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## TTT Brazil 2012

The 6th in the series of two-yearly (Portuguese language) Brazilian Conferences on Heat Treatment - **VI TTT 2012** was held 17-20 June, in Atibaia SP, 59 km from São Paulo, with extensive industrial support and input, and with the backing of IFHTSE Brazil member ABM.

The series aims to be an essential forum for discussing the current state of development in Brazil in the context of the global market. It is also an opportunity for presentation of new products, improved processes, and new technologies for heat treatment. It is designed to promote contact among all professionals involved in heat treatment, quality control, production engineering and sales and services. Thus the programme is of interest to manufacturers and suppliers of plant and equipment, to research and development establishments, and to academic institutions. Increasing emphasis is placed upon greater involvement of users of heat treatment products and services, especially in the automotive, general engineering, metallurgical, electronics, domestic appliances, and petrochemicals areas.

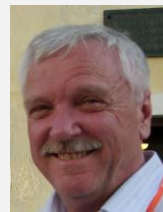
The permitted subject scope is therefore very wide:

- Heat treatment and thermochemical treatment of steels
- Heat treatment of non-ferrous metals
- PVD and CVD
- Physical metallurgy and phase transformations
- Microstructural characterization techniques
- Effect of alloying elements on microstructure and properties
- Analysis of defects and failure

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### IFHTSE Fellows

As announced in Bulletin 2012/1, IFHTSE this year appointed three individuals as Fellows.



**Dr Vojteh Leskovšek**

Institute of Metals and Technology, Ljubljana, Slovenia  
In recognition of long-term contributions to the study of heat treatment and surface engineering with important emphasis on: fracture toughness; vacuum treatment of tool and high-speed steels; the use and effects of sub-zero treatments



**Prof Božo Smoljan**

University of Rijeka, Croatia  
In recognition of frequent and significant contributions on thermal process modelling of materials notably steels; also on hardenability, heat treatment and quenching in general



**Dr George Vander Voort**

Vander Voort Consulting, Wadsworth IL, USA  
In recognition of his valuable contributions over many years to the study of effective use of metallography; not only do his publications in this field set a standard of authority, he is widely appreciated and acknowledged as a leader in the development and delivery of educational short courses on metallographic characterization for a wide range of engineering materials



*IFHTSE Fellowship plaques are sponsored by Houghton*

- Salt baths, atmospheres, quenching
- Equipment for process control and quality control
- Induction heating
- Furnaces, peripherals and supplies
- Cleaning, preparation and finishing
- Maintenance
- Automation and instrumentation
- Simulation
- Quality and productivity
- Trends, developments and new technologies
- Safety and environment
- Management

TTT 2012 attracted 230 participants. These came largely from São Paulo state but included representation from eleven other states and from Colombia, Germany and USA. Around 100 papers were presented; outstanding among them were the following which received awards in various categories:

- Laser surface treatment of 4340 and 300M steels (Abdalla et al.)
- Application of decarburizing in process optimization in knife manufacture (Galutti et al.)
- Effect of heat treatment on the mechanical properties and microstructure of Ti-5% Pni alloy as a biomaterial (Cascadan et al.)
- Influence of ageing temperature on AA2024 alloy impact toughness (de Lourdes)
- Colour metallography characterization of modified SAE 4118H isothermally treated (Vurobi)
- Distortion control of carburized axles and gears using monitoring tools and furnace system diagnostics (Parizani)

The Series 'Temas em Tratamentos Térmicos' is organised by Metallum Eventos Técnicos e Científicos  
[www.metallum.com.br/ttt2012](http://www.metallum.com.br/ttt2012)

## LIQUID QUENCHANTS DATABASE PROJECT

The Liquid Quenchants Database Project, a global collaboration involving more than 30 partners from 14 countries, has been set up under the auspices of the International Federation for Heat Treatment and Surface Engineering. The Project plan is to carry out a comparative study of quenchants under strictly specified conditions, and collate the resulting data for use worldwide. It is fully recognised that an exhaustive study of all quenchant types and all conditions is not practical. Therefore, a tightly specified procedure has been agreed for a two-phase Project.

### Project basis

- Over the last three decades, simulation of the quenching process has become a widely accessible engineering tool
  - Computer models need heat transfer data
- But:
- There is no generally recognized method and technique for measurement, recording and comparison of relative cooling intensities of different quenchants

**Project Phase 1:** Collect and collate experimental results from a group of investigators to build a database

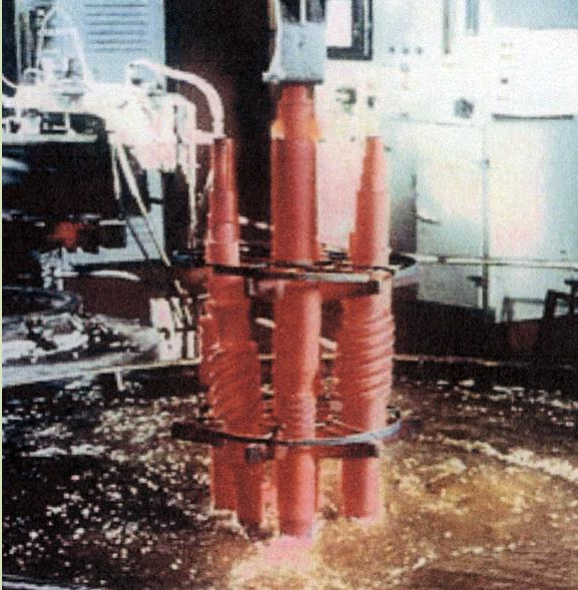
**Project Phase 2:** Using the information from Phase 1: Improve numerical models and develop software,

### Progress to date

Phase 1 began at the turn of the year 2011-12. Three oil types have been supplied by each of four quenchant suppliers. Members of the investigator group are using a specially designed reporting sheet to record data in the form of 'cooling curve acquisitions' (CCA). The test procedure, in summary, is:

- 3 types of oil investigated by using the ISO 9950 method
- Each oil sample measured at 3 quenchant temperatures
- Each measurement is then repeated
- The resulting number of cooling curves is then  $3 \times 3 \times 2 = 18$

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For a description of the Project, see the journal *International Heat Treatment and Surface Engineering* 2011 volume 5, no. 2, pages 48-49 (and the Editorial for that issue). It is planned to present a substantial report on progress to the 6th International Conference on Quenching and Control of Distortion / 4th International Conference on Distortion Engineering' in Chicago IL USA, 9-13 September 2012.

Project Leader: Imre Felde, University of Óbuda in Budapest, Hungary [imre.felde@gmail.com](mailto:imre.felde@gmail.com)  
*International Heat Treatment and Surface Engineering*  
<http://maney.co.uk/index.php/journals/ihf/>  
Chicago conference [www.asminternational.org/qcd](http://www.asminternational.org/qcd)

**6th International Conference on Quenching and Control of Distortion /  
4th International Conference on Distortion Engineering**

Radisson Blu Hotel, Chicago IL, USA  
9-13 September 2012  
[www.asminternational.org/qcd](http://www.asminternational.org/qcd)

## TOOLS / TOOLING GROUP

1. The responses to the note referred to in Bulletin 2012/5 1 May 2012 indicate interest in the formation of a Working Group on tools and tooling
2. Therefore the objective now is to form a focused forum with regular (at least annual) meetings to discuss specific questions of interest.
3. The main interest revealed by the responses is to:

- Develop 'best practice' for selected tooling material

With possible interest also in:

- Developing standards for heat treatment and surface engineering of tool steels
- Writing a proposal for funded programme work

4. Specific themes proposed are:

Properties; metallographic examination; damage mechanisms; tribology; surface engineering; surface characterisation

5. An appropriate occasion for the exploratory first meeting is the **9th Tooling Conference / 4th International Conference on Heat Treatment of Tools and Dies**, Leoben, Austria, 11-14 September 2012. Facilities are being arranged

Specific suggestions have been received relating to participation in the Group by representatives of organisations in Austria, Brazil, Canada, Hong Kong, Italy, Malta, Mexico, Poland, Singapore, Slovenia, Sweden, and USA. We are therefore building a contact list of people to invite to the first open meeting as suggested in point 5 above.


Please let the undersigned know by end August:


- If you would like your organisation to be included in mailings about this
- Email address and names of specific contacts for this purpose

**Reinhold Schneider; Robert Wood**  
[Reinhold.Schneider@fh-wels.at](mailto:Reinhold.Schneider@fh-wels.at),  
[ifhtwood@aol.com](mailto:ifhtwood@aol.com)

## CONFERENCE DIARY

2012

 6th International Conf. Quenching and Control of Distortion / 4th International Conf. on Distortion Engineering  
9-13 September 2012 – Chicago II, USA  
([www.asminternational.org/qcd](http://www.asminternational.org/qcd))

 9th Tooling Conference / 4th International Conference on Heat Treatment of Tools and Dies  
11-14 September 2012 – Leoben, Austria  
([www.tool2012.at](http://www.tool2012.at))

HK 2012

10-12 October 2012 Wiesbaden, Germany  
([www.awt-online.org](http://www.awt-online.org))

BALTMATRIB - 21st International Baltic Conference: Engineering materials and tribology  
18-19 October 2012- Tallinn, Estonia  
([www.ttu.ee/baltmatrib2012](http://www.ttu.ee/baltmatrib2012))

 20th Congress IFHTSE  
23-25 October 2012 - Beijing, China  
([www.20ifhtse.org](http://www.20ifhtse.org))

24th National Conference on Heat Treatment with International Participation  
27-29 November 2012 – Jihlava, Czech Republic  
([www.asociace.cz](http://www.asociace.cz))


2013

 European Conference on Heat Treatment and Surface Engineering  
25-26 April 2013 - Luzern, Switzerland (b.kuntzmann@listemann.com)  
(b.kuntzmann@listemann.com)

 2nd Mediterranean Conference on Heat Treatment and Surface Engineering  
11-14 June 2013, Dubrovnik-Cavtat, Croatia (smoljan@riteh.hr)  
(smoljan@riteh.hr)

ASM Heat Treating Society 27th Conference and Exposition  
16-18 September 2013 Indianapolis, Indiana, USA  
([www.asminternational.org/](http://www.asminternational.org/))

2014

 21st Congress IFHTSE / incorporating European Conference on Heat Treatment and Surface Engineering  
12-15 May 2014 Munich, Germany (awt.ev@t-online.de)

**20th Congress:** The Organising Committee is now drafting the main programme on the basis of about 200 submitted abstracts from over 20 countries. *The organisers are still able to receive more abstracts of papers for consideration by the Technical Committee for oral or poster presentation at the Congress.* See the website for more details and deadlines, or contact the Secretariat:

[www.20ifhtse.org](http://www.20ifhtse.org)  
[20ifhtse@chts.org.cn](mailto:20ifhtse@chts.org.cn); [20ifhtse@gmail.com](mailto:20ifhtse@gmail.com);  
[chts@chts.org.cn](mailto:chts@chts.org.cn);

### Obituary notice:

**Ray William Reynoldson 18 July 1939 - 4 July 2012**

Ray Reynoldson died suddenly on 4 July.

*Peter Hodgson writes:* Earlier this month we saw the sudden passing of one of the major figures in heat treatment in Australia, Ray Reynoldson. Ray was an internationally regarded expert in the field of diffusion coatings and fluid bed technology. He worked in the fields of metallurgy and surface treatments for over 50 years, publishing 32 journal papers, 14 conference papers, winning a number of awards and writing the definitive textbook on heat treatment using fluidized bed furnaces, 'Heat treatment in fluidized bed furnaces'.

Ray was passionate about technology and innovation that would improve the heat treatment industry. After graduating from the Royal Melbourne Institute of Technology in 1960, he spent most of the next 23 years managing and owning heat treatment technology and equipment companies in the UK and Europe. Throughout his career he focussed on developing new technologies and solutions for the heat treatment industry. Upon his return to Melbourne in the 1980s Ray became a shareholder and managing director of Quality Heat Technologies Pty Ltd and Quality Heat Treatments Pty Ltd, two companies that he took pride in as technological leaders in the field of fluidised beds. His expertise spanned the equipment, processes and products related to diffusion treatments of surfaces. In recent years, he collaborated with Deakin University and VCAMM with the start-up company HARD Technologies to develop new duplex surface treatments. He was working on developing these treatments right up to the time of his sudden severe stroke.

Ray Reynoldson was generous with his time and knowledge, whether he was developing an improved furnace design, solving a heat treatment problem or working with a PhD student to get to the bottom of a new process. He was a true gentleman and someone who would always see the positives in any situation. PH

