

British Tunnelling Society

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NEWSLETTER April 2005

INTRODUCTION

Last year the Committee decided that the newsletter should be written a week or so after their bi-monthly meeting so that it would be up to date. This has meant that the November Newsletter was in early December; the January Newsletter was in early February. To avoid this problem in the future the Newsletter dates have been moved forward by one month, so this Newsletter is April 2005. This will not effect the number of issues and it will continue to be bi-monthly.

The 2004 – 2005 session is nearing its end with three more monthly meetings, the Annual Dinner in May and the Tunnelling Course in June.

The April meeting, **PLEASE note the date 14th April**, is the Harding Prize and you will see below the excellent entry and those shortlisted for the prize. The May meeting is the AGM, followed by a slightly shorter meeting on shaft stabilisation, and the final meeting of the session in June is on fire engineering for highway tunnels.

COLIN KIRKLAND

A Memorial Service was held for Colin at Guildford Cathedral on 14th March. The cathedral was full with family, friends and colleagues. Colin would have been overwhelmed by the number of people who came to pay their respects to him. The Society was well represented at the service.

STEPHEN COFFEY

We mentioned briefly in the last Newsletter the very sudden and untimely death of Steve at the early age of 53. Steve graduated from Nottingham University with a degree in mechanical engineering. He initially worked in

the copper mines in Zambia looking after plant, logistics and materials handling.

On returning to the UK, Steve had 4 years with John Mowlem on the Carsington Project. He then worked on four international projects, the Cairo Wastewater scheme, the Channel Tunnel, the Lesotho Highlands Project and the Storebaelt Project in Denmark, where he was responsible for the maintenance of several different types of tunnel boring machines and other plant.

Steve formed his own consultancy, Tunnelling Systems, in 1994 and provided advice and expertise on many tunnelling projects around the world. When he died he was advising on the Hallandsas Project in Sweden and the BART Extension to San Jose in California.

Steve's sound knowledge, practical experience and great care to detail and attention will be sorely missed by the industry.

RICHARD WATTS

Richard, or Dick as we all called him, Watts died at the end of February. Several members of the Society attended a Quaker meeting on 7th March to give thanks and celebrate his life.

Dick graduated from Birmingham University with a B.Sc. in 1949 and joined Sir William Halcrow & Partners where he worked for five years on projects for the North of Scotland Hydro Electricity Board, the Woodhead Tunnel and the Claerwen dam.

He then worked for two years with Taylor Woodrow as a Section Agent on the Castle Donnington Power Station, before becoming Project Manager with Edmund Nuttall on the Cruachan Underground Power Station.

In 1968 Dick joined John Mowlem on the Piccadilly Line Extension to Heathrow, followed by work on the Victoria Line and the Scunthorpe Anchor Project. He became a Fellow of the Institution of Civil Engineers in 1970.

Dick joined Balfour Beatty in 1973 and worked for the firm until his retirement in 1994. He made a considerable contribution to the tunnelling sector and worked on the Channel Tunnel and several Water Authority projects.

Dick was elected to the BTS Committee and after his three year term became a co-opted member for many years to organise the Society meetings. He was awarded the James Clark Memorial Medal in 1995 in recognition of his lifetime of service to tunnelling.

For many years Dick served as a member of the British Standards Institution Committee who drafted the Code of Practice for Safe Working in Tunnelling. He played a major role in the establishment of the course for trainees at Bridgewater College.

Dick worked for the tunnelling industry with a dedication second to none to achieve his own high standards. His experience was over the whole range of ground conditions and he passed on this experience with encouragement to the younger engineers.

GOSSIP

As we go to press, we have learnt that Captain Virginia Mottram, a BTS Member, in the Corps of Royal Engineers, Territorial Army, has been awarded an MBE in the Iraq Operational Honours List 1st April 2004 to 30th November 2004.

We send her our warm congratulations.

Any interesting news about members to rodneycraig@compuserve.com

FUTURE MEETINGS and EVENTS

All meetings now start at the Institution at 18.00 unless stated, with tea and coffee on the lower ground floor from 17.30. The bar opens at 17.30 and is open until late. Flysheets on the details of the meetings are circulated in T&TI and details are also posted on the website a month or so in advance of the meeting.

14th April Harding Prize Competition

**19th May AGM and Stabilisation of
Collapsed Shaft at Strood
Tunnel**

HARDING PRIZE COMPETITION 2005

There has been an excellent response with ten entries for the Harding Prize Competition. The previous highest number of entries was eight. All the papers were of a

high standard and the judges - Anthony Umney, Myles O'Reilly and Jack Knight - had a very difficult task of selecting the papers to be presented at the meeting on 14th April.

The ten entries were:

Edward Ayre – Morgan Vince – Developments in Tunnel Safety.

Caroline Beirne – Mott MacDonald – Contractor Selection for the Mersey Queensway Road Tunnel Additional Escapes Project – a more logical approach.

Christos Biliris – Atkins – Parametric Study of an Opening in a Cast Iron Tunnel Lining.

David Ellis – Morgan Est – Settlement Control at Heathrow's Airside Road Tunnel.

Shaun Firth – Halcrow – Sustainable Development in Tunnel Engineering.

Benoit Jones – School of Civil Engineering and Environment, University of Southampton – Measurement of Ground Pressure on Sprayed Tunnels using Radial Pressure Cells.

Villy Kontogianni – Department of Civil Engineering, Patras University, Greece – Deformation Propagation during Tunnelling through Weak Zones: Evidence from Geodetic Monitoring.

Damian McGirr – Donaldson Associates – Settlement Mitigation on CTRL Contract 250.

Mark Tonkin – Limerick City Council, Ireland – Limerick Main Drainage (City and Environs).

Sarah Wareing – Mott MacDonald – A3 Hindhead – Ground Characterisation of the Hythe Beds for Tunnel Design.

The three selected to give presentations on 14th April are

Caroline Beirne, Mott MacDonald
David Ellis, Morgan Est
Damian McGirr, Donaldson Associates

Do come and hear the tunnellers of the future on 14th April.

TUNNEL LOBBY GROUP

As we go to press Tony Blair is announcing the Election and the dissolution of Parliament. The Associated Parliamentary Group for Underground Space has to be reformed by the new Parliament. No meeting will therefore be arranged until the Autumn.

Further information from Helen Nattrass
h.nattrass@sir-robert-mcalpine.com
Tel 0207 808 5000

BTS DINNER

This year's annual dinner is as usual at 'The Brewery' Banqueting Centre on Friday 6th May.

The speaker will be Robbie Glen (ex-governor of Barlinnie Prison in Glasgow), who has an excellent reputation for entertaining his audience.

There will be music to end the evening, provided this year by 'Get-it', described as a 'most versatile showband for all occasions'.

Further details, including the menu, are on the BTS website where, once again, you can make your booking on line. A flyer has also been included in T&TI.

TUNNELLING AWARDS

This year's Tunnelling Industry Awards presentation will be held during an evening reception on Wednesday 26th October as part of Underground Construction 2005, at the Olympia Exhibition Centre in Kensington, London.

The Awards this year are sponsored by John Murphy & Sons, Edmund Nuttall and Skanska. Entry Forms are now available for downloading from the website and the categories are listed at the end of this newsletter. Entries are to be received by British Tunnelling Society, by 24 June 2005.

TUNNEL DESIGN & CONSTRUCTION COURSE 2005

The Annual Tunnel Design & Construction Course will take place at the University of Surrey at Guildford from Monday 27th June to Friday 1st July 2005.

The first two days of the course will provide a foundation in the many aspects of tunnel design from feasibility studies and route planning, ground investigation, temporary works, the formation of shafts, opening and portals, tunnel and segmental lining design, tunnel ventilation, ground movements and types of tunnel lining.

The Wednesday will cover Health & Safety, the insurance Code of Practice, design for safety and risk assessments.

The last two days will cover construction and practical aspects of the many construction processes, fire and emergency response, soil conditioning, ground treatment, refurbishment of tunnels, Health and safety management, surveying, hard and soft ground TBMs, forms of contracts and logistics.

Experienced engineers from the industry will give the benefit of their experience to delegates through lectures, course study materials and discussion.

The course is divided into two modules – Module 1 Tunnel – Design, Monday to Wednesday and Module 2 – Construction, Wednesday to Friday. The common day to both modules is the very important aspects of Health & Safety, including insurance and risk. Delegates can attend one of the 3 day modules or the full five day course.

Details of the course will be posted on the website or can be obtained from The Institution of Civil Engineers, One Great George Street, London SW1P 3AA, bts@ice.org.uk tel 44 (0) 2076652313, fax 44 (0) 2072331743. Copies of the circular will also be circulated to members and in the technical press.

UNDERGROUND CONSTRUCTION 2005

The Underground Construction 2005 Conference and Exhibition will take place at Olympia, London, UK on Wednesday 26th and Thursday 27th October 2005. The First Bulletin can be found on the www.tunnelling-show.com.

The call for papers closes on 8th April 2005. The second and final Brochure will be issued at the end of May.

BTS CLOSED FACE WORKING GROUP

Following the incident in August 2003 at Lavender Road on the Channel Tunnel Rail Link, the Committee reconvened the Closed Face Working Group - which had looked into the incidents at Portsmouth and Kingston-upon-Hull and the lessons to be learned - with the brief to review all aspects of closed face tunnelling, particularly in urban areas. Alastair Biggart was appointed the Chairman.

Tunnels & Tunnelling International summarised the report in their March 2005 issue. The conclusions and recommendations of the report are simple and concise:

- Employ competent and appropriately motivated staff who are suitably experienced for each element of the design, construction and monitoring
- Carry out a thorough site investigation including a desk study of historical information for urban sites

- Use geophysical methods of site investigation appropriately and understand their limitations
- Apply risk management processes for decision making
- Use EPB machines in closed mode and at a suitable pressure for the hazards anticipated; prevent over-excavation
- Recognise that low-probability, high-consequence risks are probably better addressed at an early stage in the project
- Be aware of the need for good records, both for good project management and assurance, and for the investigation of unexpected incidents

The Closed Face Working Group Report is currently with the publishers Thomas Telford Ltd. The report will be published shortly and will be available from the usual outlets.

VISIT TO ST GOTTHARD ALPTRANSIT TUNNEL

The BTS visit to Alptransit Railway Tunnels, Lotschberg and St. Gotthard to mark the 25th Anniversary of the Swiss Tunnelling Society FUS takes place during the weekend 8th – 10th April 2005. The numbers were limited and were fully booked sometime ago.

INTERNATIONAL TUNNELLING ASSOCIATION

The 31st International Tunnelling Association General Assembly will be held in connection with the ITA – AITES 2005 World Tunnel Congress in Istanbul, Turkey from 7th – 12th May 2005. Details of the Conference can be found on the Congress website www.ita2005.org

If you are attending and would like to attend one of the Working Group meetings on Sunday 8th May, please contact Martin Knights martin.knights@halliburton.com.

For more news of ITA Member Nation activities read the ITA Newsletter <http://www.ita-aites.org/cms/itanews.html>

ITA BOOKLET – SAFE WORKING IN TUNNELLING

The BTS has received a copy on CD of the ITA publication "Safe Working in Tunnelling" which has recently been revised. The booklet will shortly be freely available in pdf format on the BTS website. This version supersedes the printed booklet, which the ITA produced in the early 1990s. The revision was undertaken by the same ITA Working Group 5 "Health and Safety in Works". Because the content was safety related, the ITA resolved that it should be distributed free of charge to all Member Nations. Production costs were shared between the ITA and the TBG in Munich.

Members are encouraged to view the document and to download it (file size about 10MB) for their own use. A copy of the pdf file on CD-rom can be obtained by arrangement from the BTS Secretary. The BTS do not intend to make printed copies available.

The booklet is intended to be an aid in operative training. Any BTS member wishing to customise it or to have it translated from English to another language for company use, is welcome to do so on condition that ITA's copyright is acknowledged and a copy of the new document is sent to the ITA Secretariat. The original computer graphics are available and captions in foreign languages can easily be superimposed.

A Microsoft PowerPoint version of the document has been prepared by the ITA WG5 for training purposes and is available from Donald Lamont or from the ITA website www.ita-aites.org

HEALTH & SAFETY

CEN Standard for Shield Machines – a personal view from Donald Lamont.

The results of the formal vote was 21 in favour of its adoption as a harmonised European Standard with 5 abstentions. The standard will be published as BS EN 12336 in due course.

It is 16 years ago in March that work began on drafting the document. The committee met under the convenorship of Dr Martin Herrenknecht and consisted initially of delegates from Denmark, France, Germany, Italy, Switzerland and the UK. Italy was the first to give up, followed by Denmark but the other four countries have seen the project through despite numerous delays for translation, CEN bureaucracy, and the idiosyncrasies of certain CEN machinery consultants.

The UK delegation was led by Arthur Moss, who was also the leader of the task group within CEN/TC151/WG4, responsible for the shield machines standard. Over the years the regular members of the UK delegation have been Jim Buchanan, David Donaldson and Donald Lamont. Richard Lewis and Dick Watts also contributed to the work.

Early in the life of the project the BTS, under its Chairman Dr Terry Mellors, set up a fund to support members of the UK delegation who were not subsidised by their employers, with travel costs and hotel bills. This fund enabled the UK to participate to a much greater extent than would otherwise have been possible. Members have had good value from the fund as much time spent by UK delegates on the project, has been done on an unpaid basis.

Member countries took turns at hosting meetings. The committee met in Berlin, Bern, Copenhagen, Frankfurt, Lille, Liverpool, London, Paris and Toulouse. Meetings were often intensive, controversial and always hard work. We had many full and frank discussions over issues such as access opening dimensions or the acceptability of 110v centre tapped to earth electrics. To show his confidence in the latter, Arthur Moss once offered to hold both terminals at 110v cte circuit if a delegate would do likewise with 240v RCD protected circuit. The challenge was declined.

Language was sometimes a problem – the UK delegation had drafted a text referring to open faced hand shields as "simple" shields. This proved unacceptable to the Germans for whom the translation of "simple" implied mental incapacity.

Away from the technical aspects of the work, we socialised with our European colleagues and built constructive relationships with them. Probably the most prestigious meeting venue was Windsor Castle at which one of the early meetings and a commemorative dinner were held. This was arranged by Arthur Moss and sponsored by Decon and the PJA. The committee visited TBMs in operation in Grauholtz Tunnel and Storebaelt. We had a most enjoyable meeting in an inn at the top of a mountain pass in the Black Forest near Schwanau. On two occasions the Germans found it necessary to hold meetings in Munich at times which coincided with the Oktoberfest – despite the editor's plea for gossip, the report of these meetings will remain secret!

EN12336 has taken a very long time to complete but throughout the drafting process the committee has worked in a professional manner. Disagreements have been over technical issues and not along national divisions. Delays have been due to situations outwith the control of the committee. To me, the pan-European nature of the committee was exemplified when we went to dinner to a restaurant in Berlin. Conversations around the table was talking simultaneously in English, French and German and the Swiss delegate was taking orders for food in each of the languages and passing them on in Italian to the waiter.

Although it has taken 16 years to complete, the technical content of the standard has long been used by machine manufacturers and purchasers in their negotiations. Inevitably after such a long gestation period parts of the text will be out of date and amendments to the text, particularly in respect of fire extinguishing equipment, are likely to follow shortly.

CALLS FOR PAPERS

ITA 2006 World Tunnel Congress, and 32nd ITA General Assembly, 22nd – 27th April 2006, Seoul, Korea. The Abstracts Deadline has been extended to 1st May 2005. www.ita2006.com

CONFERENCES

Don't forget to look at the back pages of Tunnels & Tunnelling International (or use your BTS Membership to access the data on the T&TI website www.tunnelsonline.info) for the conferences coming up over the next two years Also visit the International Tunnelling Association website www.ita-aites.org

12th Australian Tunnelling Conference 2005, 17th – 20th April 2005 Brisbane, Australia, "Tunnelling Towards Better Cities" including and accompanying workshop on "Tunnel Waterproofing and Grouting" www.tunnelling2005.com

ITA – AITES 2005; World Tunnel Congress and 31st ITA General Assembly, 7th - 12th May 2005, Istanbul, Turkey, www.setur.com.tr

RETC 17th Rapid Excavation & Tunnelling Conference and Exhibition, June 27th - 29th 2005, www.retc.org

Tunnel China 2005, 7th – 9th September 2005, Intex Shanghai, www.tunnel-china.com

3rd EFEE World Conference on Explosives and Blasting, 13th – 16th September 2005, Hilton Hotel Metropole, UK, www.efee-web.org

International No-Dig, 19th – 21st November., Rotterdam, The Netherlands.

Tunnelling for a Sustainable Europe, AFTES Congress 10th – 12th October 2005, Chambéry, France, www.aftes.asso.fr

Underground Construction 2005, 26th and 27th October 2005, London, UK. www.tunnelling-show.com (see above)

World Long Tunnels 2005 Taipei, Taiwan, 7th – 10th November 2005, www.longtunnel/2005.tanceb.gov.tw

STUVA Conference '05, 28th November – 1st December 2005, Leipzig, Germany, www.stuva.de

ITA 2006 World Tunnel Congress, and 32nd ITA General Assembly, 22nd – 27th April 2006, Seoul, Korea, www.ita2006.com

INTER tunnel 06, 16th – 18th May 2006, Lingotto Fiere Exhibition Centre, Turin, Italy, e-mail intertunnel@mackbrooks.co.uk

Tunnelling Industry Awards 2005

Organised jointly by the British Tunnelling Society and
Tunnels & Tunnelling International

Categories

- A) The BTS UK Project of the Year**
UK tunnelling project, or project with significant underground works element, which has been completed since May 2004, or is nearing completion. Entry is open to all UK projects, regardless of size.

- B) The T&TI International Project of the Year**
International tunnelling project, or project with significant underground works element, which has been completed since May 2004, or is nearing completion.

- C) Achievement through innovation**
Any innovative process or idea, large or small, that led to a significant improvement or a significant saving on a tunnel project. This could be a new product or a method related innovation.

- D) Excellence in tunnel design**
An element of either temporary works design or permanent design associated with tunnel work that provides excellence in terms of buildability, cost saving, or innovation.

- E) Machinery/Materials award**
An award to a material or machinery manufacturer who shows innovative use of existing materials or equipment or the use of new materials or machinery that advances the quality of construction of tunnels.

- F) The Young Engineer of the Year**
Nominations by managers are invited for young engineers who have made a significant contribution to a project or scheme on which they have been involved since May 2004. Open to all engineers aged up to and including 30 years. Entries should be made by the engineer's manager and shall describe how the nominee has made a significant contribution to a project on which they have worked.

NB: Before submitting an entry please obtain a full set of rules

from www.britishtunnelling.org

Or from bts@ice.org.uk