

HotNews

from the heat transfer society

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Our new President Tom Mowbray



Tom Mowbray

Like many of us, Tom found his way into heat transfer by accident although his route in was more circuitous than most. He studied Latin and modern languages at school and then went into banking becoming a Member of the Institute of Bankers. He then became involved in petroleum distribution and estimating, and from there into management in the heat transfer industry. En route, he picked up his engineering qualifications the hard way via night school.

Tom is now Director and General Manager of Motherwell Bridge Thermal. He has been with Motherwell Bridge since the mid 60's apart from a brief stay in the Heat Transfer Department of Lummus in the 70's. His first directorship was with Motherwell Bridge Thermal in 1979, then in the early 80's he became Sales Director of the main fabrication company at Motherwell. Two years ago he moved back to Uphall to take over at Thermal.

Tom has been Chairman of the Scottish branch of the Energy Industries Council for ten years and is also a Director of the Scottish Oil Club, a member of the Institute of Petroleum and is actively involved through local enterprise funding in assisting small companies into export markets. This last activity involves helping all types of small companies, "from shortbread to engineering," to get into foreign markets. Tom takes great pleasure in sharing the vast experience, which he has gained the hard way, with small companies who sometimes need to know how to do the simplest of things.

Golf is one of Tom's major interests although he has tended to get out of practice after years of being on the road selling. This dispels the myth that most sales are done on the golf course. His current ambition is to get his handicap back into single figures now that he has more time back at the ranch.

The Millennium

Following suggestions at the AGM, the Committee is seeking ideas for a special hts event in the year 2000 to celebrate the new Millennium. Possibilities are to have

- an especially prestigious President next year
- a special social event involving Members' partners
- a particularly renowned and entertaining speaker for next year's Annual Dinner

Suggestions on these options are welcomed from Members as are other ideas.

This Issue

- The Annual Dinner
- The Mile Akrill Award
- Forum evenings
- AGM
- Waste heat!

The Annual Dinner

The 35th Annual Dinner, held at the Connaught Rooms in London, was attended by 218 Members and guests, many on the 22 company-sponsored tables.

The main event of the evening was inauguration of our new President, Tom Mowbray of Motherwell Bridge Thermal. In his speech of acceptance, and toast to the guests, Tom mentioned that, Bill Sutherland, the Society's first president was a consultant to Motherwell Bridge during his early days there.

The main speaker for the evening, who replied on behalf of the Guests, was Keith Claxton. Keith spent many years with UKAEA and is now an environmental consultant. In a witty speech, he explained how he eventually saw the writing on the wall and decided to leave the UKAEA. Essentially, every project he did research on, like liquid-metal-cooled fast reactors and fluidised-bed combustion, would die, never to be revived.



Keith Claxton

The Mike Ackrill Trophy was presented to Simon Noble of Flexitallic Limited (see next column for more information).

Life Memberships were awarded to Ron Dodd and John Rutter who have been active supporters of the Society for many years and are now retired in so far as any heat transfer engineer ever retires.

The raffle raised £717 for the BRAKE Children's Charity, which provides holidays for handicapped and disabled children. Prizes were kindly donated by Heatex Ltd, Wellman Graham Ltd and Cal Gavin Ltd.

Mike Ackrill Award

The Mike Ackrill Award is given for the best presentation at an *hts* Forum. The criteria are that the presentation

- Contains information of significant value to a sector of the heat-transfer industry especially if of topical interest
- Contains information which may be counted towards Continuing Professional Development (CPD) rather than simply being an advert for the companies products or services
- Is clearly and logically presented

The prize was awarded this year to Simon Noble of Flexitallic who give an informative presentation in gaskets at the February Forum. See page 3 for a report on this.



Simon Noble receives the Mike Ackrill Trophy from the President

Taxing times

Tax forms are falling on our doormats now. You should note that *hts* subscriptions can be claimed against tax. The number you should quote is SAPP/T1644/31/1995/JEM.



Target heat transfer people

For £250 companies and other organisations can include an insert in an *hts* mailing. The insert is then targeted at the 400 key heat transfer specialists in the industry. This is therefore an excellent way to advertise job vacancies and heat transfer events.

Contact: Dave Evans - Tel 01235 432323, fax 01235 434351
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Forum Evenings

Mind the gap!

At a lively January Forum, we discussed the perceived gap between the process engineer and the heat exchanger specialist. The discussion was led by a panel of Alan Deakin, BP Chemicals, Ian Gibbard, Cal Gavin, and Mike Moore, Kvaerner Process.



The panel, (l to r) Mike Moore, Ian Gibbard and Alan Deakin, propping up the bar at the Barley Mow

One of the issues raised was the linking of process simulators with detailed heat exchanger design software. Fears were raised that process engineers, with too little heat transfer knowledge, might design unrealistic exchangers. Whilst this was recognised as a danger, it was felt to be over exaggerated.

On the question of who selects the exchanger type and makes the detailed design, there was no single answer since different operators and contractors worked in different ways, and a given contractor may work differently on different contracts. While it was suggested that the process engineer might step in prematurely and design a "five-mile-long" exchanger, the reality was that all good thermal software prevents this and will generate a workable, though not necessarily optimum exchanger design.

Detailed design software will get better with the introduction of expert systems and it might be the best use heat-transfer engineers' time if the process people did the routine designs leaving the former to handle the specials.

The mechanical designers present were quick to point out the further dangers of doing thermal design without thinking about the mechanical constraints. The key was to ensure that a reasonable setting plan could be generated during thermal design.

The answer to these problems, as always, seems to be training, good communication between process and heat-exchange engineers, maintenance of expertise and good management (which is not too strongly driven by the "bean counters").

Some of the old chestnuts were aired and eventually put in their place. One such was that young engineers don't have a feel for design because they rarely do hand calculations and have "never used a slide rule". However, it was noticeable that none of the old timers claimed to have done a series of *what-if* hand calculation using the Colburn-Hougen method!

High Integrity Joint Sealing

At the February Forum, Simon Noble of Flexitallic Ltd gave a presentation on the selection and design of gaskets for heat exchangers. **His excellent presentation earned him this year's Mike Ackrill Award.**

Metal-jacketed asbestos (MJA) gaskets are relatively inexpensive and easy to use, and for many years have been the first choice for heat exchangers. Their use is now diminishing in favour of more robust and higher performance gaskets.

Spiral wound gaskets, consisting of a spiral metallic strip with a non-metallic filler material, are available with various filler materials to suit specific applications and can maintain a seal under variable loads. Low stress versions are available if bolting is insufficient to compress a standard spiral wound gasket.

Such gaskets, however, often cannot be used as a direct replacement for MJA in existing exchangers. An alternative to spiral wound in such cases is the Kammprofile gasket. These consist of a serrated metallic core with soft non-metallic gasket sealing facings bonded to either face. Different versions are available for various applications.

Sheet gaskets can be supplied in various materials including compressed asbestos fibre, PTFE, Sigma (a creep resistant PTFE), graphite and Thermiculite. Graphite is becoming the standard either in sheet form or as filler or sealing material for spiral wound and Kammprofile gaskets. However, asbestos is still widely used overseas, and to a limited extent in the UK, even though alternatives are available.

Simon finished his presentation with a description of the carrier ring gasket construction which is used for high-pressure, high-temperature applications and has three times the recovery of a standard spiral wound gasket.

Further information from Flexitallic Ltd. Tel 01274 851273, Fax 01274 851386 or www.flexitallic.com.

Compact heat exchangers

By popular request, Richard Clark of BOC Process Plants repeated his London Forum presentation at Newcastle University on 14 April on the eve of the first Process Intensification Network Meeting which was held there. The title of Richard's talk was "Compact heat exchangers: experiences, efficiency and evolution" and a review of his London presentation is included in the last *HotNews*. The Newcastle meeting was lively and well attended.

Fouling monitoring

Andy Jenkins of NEL gave a presentation on fouling monitoring at the London Forum on 20 April. A report on this will be included in the next *HotNews*.

The Annual General Meeting

The 1999 Annual General Meeting of the society was held on 4 March in the Barley Mow, London. Although the attendance was small, the quality of discussion and accompanying humour was undiminished.



The Officers of the Society (from l to r) Colin Weil, Simon Earland and Dave Evans responding with their usual gravity to a suggestion from the floor

The Chairman, Simon Earland, reported on the year which included six Forums, the President's night in the prestigious venue of the Royal Academy of Engineering, and the Dinner which was attended by 202 people at which Geoff Hewitt was made a Fellow of the Society.

The Treasurer, David Evans, presented the accounts for last year, which show that the finances are still in a sound state with funds in the bank at the end of last year totalling £4627.

The Officers of the Society were re-elected for another year, as were the Committee with the exception that Bob Agar resigned from the Committee because of the pressure of work. The Auditors Archie Reid and Derek Pratt were appointed for another year and were accorded a vote of thanks for their work over the last year.

The Meeting agreed that we should continue to have a lay audit of the accounts rather than have no audit, as is now possible under the rules governing Friendly societies, or go for the expense of a professional audit.

The Chairman advised the Meeting that we are in the process of bringing our Constitution up to date to reflect better how we currently operate and to comply fully with the rules laid down by the Register of Friendly Societies.

Motherwell Bridge Thermal were thanked for providing the conference room in their London office for meetings of the Committee.

Waste Heat

by L M Teedy

Confusion

We all know that heat exchangers cause confusion. One important way they do this is by increasing entropy as a consequence of the temperature difference between the streams and of the stream pressure drops. I know this because I keep reading papers and articles about it. Some authors talk in terms of exergy, which is similar but affects my cerebral entropy. However, can somebody tell me where I state the entropy rise in the TEMA spec sheet?

Fascinating fact

Some of you may know Didcot power station. It is a 2000MW coal fired unit with a smaller gas-fired unit. Big numbers, but Prof. Joe Quarini has pointed out that the overall site is about 8 million square metres. On a sunny June day in Didcot the solar flux is about 1kW/m^2 which means that the site is absorbing 8000MW of solar energy. This is totally useless information but interesting nevertheless. However, People who live near Didcot will know that there is no such thing as a sunny June day there because of the plumes from the six giant cooling towers.

The views of L M Teedy are not necessarily those of the hts.

Future Events

- *London Forum, "Assured bolt tension and joint compression," Ron Talbot, Rotabolt Ltd.*
- *London Forum, Tuesday, 15 June, Topic to be confirmed.*
- *London Forum, Thursday, 9 September, Topic to be confirmed.*
- *6th UK National Conference on Heat Transfer, Heriot-Watt University, Edinburgh, 15-16 September.*
- *President's Night, Thursday, 28 October*

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