Foundry: Going Paperless Offers More Than Just Saving Paper

Article sponsored by Guardian Software

Today's foundry shop floor worker can have all the information they need to perform their job at the touch of a finger on an iPad or Android tablet. ERP and MES software links the shop floor to the front office through a simple web interface eliminating the need for paper routings and travellers.

"The obvious benefit of going paperless is the reduction in paper use, which can be a significant cost savings as well as good for the environment," said Guardian Software Systems President Tim Borchardt, "but there's more at stake than being environmentally friendly."

Borchardt outlined several additional benefits:

Online Dispatching: Employees can view the workcenter's daily schedule on large-screen displays mounted in their departments as well as from their tablets, thus reducing the time spent "walking around" to get their next task, and ensures operators are on the right job at the right time.

Online Process Instructions: Employees view real-time process instructions along with all images, documents, videos, and drawings related to dies, patterns, gages, tools, and specifications, directly from their tablet, thus eliminating errors due to outdated paperwork.

Real-Time Labor Collection: Employees input real-time information from the shop floor, eliminating the need to maintain the hard copy for labor and scrap reporting. No clerical input of timecards and labor information, eliminating data entry errors.

Alerts: Integrated into the module is a powerful, real-time, event-driven or on-demand "Alert" messaging system, which allows managers and operators to communicate during the manufacturing process.

Alerts may be sent by email or cell phone for off-site access.

MSDS: Material Safety Data Sheets (MSDS) are maintained in one location, and easily accessed by all employees on their workstations or tablets. No more dirt-covered, out-of-date notebooks on a shelf.

Displaying Machine Data: Integration with robots and other shop machines provides a seamless exchange of data between machines and the ERP. Data can be captured automatically, and machine settings can be stored as process instructions for the next time that job is run again.

Real-Time Production Status: The front office has full visibility into production with real-time status updates.



Around the Traps

a) AW Bell recently engaged with WorkSafe Victoria to assess RCS exposure within their processes.

Feedback from AW Bell was as follows –

“My big takeaway was that WorkSafe were fantastic to work with. They organised an Occupational Hygienist who visited the site, reviewed our processes, and provided practical advice, all at no cost to the business. I can’t speak for other state regulators, but I encourage any foundries in Victoria who are seeking guidance around respirable crystalline silica to get in touch with WorkSafe.”

b) MEM50522, Diploma of Engineering Materials has been approved. The Metal Technology stream within this qualification offers the metallurgical training that our industry has been lacking for many years. Now to find an RTO to offer the course

c) Hayes Metals acquires Northern Smelters

On July 1st 2023 Hayes Metals completed the successful acquisition of Northern Smelters operations. This strategic move represents a significant milestone for both companies and signifies Hayes’s ongoing commitment to manufacturing high quality tin metal, lead, solder and anodes adding these to the extensive existing Hayes Metals product range. As Hayes Metals steps into the shoes of Northern Smelters, they are excited to introduce the business to a new customer base and expand offerings to existing customers

d) Australian Manufacturing Week 2024



For more information on the 2024 Australian Manufacturing Week click the link below:



NEXT AFI VIC Meetings

Thur 26/10 – Sat 28/10 – AFI National Conference

Wed 15/11 – Legends Night and AGM – The Village Green - Mulgrave

Wed 6/12 – 2024 Committee Planning meeting



Australian Foundry Institute (Vic Branch) 2023 Program v5

Month	Date	Location	Topic	Presenter		AFI / ADCA Contact
Feb	Wed 15th	The Village Green Hotel	Training Panel — GOTafe / AIE / Headstart / AIG / Employer / Sunshine Tech			Amber M / Alan C
Mar	Wed 29th	Errols, Nth Melb	Conference Planning meeting			Alan C
Apr	Wed 26th		No Activity		School Hols 7/4 to 23/4	
May	Wed 17th	Deakin Uni, Geelong	Backwell IXL site visit plus Mark Curnow ManuFutures presentation		AMCIL Mfg Week 9/5 — 12/5 Trade Fit Expo 10/5 — 11/5	Sean B
June	Wed 21st	The Village Green Hotel	Al / Zn Dross Presentation	ADCA Panel	School Hols 24/6 to 9/7	Graham W
Jul	Wed 19th	Braeside	Hosico site visit			Craig A
Aug	Wed 17th	Thomastown	Deep Hole Drilling Services Site visit		Careers and Employment Expo 17th — 19th	Alan C / Amber M
Sep	Wed 13th	Dandenong South	AW Bell, Titanium Casting Facility — site visit		School Hols 23/9 to 8/10	Alan C / Amber M
Oct	Thur 26 th – Sat 28 th	Marriott Hotel	AFI National Conference		Bifilms for Beginners Beckwith Site Visit	AFI Victoria
Nov	Fri 10th	Sovereign Hill Ballarat	Annual Technologists Picnic			Gary Bunn - MA
Nov	Wed 15 th	The Village Green Hotel	Legends Night and AGM			
Dec	Wed 6 th	Errols, North Melb	Planning meeting			