

# British Tunnelling Society

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## NEWSLETTER

### July 2000

#### INTRODUCTION

The first major milestone for the Channel Tunnel Rail Link took place on Thursday 8<sup>th</sup> June when the Deputy Prime Minister, the Rt. Hon. John Prescott, and some 400 guests were present to witness the breakthrough of the top heading for the 3.2km long twin track North Downs Tunnel beneath Blue Bell Hill in Kent. The construction commenced 14 months ago and the tunnel is due to be completed two months ahead of schedule and significantly under budget.

Twelve companies and Joint Venture groups have recently been invited to tender for the five Tunnelling and major civil engineering underground contracts for Section 2 of the CTRL between North Kent and the St Pancras International Terminal, worth over £600m.



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The last meeting of the 1999/2000 session was a highlight for the year when Dr John King presented the Third Sir Harold Harding Lecture. 'Our Century of Tunnelling and where we go now'. John reviewed the many innovations and developments in Tunnelling during both the 19 and 20 Centuries.

He looked at the foundation of the Society and gave a selection of interesting and amusing quotations from Tunnel & Tunnelling. In the early years there were many papers on research and development. The papers to be presented at the informal meetings of the Society were published in T&T in advance which stimulated a more interesting and contentious debate. There was generally more information and discussion on the



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difficulties associated with the Tunnelling projects and how they were overcome as well as the successes.

John ended by looking at some of the technical innovations, which we need for this next century and what we in the Society might do to further such innovations.

Douglas Parkes, who gave the first Sir Harold Harding Lecture, gave the vote of thanks.

## GOSSIP COLUMN

Jack Knight wishes to thank his sponsors and all those who contributed at the April BTS meeting to his run in the London Marathon. The collection at the BTS meeting raised £311.96. Jack completed the course in 6 hours 25 minutes with no blisters, but a few aches and pains. He was welcomed at the finish by race marshal Maurice Gooderham! The total collected for the Macmillan Cancer Relief and MS was £1,550

Michael McIlhatton has recently set up his own consultancy for civil, structural, geotechnical and geospatial engineering services. E-mail [geotech.associates@lineone.com](mailto:geotech.associates@lineone.com)

Peter Chapman has recently rejoined Balfour Beatty Major Projects and is presently based in Bern, Switzerland. E-mail [Hevenden@aol.com](mailto:Hevenden@aol.com).

Please keep sending information to [Rodneycraig@compuserve.com](mailto:Rodneycraig@compuserve.com)

## FUTURE MEETINGS

All meetings at the ICE are at 17.30 unless stated below.

There are no meetings in July and August.

### **21<sup>st</sup> September 2000 NEAT Projects in Switzerland and a short talk on the Research Centre for Underground Construction**

Felix Amberg, (Amberg Consultants, Switzerland)

### **19<sup>th</sup> October 2000 AGM and Shafts and Underground Works at Harrods**

Rob James and Phil Ball (Kvaerner Construction Ltd)

### **2<sup>nd</sup> November 2000 at 18.30 at ICE, Joint Meeting with the Transport Planning Society**

## **Underground Space for Transport Interchanges**

Peter Jewell, John Scholey, (Brown & Root), Bill Low (YRM Architects) and Dominic Williams (Dominic Williams Associates)

### **November 2000 date to be fixed, Views from the Sites Meeting in the Midlands**

### **16<sup>th</sup> November 2000 ADECO Approach to The Design and Construction of Tunnels**

Giovanna Cassani (Rocksoil Milano)

### **14<sup>th</sup> December 2000 Film Evening**

## **ANNUAL DINNER**

The Annual Dinner was held on 5<sup>th</sup> May again at The Brewery. Attendance was down this year to 380, a reflection of the reduced amount of work in the UK – or was it?

Every year the Committee gets comments after the event on the likes and dislikes and endeavors to reflect them the next year. This year it was decided not to have a comedian speaker or band in order to keep costs down. In the past these have added up to £8 to a ticket. (£16 for a couple). It appears that this policy has not been well received.

Therefore we invite you to let us know your views to help us plan next years' event.

- ?? We have been to The Brewery for the last seven years. We believe that it is the most reasonable venue with the required capacity in London. Is it time for a change? Do we need to be in London?
- ?? Is the standard of catering, service and the bar satisfactory?
- ?? Should we have speeches from the Chairman, guest speaker, and/or comedy speaker, accepting the additional cost of the latter?
- ?? Should we have music for dancing, more subdued background music to ease networking or none at all, which would mean an earlier bar closure?

Please let the Secretary have any comments on these or any other burning issues, either in writing or e-mail to [jacobs-d@ice.org.uk](mailto:jacobs-d@ice.org.uk) or [bts@britishtunnelling.org](mailto:bts@britishtunnelling.org)

## **MEMBERSHIP**

In the April issue we asked overseas members to let us know the dates that they received the April, May and June issues of Tunnels & Tunnelling International, so that we can monitor the time of delivery for overseas members across the world. Please send the Secretary an e-mail. We have received one reply to date.

### **TRAINING and COURSES**

After careful consideration of the relatively low number of delegates attending the last Tunnel Construction and Design course and the recent Health & Safety in Tunnelling course it has been decided that the 'Tunnel Construction and Design' Course planned from Monday 4<sup>th</sup> to Friday 8<sup>th</sup> September 2000 should be cancelled.

However, arrangements are already in hand to run a combined 'Tunnel Construction and Design, with Health & Safety in Tunnelling course in the later part of June 2001. Details of the course will be circulated in the Autumn.

Over the Summer BTS members will be asked to complete a questionnaire regarding the training offered by their companies, with a view to the BTS getting as comprehensive picture as possible of UK tunnel industry training opportunities and practice. It is hoped that all members will spend the very short time required to complete and return the questionnaire. The results will complement the information already received from companies and information currently being sought from training establishments ranging from the trade training establishments to universities. It is intended to submit a report giving the whole training and education picture by the Autumn.

### **HEALTH & SAFETY EXECUTIVE**

The Health & Safety Report on the Heathrow Express Collapse was launched at the ICE on 5<sup>th</sup> July. Copies of the report are available from the HSE Books, Tel 01787881165

### **BRITISH STANDARDS INSTITUTION**

#### **BS 6164**

The draft final text of the revised standard is being edited by the BSI. No date has been fixed for the publication.

### **CEN STANDARDS**

The CEN Machinery Consultant's report has been received and a meeting has been held to discuss the report. There are some outstanding issues to be resolved.

The 26<sup>th</sup> ITA Annual General Assembly took place in Durban, South Africa from 13<sup>th</sup> to 18<sup>th</sup> May 2000 in conjunction with the South African National Council on Tunnelling's (SANCOT) World Tunnelling Congress on 'Tunnels under Pressure'. Peter Murphy, Mott Connell, and Martin Knights, Brown & Root, represented the Society at the two sessions of the General Assembly, which was attended by 29 of the 50 Member Nations.

Three new Member Nations were registered, Argentine, Israel and Malaysia. The total number of Affiliate Members increase to 90 Corporate Affiliates and 184 Individual Affiliates. BTS members wishing to become Affiliate members of the ITA should contact Martin Knights, martin.knights@halliburton.com

The Association approved a Strategy plan which included the creation of a full time secretariat, and the development of priority actions in terms of communications, use of the website and activities of the Working Groups.

The ITA Newsletter Tribune is published Quarterly and the Society purchases 100 copies, which are distributed to Corporate Members, to members of Working Groups with the remaining copies available at the monthly meetings.

The technical reports from the ITA Working Groups are published in Tunnelling and Underground Space Technology which is free to Affiliate members. Copies are in the ICE Library. Further details of the list of articles will be given in the next Newsletter.

The ITA Website was set up in 1998. During the year 285,000 visits were made to the site from 10,000 people from 80 countries. The website [www.ita-aites.org](http://www.ita-aites.org) will be in the future updated on a more regular basis.

The ITA published a book to mark the 25<sup>th</sup> Anniversary of the Association which includes the description of 65 outstanding underground works from 25 Member Nations, including the Channel Tunnel and the Jubilee Line. A number of copies are in circulation.

The next Annual General Assemblies will be in Milan, 10<sup>th</sup> to 13<sup>th</sup> June 2001, Sydney, 2<sup>nd</sup> to 7<sup>th</sup> March 2002 and in Amsterdam, 14<sup>th</sup> to 17<sup>th</sup> April 2003.

There was good support from the UK at the conference and the photograph on page 6 shows many of those who attended.

### **ITA Working Group**

All the Working Groups met during the Annual Meeting. As an extension of the website, private forums are to be set up for each of the Working Groups to provide more detailed discussion during the year.

### **Working Group 2 – Research**

The Group currently has five studies in progress. Guidelines for the Design of Shield Tunnels, which was finalised during the meeting and will be published later in the year, a State-of-the-Art Review of Siesmic Design of Tunnels, to be finalised next year, Risk Analysis, Recommendations on the Settlement induced by Urban Tunnelling, to be finalised this year, and a study of the Safety Factors of Limit State Design Method of Tunnels.

### **Working Group 3 – Contractual Practices in Underground Construction**

The Group had a presentation on the Lesotho Highlands Project and discussed several contractual matters arising from the presentation. Two draft position papers were discussed on the use of the three FIDIC contracts, and on the evaluation of tenders for consulting engineers and contractors. The possible future topics were discussed including the area of project finance.

Peter Murphy, Mott Connell, and Maurice Gooderham, M.A.Gooderham & Associates, attended the Working Group on behalf of the BTS.

### **Working Group 4 – Subsurface Planning**

The Group's synopsis 'Overview of Subsurface Planning' was finalised and will be published soon. More contributions will be invited to the ongoing investigations, 'Water Installations Underground', covering water supply and storage and landslip stabilisation, and Accessways to Underground Facilities.

Martin Knights, Brown & Root, attended the Working Group on behalf of the BTS.

### **Working Group 5 – Health & Safety in Works**

The Group's main task was the completion of the revision of the booklet on 'Safe Working in Tunnels'

Donald Lamont, H&SE, attended the Working Group on behalf of the BTS.

### **Working Group 6 – Maintenance and Repair of Underground Structures**

The 'Study of Methods for Repair of Tunnel Linings' has been completed. The main discussion were on the 'Study of the Resistance of Tunnel Structures to Fire' which is being carried out in collaboration with the

PIARC Working Group studying Fire and Smoke Control in Tunnels.

Terry Mellors, Mellors & Associates, attended the Working Group on behalf of the BTS.

### **Working Group 11 – Immersed and Floating Tunnels**

Various presentations were given to the meetings. A series of papers will be written for the Milan Conference in 2001. A special handbook will be prepared on 'Immersed Tunnels for Owners' which will be an update of the special Tribune issue in 1999. A more detailed handbook will be prepared for technicians to transfer the present longterm knowledge of the working group to younger engineers worldwide.

Chris Marshall, Symonds Travers Marshall, the Vice Animateur, attended the Working Group on behalf of the BTS.

### **Working Group 12 – Shotcrete Use**

The Working Group identified nine key topics for future work and selected three for the next study. A new Summary Report on the State of the Art of Sprayed Concrete will be prepared, a compilation of a Status Report on Fire Protection by Sprayed Concrete and Sprayable Protective Materials, and a Report on Basic Principles of Sprayed Concrete Rock Support Mechanism.

Martin Annett, Master Builders Technologies, attended the Working Group on behalf of the BTS.

### **Working Group 13 – Direct and Indirect Advantages of Underground Structures**

The Working Group has collected extensive data on the topic 'Underground or Above ground – Making the Choice for Urban Mass Transit Systems' for 28 cities in 18 countries. The Working Group is to develop a process for decisions, using characteristics, criteria and considerations which will be useful to politicians, policy makers, planners, engineers and infrastructure managers.

### **Working Group 14 – Mechanisation of Excavation**

The final report on 'Guidance and Recommendations for Selecting and Evaluating TBM' will be available in the Autumn of 2000. The Working Group continues its activity to provide state-of-the-art information on both conventional and shield TBMs for tunnel engineers as well as information mechanised Tunnelling which will be completed in two or three years.

Anthony Umney, Maunsell, attended the Working Group on behalf of the BTS.

### **Working Group 15 – The Underground and the Environment**

The summary report on the opportunities and constraints associated with the environment and case histories was reviewed for publication. The EU Water Directive and Risk Studies on the use of acrylamides were discussed. The new focus of the Working Group will be to review the many environmental reasons why projects go underground and how tunnels affect the environment.

Rodney Craig, Rodney Craig Associates, attended the Working Group on behalf of the BTS and was appointed the new Animateur.

### **Working Group 16 – Quality**

The Working Group reviewed the agenda for their work and report for the coming year on Quality leading to a final draft report for the next meeting in Milan.

### **Working Group 17 - Long and Deep Tunnels**

The Working Group discussed the main characteristics of extreme conditions for risk assessment and risk management, including the four key factors of cost, time, durability and safety during construction. Alpine projects were discussed. A list of relevant problems and the associated risks were reviewed. Questionnaires will be sent out. Guidelines will be prepared for improving the design methodology of long and deep tunnels.

### **Working Group 18 – Training**

This new Working Group was approved at the General Assembly and met for the first time to set up the Group. The first activity will be devoted to Industrial Training for people involved in Tunnelling.

Information would be collected on training courses which are given in the various Member Nations. This will provide a better overview of the industry needs and will provide the basis for future work. The second topic was University Education and a list of University Professors involved in Tunnelling topics will be prepared.

Donald Lamont, H&SE, attended the first meeting of the Working Group on behalf of the BTS.

### **MODEL SPECIFICATION FOR TUNNELLING**

The second edition of the Specification has been published in April and is available from the ICE Bookstall.

### **BTS RESEARCH BURSARY**

The BTS Committee has agreed to provide a bursary (or bursaries) to Msc and/or PhD students to facilitate Tunnelling related research. The BTS will make available up to £3,000 in any year. The bursary is available to Student Members and Members of the BTS who are registered with a university/college and with sponsorship in place. Applications by the student, supported by their tutor/supervisor, should be submitted to the BTS c/o The Secretary no later than 31<sup>st</sup> December

### **UNDERGROUND CONSTRUCTION 2001**

The first circular for Underground Construction 2001 has been issued. The Conference will take place at EXCEL, London Docklands from 18<sup>h</sup> to 20<sup>th</sup> September 2001. Abstracts should be submitted to Lisa Collins, Brintex, 32 Vauxhall Bridge Road, London SW1V 2SS, fax (44) (0) 20 79736600.



**SOME BTS MEMBERS AND THEIR WIVES AT THE CONGRESS IN DURBAN**

