



American Foundry Society - Central Ohio Chapter's

THE FOUNDRY REPORTER™

"To advance, through Research and Education, the Arts and Sciences relating to the Manufacture and Utilization of Metal Castings"

Vol.2008-12

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December 2008

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"Concentrate on finding your goal, then concentrate on reaching it!"

- Col. Michael Friedsman -

Upcoming Events:

- ✓ **January 20, 2009**
AFS-OSU Student Presentation
- ✓ **February - 14, 2009**
Dinner Dance/Winter Party
Holiday Inn, Worthington, Ohio

>> See page 11 for complete Schedule

Meeting Location (unless otherwise noted):
Holiday Inn - Worthington
7007 North High Street.
Worthington, OH 43085
(614) 436-0700

Times: Board Meeting: 5:00 - 6:00 PM
Social Hour : 6:00 - 7:00 PM

Dinner Cost: \$25 per person (Students free)

RSVP: Brad Dennis @ (614) 879-8325
Email: bdennis@fishercaststeel.com

By Friday before the meeting

The Chairman and Board of Directors of The AFS Central Ohio Chapter



Next AFS Central Ohio Training Program:

"COATINGS"

by

Lee R. Horvath
Global Marketing Manager
Metal Casting Specialties
ASHLAND CASTING SOLUTIONS

When: January 15, 2009, 12:00 noon to 4:30 pm

Where: Worthington Holiday Inn

For details check here:

<http://www.afscentralohio.org/training.html>



Top Management Night,

no doubt, always has a good turnout and this year was no different. Once a year our Chapter invites top management of local member companies to participate in our monthly meeting to experience first hand what we are all about and what we are trying to accomplish. After all, it's top management and their support that makes our activities possible while at the same time reaping the benefits our active members bring back to their workplaces. A big thanks goes out to all who took time out of their busy schedule to attend and spend an evening with us.

Never one to be outdone Bill Massey, our past chairman, again showed his people skill, when during the board meeting he introduced two new candidates interested in joining the board. The vote was unanimous and it's a pleasure to introduce to you John Spencer, Ariel Corporation and Steve Johnson, Ashland Casting Solutions as newly elected members of the Board of Directors. Both of these gentlemen bring a rich background in foundry training and education with them which will be put to good use in our ongoing programs.



John Spencer



Steve Johnson



John, Marie and John – just before dinner

Fitting for the occasion, Brad Dennis, our program chairman, again picked a good topic for the dinner program. How to save money and keep your foundry out of trouble is always of interest to top management and Marie Jones and John Scheuerman of HRH Consultants gave an excellent overview of what to do and what to avoid when it comes to insurance for a foundry.

And of course, guests feel better when they are taken care of and as you can see John Harmeyer made it a point to make them feel welcome.

Thanks John for the good etiquette.

Speaking of dinner, everyone enjoys a good meal after some drinks and networking. The social/networking hour just before dinner always brings together those interested in sharing news and finding out what goes on in our industry. Do you know what the next big thing will be for the foundry industry? Can you spell windpower? Legendary Texas oil and gas executive T. Boone Pickens, I am sure you have seen the ads he runs on TV lately, is just one pioneer in this area. There are numerous seminars, lectures, groups and companies already involved in this new frontier area of energy and large castings, huge castings, are the foundation that make windpower possible. Much of the present technology needed to harness this energy comes from European countries and now is not too soon to find out how US foundries can get ready to participate in this new frontier.



If you have completed one of our Chapter's training sessions you will probably find your name on one of these Certificates of Achievement. If you like to call one of them your own why not register for the next training session we have planned.

Want more news and comments? Go ahead study the basics. Turn the page and enjoy!

Chris Doerschlag

Chris Doerschlag
Editor



You May Not Get a Second Chance to Make a First Impression!

Well, if your foundry is being inspected by a representative of your insurance underwriter, this may well be the case! A neat and organized plant may go a long way toward controlling insurance costs. That first impression is vital. This was only part of the message delivered by Marie Jones and John Scheuerman of HRH, a local foundry insurance brokerage, at the November meeting, entitled "What Makes a "Good Risk" When Insuring a Foundry?" I hope you were able to attend.



Marie Jones



John Scheuerman

The election is finally over and hopefully the right candidate won. With the economic meltdown and rescue packages aimed at restoring consumer confidence, our new president has an uphill battle ahead. While it is unlikely the cast metals industry will receive a bailout, I'm sure some of us wish we could.

The big three go in front of Congress next week to layout their strategy for survival. I'll bet we are, or have been, doing a similar analysis of our operations in these uncertain times.

While we won't have a December chapter meeting, preparations are underway for 2009! In January the chapter is sponsoring a training session prior to the chapter meeting. Lee Horvath with Ashland will be doing a presentation on coatings. Be sure to register with Brad Dennis and share another informative time of learning.

In addition, the OSU students will make the after dinner presentation regarding the status of the OSU cast metals lab renovation. I'm sure they will impress us!

In the meantime, I hope you have a great Christmas and will look forward to seeing you all again in January.

Best regards:

Art Boehme

Art Boehme
Chairman - Central Ohio Chapter

PS: Don't hesitate, if you want to comment or contribute, let us hear from you. Your input is welcome. Send any suggestion, question or comment to me directly at AB@burnhamfoundry.com or to info@afscentralohio.org

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Nitrogen in Cast Iron

How much Nitrogen in Cast Iron?

Up to about 0.04% depending upon the composition of the iron. A very sharp drop in solubility occurs when the iron solidifies, accounting for the tendency of this element to cause blowholes or fissures. In practice, the nitrogen content of sand castings may vary between about 0.001% and 0.015% but above 0.010% castings are likely to be unsound.

Source of Nitrogen

Some nitrogen in cast iron is introduced by the charge materials but more commonly it is absorbed into the liquid iron from the blast air in the cupola. High nitrogen contents are most likely to occur in cupola melted irons using high steel charges. When recarburizing steel scrap charges in electric furnaces, high nitrogen contents can arise from the use of recarburizing materials, which contain nitrogenous compounds.

Nitrogen can also enter the iron during casting, when the molds and/or cores contain high nitrogen content resins.

Metallurgical Effects

These are seldom obvious except in very heavy sections.

A compacted form of graphite is produced in heavy sections by nitrogen contents above about 0.008%. Compacted graphite causes an increase in tensile strength but this graphite structure is undesirable in some designs of ingot molds as it lowers the thermal shock resistance.

An increase in tensile strength of 4000 to 6000 psi can result from the increase in nitrogen content arising from the use of high steel charges in the cupola. Some of the advantages claimed for the use of high steel charges for high duty cast irons arise from this effect.

Very high nitrogen contents promote pearlite formation and may lead to white iron structures. In malleable irons very high nitrogen contents stabilize carbide and pearlite and hinder annealing, but problems of this type are very uncommon.

Effect on Soundness

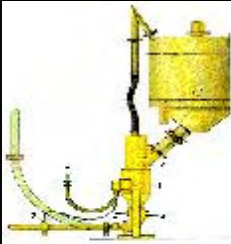
Excessive nitrogen contents appear as blowholes and fissures in the castings. It is uncommon for nitrogen blowholes to occur below about 0.013% nitrogen in light section castings and 0.008% in heavy castings. These defects most frequently arise in thick section castings made from cupola iron of low carbon equivalent prepared from high steel charges.

Nitrogen fissure defects occur adjacent to cores bonded with high nitrogen content resins. These often appear as bubbles or fissures close to a re-entrant angle in a casting. Blowholes or fissures due to nitrogen may appear to have bright surfaces or contain a continuous layer of graphite. However, if the defects have been exposed to the air, or the casting has been heat treated, they may have dull oxidized surfaces.

How to avoid the Effects of High Nitrogen Content

The effect of nitrogen can be neutralized by the addition of titanium to give a content of 0.02 – 0.03% in the iron before casting. Although additions of aluminum (to give a content in the iron of 0.02 – 0.04%) are used to neutralize nitrogen in the production of large ingot molds and heavy castings of similar application, aluminum should never be added to iron for light section and general engineering castings because it promotes hydrogen pinholes in such castings. Carburizer materials having a high nitrogen content must be avoided.

When defects are associated with molds and cores bonded with high nitrogen content resins, a lower nitrogen content resin should be substituted. Resins having below 3% nitrogen are unlikely to give trouble but sometimes it may be necessary to change to a nitrogen-free resin. □



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The Importance of Listening Well

The importance of effective listening can hardly be overstated. How many times do we have a conversation with someone and shortly thereafter we don't remember what the other person said, perhaps not even the person's name after they introduced themselves. For instance, relating this to our workplace it is obvious that a person who completely ignores what the boss is saying will soon be looking for work elsewhere. But what about the one who hears part, but only part, of what the boss is saying? Such persons, pretty likely, will also find themselves looking for a new job although it may take a little longer.

The effective listener, on the other hand, has a tremendous advantage in any kind of a job. He hears what is being said. And he acts on it. He evaluates what is being said and he profits by it. He will build a reputation of being sharper than his fellow worker – and, no doubt, he is.

Of course, all people listen to some extent. Yet few people listen well and hear everything that is being said. More often than not people try to “read between the lines” when they are listening. These people do not realize that failure to listen properly is both a deterrent to effective learning and a roadblock to personal success.

Listening, in fact, is considered to be just as important in the learning process as reading. For one thing, research has shown that we listen three times as much as we read. Listening is important and it is also interesting. Many people find it far more enjoyable than reading. Indeed there are good reasons for learning how to listen, and listen well.

8 Tips for Effective Listening

1. **Work at listening.** Be an active listener. Ask questions and seek clarification. Actively share in the speaker's efforts to tell his story whether or not you think you will agree.
2. **Focus on what the speaker is saying.** Try not to think about what you are going to say next. The conversation will follow a logical flow after the speaker makes his point.
3. **Identify what is being said.** Is it an opinion, an experience, a request, a desire, a concern or are they asking a question.
4. **Avoid bragging** or letting the speaker know how you handled a similar situation unless they specifically ask for advice, assume they just need to talk it out.
5. **Don't jump to conclusions.** It's easy to assume you know the rest of a sentence or message after hearing the beginning. Avoid prejudging a message so you can receive and evaluate all of it.
6. **Do not interrupt.** You may only be getting part of what is being said when you interrupt and it shows that you are not listening. Besides it is plain rude.
7. **Hear 'em out.** Even if the speaker is launching a complaint against you wait until they finish to defend yourself so that you'll know the whole argument before you respond, and finally..
8. **Keep in mind** that sometimes just listening is enough. Often people just want to be heard without any response. Remember it is OK to just listen from time to time.

###

...Comments and Rants



"Study the Basics!"

The Secrets to Success!

After the critical votes were counted this fateful November 4, 2008, the winning side walked away with 365 electoral votes vs. 162 for the losing side. Since it takes 270 electoral votes to decide the race there was no question that the USA had elected their next president.

Never before, in recent memory, has politics monopolized every news media, newspapers, radio, TV and of course the Internet as it did during this election period. Statistics show that alone from August through October, the prime time audience for Fox News was up 99 percent, MSNBC 125 percent and CNN 119 percent from the same period last year. The amount of money spent in this race is humongous, and no expense or effort was spared, by either side, to influence and gain the support of the voting public.

Now, since the dust has settled and we slowly can return to a normal life, where the phone no longer rings 65 times a day with a recorded message from some hopeful politician, maybe we can review this political ritual and even learn something from it.

But to do so we have to go back some time in history, in fact, way back to ancient Greece when people believed things happened because of the Gods on Mount Olympus. And so people were always trying to please the Gods and were doing all kinds of things they thought would put them on better terms with the Gods. There was one smart Greek, however, Aristotle, who was probably the greatest thinker of the ages. Aristotle came to the conclusion that everything happens for a reason, that we live in a universe that is governed by cause not by chance, and he proposed the principle of Causality.

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Today, of course, we call this the Law of Cause and Effect, which states that everything in life happens for a reason. It was a turning point in history for mankind because from then on as people began to understand it and began to realize that if everything is cause and effect

the key to success is to find what the cause/effect relationships are.

There is a direct cause and effect for everything and we can find proof of this in every field of science, all technology, all physics, all mathematics where progress is being made when a previously unknown cause/effect relationship is being discovered.

The Law of Cause and Effect is timeless, unchanging, unwavering, deliberate, and precise in it's application and delivery. It knows no prejudice and delivers in exact proportion the same to all, regardless of belief, age, gender, origin, or religion.

What Aristotle discovered was the realization and understanding that the all encompassing cause and effect phenomenon is a universal law that affects everyone and everything we do, experience and have to live with including our behavior and all human relations. And just like in our society today, where ignorance of the law is no excuse – if caught going 45 MPH in a 25 MPH zone, you still get a ticket regardless of whether you saw the 25 MPH speed limit sign or not - you will be successful in your planned outcome if you know, understand and follow the universal law of cause and effect.

So what are the secrets to success?

1. Know and understand the universal law that applies to your situation, and
2. Implement by taking the appropriate action.

That's all.

Very simple and straightforward.

No excuses possible, unless ignorance becomes the excuse.

So what can we learn from the recent election? The winner, without doubt, followed a brilliant marketing campaign directing lots of effort to the modern age. Without going into details of one side or the other the cause and effect can be summed up in two words – social marketing.

The winner – or his campaign management and chief strategist – knew and understood the unrest of certain groups of voters and generated huge amounts of support from a variety of online resources. The winner campaigned to the social marketing crowd perfectly as shown by the following statistics:

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- Since the conventions, blog postings mentioning the winner outnumbered those referencing the loser by more than three to one.
- The winner's number of "MySpace friends" grew steadily and by election day the number was four times the number of friends the loser had.
- While the MySpace numbers are remarkable, another source, the Twitter, showed that the winner had nearly twenty-four times the amount of followers that the loser had.

Such results are unbelievable and show a shrewd understanding of the cause/effect phenomenon.

The winner's tactic was a masterpiece – targeting the younger, more technically literate crowd (many who had never voted before or even bothered to register) and hit them right where they live – in the social networking environment of the Internet.

The subsequent result was a massive following that grew larger and larger by the day. And those same people made a huge impact at the polls.

So what does this all mean?

The winner had a plan. A carefully conceived, painstakingly constructed plan. And it worked to perfection. And this is what we can take away from this election.

No matter what it is in our job, relationships or personal life, we need to follow a solid, proven-to-work plan for getting from point A to point B. Without it you are basically flying by the seat of your pants. And although there have been a few rare instances where this was successful, because intuition intervened and the right decisions were made, 99.9% of the time you end up crashing and burning. **FR**

PS:

Did you say "What is that solid, proven-to-work plan?" Stay tuned and watch for "The Light at the End of the Tunnel" in another issue of "The Foundry Reporter".

What, do you think, would their comments be to all this?



Abraham Lincoln
1861 – 1865



George Washington
1789 – 1797



John Adams
1797 - 1801

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Green Sand Corner

by Kevin C. Pickre II

The Maintenance Department is the Backbone of Green Sand Systems



To have a well run green sand system, there must be a well run maintenance department behind it. While all areas of the sand system are important, several areas are critical. This is a partial list of the most critical equipment areas in a green sand system:

- 1.- Automatic Compactability Testers** – Air line leaks, misalignment of tube during fill, squeeze, or green strength test, delivery arm failure resulting in inadequate tube fill. Bottom line: Are these units providing accurate measurement of the green strength and compactability?
- 2. -Aerators** – Wear of tines/blades, adjustment of distance from tines/blades to belt. Bottom Line: Is this unit breaking up all the lumps (not just on top of the sand) before the sand enters the molding machine?
- 3. Water Addition Units** – Leaks, plugging of nozzles, calibration – is the amount of water delivered being measured based on gallons delivered at 10 degree intervals or is someone just looking at it and saying, “yes I see water flowing”? Bottom Line: Is this unit reducing the variation in moisture levels and temperature at the muller?
- 4. - Muller** – Wheel wear - are they flat?, wheel/floor spacing – is it according to specification?, plows – is the spacing from the sides and the bottom within specification, air flow - excessive draw removes bond and critical 140 screen/insufficient draw holds steam within the muller, timing of additions for batch mullers - is it according to manufacturers specifications?, water addition valves, liner condition. Bottom Line: Is this unit providing green sand at the target compactability and green strength without excessive moisture and MB clay levels – how’s the muller efficiency?
- 5. - Rotary Screens** – Tears allowing large core butts and contaminants to flow into the system, plugging due to metal vent wires or trash. Bottom Line: Are these units removing all debris from the sand system larger than the screen opening which is typically ½ inch.
- 6. - Magnetic Separators** – for fixed magnets, are they overflowing with metal due to insufficient metal removal schedule?, for belt separators, are they moving and is the metal flowing off the belt after it has been picked up, are the units close enough to the belt to remove all metal debris? Is the sand level on the belt low enough for the unit to be able to draw the metal from the sand? Bottom Line: Are these units effectively removing metal bits larger than the size of a pea from the return sand belt?
- 7. - Return Sand Silo** – Ratholing (build up of sand on the inside of the silo walls due to condensation of sand moisture against a cold silo wall) - check residence time with ping pong balls, segregation – is there an anti-segregation device in place like a Chinese hat?, plugging – lumps of metal or trash caught in the bottom, but not seen unless the silo is emptied. Bottom Line: Is the unit providing even sufficient flow of return sand to the exit port?

Every well run green sand system is backed up by an effective maintenance program. Unfortunately, with the severe economic downturn that we are encountering, foundry management usually makes cuts at the maintenance level first and the sand system is usually the victim. Scrap rates increase and productivity is lost due to these sand equipment problems. Good maintenance people are often lured by higher paying jobs in other industries. Hopefully our continuing quest for American quality will give us an appreciation for the guys behind the scenes making it happen. □ **KP**

Next issue: Gas Surcharges – What Happened and When Can We Expect the Raw Material Cost to Fall?

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John Kuhn

Foundry Automation Specialist

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ISO 9001 CERTIFIED

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Industry Events

November 2008:

20 - 21: FEF College Industry Conference;
Drake Hotel, Chicago, IL;

December 2008:

3 - 4: AFS Improving Operations and Profitability in
the Small Foundry;
AFS Headquarters, Schaumburg, IL;

January 2009:

21 - 23: AFS International Iron Melting Conference;
Orlando, FL;

February 2009:

11 - 13: AFS Wisconsin Regional Conference;
The Pfister Hotel, Milwaukee, WI;

15 - 19: Annual TMS meeting;
San Francisco, CA

18 - 20: AFS Southeastern Regional Conference;
The Winfrey Hotel, Birmingham, AL;

March 2009:

19 - 21: AFS Northwest Regional Conference;
Red Lion Hotel, Seattle, WA;

April 2009:

7 - 10: 113th Metalcasting Congress;
Paris Las Vegas, Las Vegas, NV;
23 - 25: AFS Texas Regional Conference;
Fort Worth, TX;

May 2009:

4 - 5: AFS Government Affairs Conference;
Capitol Hilton, Washington, DC;

2008/2009

Chapter Events Schedule

September 18, 2008

"Nobake Sand Mixing Developments",
Wil Tinker, TINKER OMEGA

October 16, 2008

"Value and Cost Saving of Refractories",
Peter Satre, ALLIED MINERAL PRODUCTS

November 20, 2008

TOP MANAGEMENT NIGHT

"What makes a good Risk when insuring a Foundry",
Marie Jones and John Scheuerman, HRH

December 2008 - No meeting

January 15, 2009

AFS-OSU Student Presentation.
Evan Standish, et. al., - AFS-OSU Student Chapter

February 14, 2009

Dinner Dance/Winter Party
Holiday Inn, Worthington, Ohio

March 19, 2009

"Modeling for Manufacturing",
Ken Feikner/Larry Buergel/Joe Patterson
FEINER PATTERN/FISHER CAST STEEL
COLUMBUS STEEL CASTINGS CO.

April 16, 2009

"PAST CHAIRMENS NIGHT"

"Metal Filtration",
Andy Adams, FOSECO

May 21, 2009

Plant Tour

Fisher Cast Steel Products, Inc.
followed by regular meeting

June 13, 2009

Annual Golf Outing

Oakhaven Golf Club - Delaware, Ohio

June 19, 2009

Change-over Meeting
Eaglesticks Golf Course - Zanesville, Ohio



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