Chapter members visited Latrobe Specialty Steel on May 5, 2011 to tour their newest Vacuum Induction Melting (VIM) and Vacuum Arc Remelting (VAR) facilities in Latrobe, PA. The day turned into one of the first warm and sunny evenings in an otherwise long and wet Western Pennsylvania spring; thus there was some concern that the visit might be a casualty of other competing outside pastimes. As such, it was a relief when all but one of the planned 25 attendees turned up!

The tour was preceded by refreshments and a slide show narrated by Leon (Bud) Nusselt, Manager, Process & Product Metallurgy, that documented the timeline of events. The early equipment ordering and necessary environmental and building permits were generated in early 2007 with site preparation and excavation occurring late that year. Buildings were erected throughout 2008, equipment installed, and in September, 2008, the first functional VIM melt was produced. The VIM furnace was officially dedicated in June, 2009.

The tour was efficiently organized with attendees split into approximately five equal-sized groups. After transport to the VIM/VAR facility, each group took a different tour path which avoided any congestion and allowed for the opportunity to ask questions.

The 30 ton VIM furnace, one of the largest operational furnaces in the Western World, is a monstrous unit surrounded by multi-storey decking. Our guide explained how metal electrodes were loaded in the crucible in the furnace and then pumped down via a massive steam ejector vacuum system. Once vacuum is achieved, the

**Letter from the Chair**

Welcome to the first newsletter of the 2011-2012 chapter year. The Chapter Executive Committee is almost complete; please refer to the list of the various chairpersons on page 4. We do desperately still need a Publicity Chair, and I appeal to anyone interested to contact me or any other Executive Committee member.

Your Committee has already been very active. A new website has been launched, largely thanks to the efforts of our webmaster, Mary Pam Kilgore. It is hosted by ASM International and will ultimately replace the Yahoo site previously used. It’s a work in progress with more to come, but please check it out at [www.asminternational.org/portal/site/pittsburgh](http://www.asminternational.org/portal/site/pittsburgh).

The regular meetings committee headed by Phil Smith has also been hard at work and has a large part of

Continued on page 3
At the September 15, 2011 chapter meeting, Gretchen Anderson of the Carnegie Museum gave an entertaining talk regarding the conservation and preservation of museum collections. One of the main points was the difference between conservation and restoration. Conservation is a proactive, preventive approach whereas restoration is a reactive approach to damage already done.

Much like preventive maintenance or proper upfront engineering, the cost of a conservation program in the long run is lower than that of a reactive approach. The conservation field is a relatively recent development and was really started after Florence flooded 50 years ago, causing the need for teamwork among restorers and conservators.

Gretchen illustrated some of the projects she has worked on over the years including a stuffed bird that was destroyed by mice in one evening, a beaver that became albino after exposure to light, a bone comb that was initially glued and coated, a cuneiform table that had salt damage, and a silver bowl that had corrosion damage due to a rubber band.

The basis for conservation is the identification of the root cause of damages. Gretchen explained the specific causes included damage from light, temperature, humidity, pests, fire, flood, physical damage, and touch. By addressing these root causes, it enables a conservator to address the entire collection because even a small museum might have 1.5 million items and a museum like Carnegie Natural History has more than 22 million items.

To achieve these goals, Gretchen has used self-darkening glass, shades, microclimates to control humidity and stop mold, and fixtures that elevated items from the ground, and extreme temperatures to control pests.

She left us with several other interesting points.

- Anything done on paper is the hardest to conserve, especially when it has been previously restored (such as a painting).
- Archeological metals are mostly affected by humidity, and can typically be stabilized by keeping the humidity below 30%.
- Light damage is the worst for most artifacts as it is irreversible and most artifacts, especially animals, do not look good once painted!

Gretchen’s most interesting project may have been the restoration of a gorilla. The gorilla had to be frozen, then kept from moisture. In order to keep moisture away, the entire gorilla was covered in adult diapers, then wrapped in heat blankets, and finally duct taped! The package was then taken to a Cessna and flown cross country to California for taxidermy. This was the only time she has ever used duct tape—a concept foreign to many of us!

Join us for an upcoming chapter event:

October 20, 2011

**Topic:** Fukushima Daiichi — Is It Safe Yet?

**Guest Speaker:** Dr. Ted S. Andersen, ChemTech Consultants, Inc.

Wyndham University Place (Oakland) 3454 Forbes Avenue

For more information, see page 3. For online registration, visit the new chapter website at asminternational.org/portal/site/Pittsburgh.

Contact: Mary Pam Kilgore
Phone: 412-854-4827
E-mail: mpkilgore@comcast.net

November 19, 2011

Joint Meeting with AIChE — Spaghetti Warehouse, 26th and Smallman Streets

**Topic:** Nanostructuring Oxygen Carriers for Chemical Looping Combustion

**Speaker:** Götz Veser, Chemical Engineering Department, Swanson School of Engineering, University of Pittsburgh

See page 6 for more details. To register, please visit the new chapter website at asminternational.org/portal/site/Pittsburgh.

See complete abstract and bio on the website.
October Chapter Meeting: Fukushima Daiichi—Is It Safe Yet?

The situation at TEPCO’s Fukushima Daiichi nuclear power station is still evolving and dynamic. There are many lessons available now and more to emerge as recovery and clean-up efforts progress. Dr. Andersen will give an overview of Boiling Water Reactor design features, the sequence of the initiating events and progressive failures, and some unique aspects of risks associated with nuclear power reactors. The presentation will also include the global impacts of the March 11, 2011 earthquake and tsunami, progress in recovery, and the risks that remain to be mitigated.

To read the full abstract and bio and to register, visit the chapter website at asminternational.org/portal/site/Pittsburgh.

ASM Pittsburgh Chapter Plant Tour — Latrobe Specialty Steel

Continued from page 1

metal is melted via induction coils surrounding the crucible powered by a 5MW electrical supply and subsequently refined.

Chemistry samples and both corrective and reactive additions can then be made via isolatable vacuum chambers. Once the desired chemistry is achieved, the metal is poured through ceramic lined tundishes into cast iron molds of various diameters.

After cooling, these cast electrodes may be annealed and conditioned prior to Vacuum Arc remelting in the adjacent building. During VAR melting, an electric arc is struck between the electrode and the copper crucible causing the molten metal to drip from the electrode similar to wax dripping from an inverted candle. This continues until the electrode is almost entirely consumed resulting in an ingot ranging between 13 to 20” diameter and up to 20,000 pounds in weight—ingot size being influenced by the demand, and the metallurgical and segregation tendencies of the alloy involved.

The state-of-the-art facilities were impressive and our tour guides very knowledgeable and willing to address many questions. Our appreciation goes out to Bud and all his colleagues at Latrobe Specialty Steel for their time and hospitality during the excellently organized visit.
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The ASM Pittsburgh Golden Triangle Chapter Has a New Website

We are excited to unveil the new Pittsburgh Chapter website: http://www.asminternational.org/portal/site/pittsburgh

That’s right: The ASM International Pittsburgh Chapter is now benefiting from ASM’s Global Community information technology infrastructure to deliver a superior online experience. This site is free of charge to our Chapter and contains great new features.

Local Ownership: Our site offers the capabilities of the ASM Global Community Site with local Chapter ownership and focus. Our officers have decision-making power over our sites, reflecting the unique culture of the Pittsburgh Chapter. We can highlight and feature the information that is most important and relevant to us!

The Local Information You Need: Chapter information and content is gathered, uploaded and maintained by the volunteer webmaster or web team. The local content is always kept in the prime online locations, and ASM content is secondary. You will now have the ability to register for Chapter meetings and events on our site.

Chapter Identity: Our site has a unique design that was selected by our Chapter officers, while still maintaining the brand identity of the ASM Global Community allowing users to feel and be more tightly linked to our Chapters and all of ASM.

Timely Updates: Because content from the ASM Global Community Site is linked to our Chapter site, updates take place automatically. Whenever new content is added to the ASM site, it updates on the local Chapter site, giving local users the latest information.

Current Member Information: When you log into our chapter site, you can obtain the same individual profile, account, membership information that you would find on the ASM site. This keeps all data as current as possible with the master membership database at ASM.

The www.asmpittsburgh.org is still active and redirects you to the new website while Chapter members bookmark the new site.

Golden Triangle Committee Chairs 2011-12 Chapter Year

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<td>Yearbook</td>
<td>Steve Fyfitch &amp; John Eckenrod</td>
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<tr>
<td>Young Members</td>
<td>Paul Ohodnicki</td>
</tr>
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</table>
Join us at the Spaghetti Warehouse on Thursday, November 17, for a joint meeting with the AIChE-Pittsburgh.

Topic: Nanostructuring Oxygen Carriers for Chemical Looping Combustion

Chemical looping combustion (CLC) is an emerging technology for clean energy production from fossil and renewable fuels. Join us and learn more about this new technology.

Among the main issues in industrial realization of CLC is the insufficient stability of existing oxygen carriers, and their relatively slow metal re-oxidation kinetics.

Speaker: Götz Veser, Chemical Engineering Department, Swanson School of Engineering, University of Pittsburgh and U.S. Department of Energy, National Energy Technology Laboratory

The full abstract and bio will be posted on the chapter website.

To register, visit the new chapter website at asminternational.org/portal/site/Pittsburgh.
Letter from the Chair
Continued from page 1

our 2011-2012 meeting schedule already planned. See the table of upcoming events as it currently stands on page 7.

During the summer break, the Chapter received a generous donation of $5,000 from the Rich Foundation. This money will be invested along with the current balance of the Katz Scholarship monies to continue to fund our annual high school graduate award. The generosity of both these families is greatly appreciated by the Chapter.

The challenge for this year continues to be to preserve our membership and assets in a difficult financial environment. The cost of the meetings, particularly the venue and catering, continues to be our biggest cash drain.

We intend to take advantage of venues like RMU; the University Club for Young Member’s Night; and also try out some lower cost commercial venues.

I hope you will all support the efforts of your hard working committee and maximize your attendance at our 2011-2012 events.

Lastly, continuing thanks to Sandy Smith whose professional work product you are currently reading!

Paul Allen
Chapter Chair
# ASM Pittsburgh Golden Triangle Chapter
## Monthly Meeting Schedule 2011 - 2012

<table>
<thead>
<tr>
<th>Date</th>
<th>Theme</th>
<th>Topic</th>
<th>Speaker</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>9/15</td>
<td>Spouses Night</td>
<td>Conservation of Natural History Collections: The Preventive Approach</td>
<td>Gretchen Anderson, Carnegie Museum of Natural History</td>
<td>Wyndham Grand Pittsburgh 600 Commonwealth Place Pittsburgh, PA</td>
</tr>
<tr>
<td>10/20</td>
<td>Regular Meeting</td>
<td>Fukushima - Is it Safe Yet?</td>
<td>Ted Andersen of AIChE</td>
<td>Wyndham Pittsburgh University Place (Oakland) 3454 Forbes Ave Pittsburgh, PA</td>
</tr>
<tr>
<td>11/17</td>
<td>Joint Meeting with AIChE</td>
<td>Nanostructuring Oxygen Carriers for Chemical Looping Combustion</td>
<td>Götz Veser, Chemical Engineering Department, Swanson School of Engineering, University of Pittsburgh and U.S. Department of Energy, National Energy Technology Laboratory</td>
<td>Spaghetti Warehouse 26th &amp; Smallman Streets Strip District, Pittsburgh PA</td>
</tr>
<tr>
<td>1/19</td>
<td>Pittsburgh Night Lecture</td>
<td>Intellectual Property</td>
<td>Tom Joseph</td>
<td>Robert Morris University</td>
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<tr>
<td>2/16</td>
<td>Young Members Night</td>
<td>TBD by YMN Committee</td>
<td>Dr. Frank Ernst, Case Western University</td>
<td>University Club Oakland -- Possible, Yet TBD</td>
</tr>
<tr>
<td>4/19</td>
<td>Andrew Carnegie Lecture--Bain Award and Past Presidents Night</td>
<td>100 Years of Innovation in Aluminum Products</td>
<td>Robert Sanders — Alcoa</td>
<td>Hilton Garden Inn -- Oakland</td>
</tr>
<tr>
<td>5/17</td>
<td>Regular Meeting</td>
<td>Refractory Materials—Use in Molten Metal Containment</td>
<td>Duane Debastiani, Vesuvius USA</td>
<td>TBD</td>
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</table>
The renovations, begun in 2010, to the ASM Headquarters were completed on schedule with the staff moving back in and resuming full operation in July 2011. The headquarters building is located on the 45-acre campus known as Materials Park located 20 miles east of Cleveland, OH. On August 6, 2011, ASM headquarters celebrated its grand re-opening and its being added to the National Register of Historic Places—one of the few buildings under 100 years of age to be included.

With the landmark designation, the building had to be returned as closely as possible to its original design. Many original elements from the 1959 design were restored, reupholstered, or refinished. The Chesler Group, who specializes in the restoration and renovation of historic buildings, served as developer and general contractor for the project.

They replaced the building’s mechanical systems, cleaned and refurbished the sun screens, installed new gaskets and seals for the plate-glass windows, added better insulation and repaired corrosion. The garden level of the building, which is below grade, has a “green” roof with soil and grass over the reinforced and newly water-proofed concrete.

During the renovation, ASM rediscovered seven panels of brushed aluminum murals by metals artist Bel-Jon. The “History of Iron” series of panels was commissioned in 1953 and has been rehung throughout the building.

The geodesic dome, made of 7075 tubular aluminum, is in perfect shape and needed no renovation. It too received the historic landmark designation and is the largest open-work geodesic dome in the world. The dome’s purpose is not only aesthetic but also symbolizes the world of engineered materials from the raw elements in the earth to humanity’s achievements in using these elements for progress.

The ASM World Headquarters conveys the imaginative force that marks our organization. The renovation of the ASM headquarters—also designated an ASM Historical Landmark, has ensured the promise of a bright future for the organization allowing ASM to remain at the forefront of industry technology while carefully preserving and protecting our past, present, and future.
The Chapter Quality Performance Program of ASM International is meant to encourage and recognize levels of chapter operational achievement. The objective is to encourage well-rounded, effective operations by providing a self-evaluation program. International also hosts annual leadership training events to help executive committee members enhance their chapter programs and overall effectiveness.

There are three levels indicating increasing levels of achievement: 3-Star, 4-Star, and 5-Star. Quality is measured by meeting a minimum level of satisfaction in three areas: educational outreach, membership services, and core activities. A 5-Star award is reserved for those chapters that have maintained the highest level of quality activities. These are the chapters that have excelled beyond the difficulties of core activities, and have provided their members with educational and associational benefits.

While attending ASM’s Leadership Days in Cleveland in early August, 2011, Philip Smith, current Vice Chair, accepted the ASM International’s 5-Star Award on behalf of the Pittsburgh Golden Triangle Chapter from International President, Mark Smith. This award marks a long record of receiving ASM International’s highest level of achievement award largely through the dedicated efforts of the volunteers serving on your executive committee.

At the September chapter meeting on September 19th, Phil Smith presented the 2011 5-Star Award to Steve Fyfitch, the 2010-2011 Chapter Chairman. Thank you ladies and gentlemen for all your efforts on behalf of the Golden Triangle Chapter.
As the 2010-2011 Chair, I am pleased to announce that this year’s annual Chair Award goes to Philip and Sandra Smith. Both these individuals have given exceptional service over and above the normal expected participation and assistance to the chapter this past year. Phil has been a great resource supporting me throughout the chapter year, and he has provided numerous suggestions and thoughts for many of the aspects needed to smoothly run the chapter this year. In addition, his wife, Sandra, volunteered, in our time of need, to work with the chapter in leading, preparing, and publishing the chapter newsletter when it became clear that we would be unable to identify a member to chair the work this year. She has done a wonderful job helping and supporting the newsletter publications, which in my opinion, resulted in an improved design and content.

And, I am pleased to announce that Sandra has agreed to help out in this capacity in the coming year as well. Both Phil and Sandra were very friendly and easy to work with. Thank you, Phil and Sandra, for your many contributions to the Pittsburgh Golden Triangle Chapter.

Steve Fyfitch, Chair, 2010-11

Philip and Sandra Smith receive the Chairman’s Award from 2010-11 Chapter Chair, Steve Fyfitch.

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New Thermo Scientific ARL PERFORM'X WDXRF Spectrometer
May Meeting Summary: Realizing the Power of a Dream!

What can one do with a first class degree in metallurgy from the University of Pittsburgh (1967), one dedicated employee (wife Diane), a piece of grassy farm land in the middle of nowhere (Derry, in rural PA), and a second mortgage on the family home. Bringing all these disparate pieces together was the strength of a powerful dream of one man, Edward (Ed) Sobota who founded TSI Titanium industry in a barn in 1976. He dreamed the loftiest of the dreams, and today his dream has been realized as a multi-million dollar, 60-employee global organization that has made a name for itself in international markets for its processing capability of titanium (Ti) forgings, bars, and other products.

Unfortunately, Ed Sobota has passed on and his brother, Mark Sobota, who also works for TSI titanium, spoke in the honor of Ed who was recognized by ASM Pittsburgh Golden Triangle Chapter as the Andrew Carnegie Lecturer for the year 2011 at the May 19 chapter meeting. From that humble beginning, TSI Titanium experienced a phase of solid growth in the 1980s because of the aerospace industry and the defense applications for the B1 bomber plane in collaboration with Rockwell Corporation.

Subsequently in the 1990s, the biomedical industry opened doors for TSI Titanium where they started to make medical implants. TSI today has facilities for secondary operations such as the bar peeling, grinding, polishing, and heat treatment of Ti products along with the primary operations including drawing, rolling and forging.

About forty attendees at the Sustaining Members’ Night listened to this great story of the power of an American dream that was realized with the sustained effort of a small but dedicated team.

It was emotional for Mark at times and there probably wasn’t a dry eye in the audience at the end of Mark’s speech either.

Owen Katz Scholarship and Edward C. Bain Award Recipients Announced

The May chapter meeting was the venue used to announce the 2011 recipients of the Owen Katz scholarship for $1,500. Rose Doerfler, a very bright high school graduate who is pursuing an engineering education, was selected from among a long list of deserving students.

The Edward C. Bain award, which recognizes an outstanding member of the chapter for valuable contributions to metallurgical and materials profession, was presented to Dr. Warren Hunt, President, Aluminum Consultants Group; Executive Director of TMS; ASM Fellow and past Pittsburgh Chapter Chair. Dr. Hunt worked at Alcoa and holds several patents for aircraft alloys that are still in use, including alloy 7055 T77.

Rose Doerfler receives the Owen Katz Scholarship from the Student Awareness Committee Chair, Leon (Bud) Nusselt.

Dr. Warren Hunt receives the Edgar C. Bain Award from Steve Fyfitch, Chairman of the ASM Pittsburgh Chapter.
Thank you to all our Sustaining Member Companies

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<th>Company Name</th>
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<td>Alcoa</td>
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<td>Allegheny Technologies</td>
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