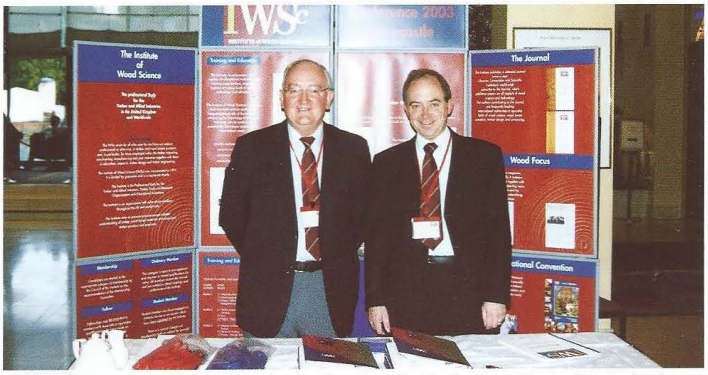
WOODfocus

ISSUE NO. 9 AUTUMN 2003

The magazine of the Institute of Wood Science

The Institute's National Conference, 2003. Wood Solutions: Theory & Practice

report by David Woodbridge FIWSc

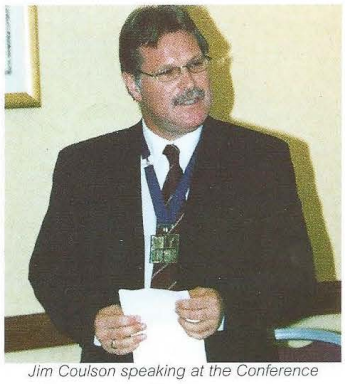


Director, Jim Lumsden and Senior Vice President, Dr Vic Kearley at the Institute's stand.

The Conference, along with the President's Reception and Conference Dinner, were held on October 8th and 9th at the Copthorne Hotel on the river front in Newcastle upon Tyne. Approaching 70 attended the dinner on the Wednesday and a few short of 120 Institute members, non-members, sponsors and speakers, registered for the actual Conference on the Thursday. Notable this year was the substantial number of people attending from the timber trade and allied industries; a fifty-fifty split between the industry and the specifying professions and end users.

Jim Coulson, President, in both his after dinner speech and the opening address at the Conference thanked the sponsors, in particular the three major sponsors; AHEC, Timbmet and Wood for good, for their generous support. Without such support, and that included all those who contributed in this way to the financial well being of the event, the Institute's Annual National Conference could not be presented in the polished and professional style that has been witnessed in recent years. Nor would the event be able to attract the broad range of distinguished and expert speakers evident from the listing of the 2003 team (see report below).

Jim went on to give a short 'health' report on the Institute. He spoke of a renaissance that had taken place over the last few years and of David Woodbridge's initiatives in this respect, not the least being the launch of the highly acclaimed Foundation Course on Timber. He went on to say that with David's retirement earlier in the year Jim Lumsden, as the new Director, was launching further initiatives, one of which will be a membership drive, a drive in which lapsed members will be encouraged to re-join. In addition to canvassing for new members it was pointed out that there might also be members, both past and present, who might consider applying for a higher grade of membership.



Jim Coulson speaking at the Conference Dinner

CORPORATE MEMBERS

The Council of management wish to record its thanks to those listed below for their support as Corporate Mambers:

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Akzo Nobel Woodcare
Anglo-Norden Forest Products Ltd.
Arch Timber Protection
British Woodworking Federation
BSW Timber plc
Buckinghamshire Chilterns University College
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North Yorkshire Timber Co. Ltd.
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Timber Trades Journal
Timbmet Limited
TRADA Limited
Travis Perkins plc
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CONTENTS

David continues to have an involvement in Institute affairs as the Editor of Wood Focus and the Coordinator and Editor for the major revision and re-publishing of the Certificate Course.

Mike Connell (Arch Timber Protection) responding on behalf of the Sponsors.

Responding to Jim's speech on behalf of the sponsors Mike Connell (Arch Timber Protection) commented on the tremendous changes that are taking place within the industry, referring in particular to the timber preservation sector. These changes are occurring at an accelerating pace, but he is heartened by the response from the UK and Irish timber industry in which 70% have already taken action or, if not, are currently converting existing installations or installing new equipment. He sees, through this high state of activity, encouraging signs for the future of the industry.

It was appropriate for Mrs Christine Bradshaw (Membership and Office Secretary) to be presented by the President with a handsome bouquet in recognition of her loyal work at Head Office.

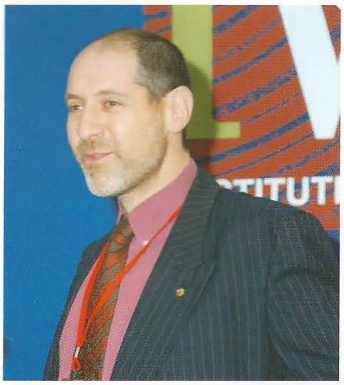
Barry Matthews, Editor of the Journal, discusses a point with David Venables (AHEC). The AHEC stand is in the background.

The winter issue of the Journal will carry a report on the technical and educational significance of the Conference. The following is therefore intended as a brief overview of the presentations.

Geoff Taylor, Junior Vice President with Mark Cooper at the TRADA Technology stand.

The Conference got off to a punctual start with the first of the three sessions, all of which focused on the theme Wood Solutions. Clear, thought provoking and at times controversial, views on Timber from Well Managed Forests and forest certification schemes were presented by Rupert Oliver (Managing Editor, hardwoodmarkets.co) and Simon Fineman (Group Chief Executive, The Timbmet Group). Whilst it is forecasted that the demands for 'certified' timber would grow in the public sector, the level of knowledge held by many of those involved in the specification and use of wood is 'deplorably low'. The need for education in this field is enormous.

Charles Trevor (left) and David Venables representing two of the principal sponsors, wood. for good. and AHEC respectively.



Simon Fineman presenting his paper and representing the third principal sponsor, Timbmet.

The second session was concerned with Timber in Practice with Duncan Mayes (Stora Enso Timber) speaking about innovations in the way in which Finnish redwood is converted, processed, dried and graded to exploit its special characteristics and properties. Gordon Cowley (MD Cowley Structural Timberwork) then approached the topic from an engineering stance, illustrating his talk with views of some stunning constructions.

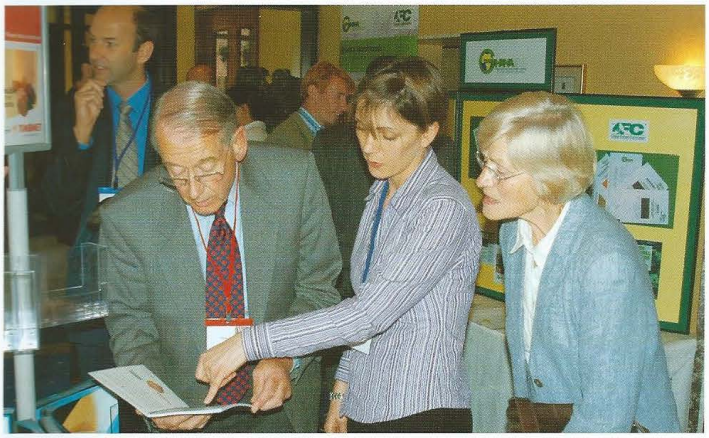
After lunch the third session, Timber Solutions, was based on building case studies presented by Massimo Alvisi (Renso Piano Building Workshop) and Roddy Langmuir (Edward Cullinan Architects). Roddy spoke of the importance of the interdisciplinary approach to design, the differing national trends and attitudes in timber as a construction material along with the growing challenge of sustainability. Massimo based his presentation on the recently completed Music Garden, a massive development in Rome of three concert halls, a central piazza and a classically styled outdoor theatre. Although it has perhaps been the Rome Auditorium (the largest of the halls) that has received the most publicity, the whole scheme is a stunning achievement and a landmark in the synthesis of wood, travertine, brick, steel and lead.

The social aspect of the Institute's Annual Conference is a very important feature and this year was no exception. With adequate breaks for refreshments and lunch, coupled with the spacious layout of the public areas in the hotel, there was abundant opportunity for delegates, sponsors, Institute officers, members and the speakers, to converse and network.

Dr John Brazier, the Institute's Chief Examiner, discussing hardwoods with Nick Goodwin (NHG Timber).

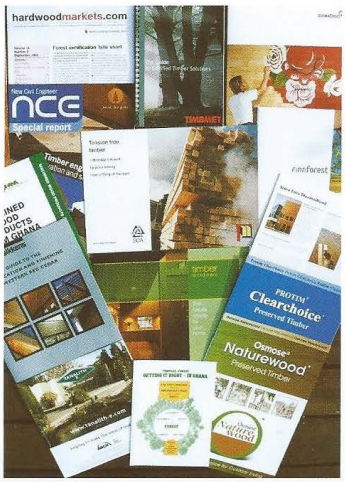
The exceptionally varied and informative exhibition stands hosted by many of the sponsors added a further dimension to the event. Each stand had an educational input to offer, not the least being in the wide-ranging and informative publications that were made available for everyone.

In the closing debate it was announced that the 2004 Conference is likely to be in the midlands and that a location and date will be announced in December.



Brian and Heidi Norris discuss a hardwood leaflet with Natasha Parker-Coughline (centre) at the Timbmet stand.

Russell Fletcher manning the SCA stand.



An example of the wide range of brochures and technical leaflets that were available from the exhibition stands of those sponsoring the Conference.

Issues concerning the use of arsenic in treated timber

By Mike Connell MIWSc
Arch Timber Protection

This article looks at the UK and Irish Implementation of EC Directive 2003/02/EC relating to the restrictions on the marketing and use of arsenic and the future for timber treated with alternative products

The UK and Irish timber treatment industry is going through tremendous change following the adoption of the Directive imposing restrictions on the marketing and use of CCA (chromated-copper-arsenate) treated timber. The industry is responding positively mirroring the experience in Northern Europe throughout the 1990's when similar, and, in some cases, more severe restrictions were introduced. This article discusses the progress to date in the UK and Eire.

SUMMARY OF THE DIRECTIVE

The Directive states that arsenic compounds may not be used in the preservation of wood and wood so treated may not be placed on the market.

HOWEVER, by way of derogation :

i) Relating to the substances and preparations in the preservation of wood: these may only be used in industrial installations using vacuum or pressure to impregnate wood if they are solutions of inorganic compounds of the copper, chromium, arsenic (CCA) type C. Wood so treated may not be placed on the market before fixation of the preservative is completed.

ii) Relating to wood treated with CCA solutions in industrial installations according to point (i): this may be placed on the market for professional and industrial use provided that the structural integrity of the wood is required for human or livestock safety and skin contact by the general public during its service life is unlikely:

- as structural timber in public and agricultural buildings, office buildings, and industrial premises;

- in bridges and bridgework;

- as constructional timber in freshwater areas and brackish waters e.g. jetties and bridges;

- as noise barriers;

- in avalanche control;

- in highway safety fencing and barriers;

- as debarked round conifer livestock fence posts;
- in earth retaining structures;

- as electric power transmission and telecommunications poles;

- as underground railway sleepers.

iii) Treated wood referred to under points (i) and (ii) may not be used:

- in residential or domestic constructions, whatever the purpose;

- in any application where there is a risk of repeated skin contact;

- in marine waters;

- for agricultural purposes other than for livestock fence posts and structural uses in accordance with point (ii);

- in any application where the treated wood may come into contact with intermediate or finished products intended for human and/or animal consumption.

CCA protection of bridge timbers will still be alllowed

NOTE
The Directive clearly states :
"This Directive does not apply to CCA-treated wood already in place".

TIMETABLE

The Directive required Member States to publish the provisions (i.e. national legislation) necessary to comply with the Directive by 30 June 2003 and apply such provisions by 30 June 2004 at the latest.

Whilst the UK and Eire are slightly behind the first part of this requirement the two lead bodies, the Department of Environment, Food and Rural Affairs (DEFRA) in the UK, and the Pesticides Control Services (PCS) in Eire have drawn up proposed Regulations which will be laid through their respective Parliaments in the next month or so. Both Governments have stated that the application of the Regulations is on schedule to meet the deadline of 30 June 2004.

The draft Regulations follow closely the text of the Directive and as such adopt a strict interpretation. Meetings have been held between the Regulatory Authorities and relevant Trade Associations such as the Wood Protection Association and other timber interest groups with the following outcomes;

DEFRA will not issue any written guidance note to assist interpretation of the Regulations but have confirmed the following key points from their legal advisors :

1. The European Communities Act will be used to implement the Directive. This

Industrial Timber Treatment plant

Residential or domestic timbers will require new generation protection from the middle of 2004

means there will be a wide range of bodies involved in enforcing the Regulations i.e. Environmental Agency, Health and Safety Executive, Environmental Health and the Trading Standards Inspectorate.

2. "Placing on the Market" includes not just the sale of goods but also certain preparatory acts, e.g. offering or exposing the goods for sale. In other words "placing on the market" will usually occur before the goods are sold.

3. Any CCA-treated wood placed on the market after 30 June 2004, which is not labelled or is offered for sale or sold into non-permitted end uses, will be in breach of the Regulations.

4. With respect to livestock fence posts, the legal advice to DEFRA was quite clear in that the Regulations only permit "debarked round conifer livestock fence posts". More general use as livestock fence posts or fencing would be in breach

of the Regulations.

5. The Directive requires labelling of both individual pieces and packs of CCA-treated timber. The DEFRA view is that the responsibility for labelling should cascade down the supply chain with packs being regarded as individual items until broken down into smaller units. Each broken down pack should then be labelled in the same way as the original pack.

6. The draft UK Regulations contain no reference to "CCA-treated wood already in place", and the fact that it need not be replaced.

The Commission included this statement (supported by UK Government) in order to ensure clarity and avoid the potential for unnecessary public concern. The industry is pressing strongly for this statement to be incorporated into the text of the UK Regulations.

Eire will also follow a strict interpretation of the Directive. There is a strong commitment from suppliers and timber related Associations to work together with PCS and Enterprise Ireland, with the target that all CCA-treated wood for non-permitted end uses should be out of the supply chain by the end of April 2004. This would mean that such treatments will, in general, need to cease by the end of 2003.

In Eire, the Regulations will include the statement that the provisions "do not apply to CCA-treated wood already in place".

THE FUTURE

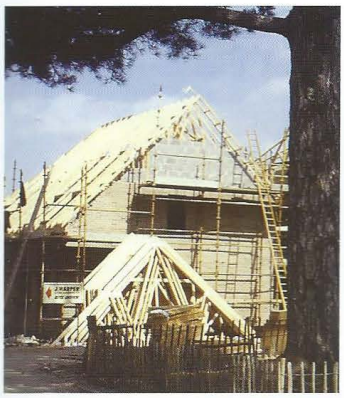
The two main European suppliers of CCA (Arch Timber Protection and Osmose) have formed a Task Force to support the continued use of CCA in those uses which are permitted within the terms of the Marketing and Use Directive. Notifications according to the requirements of the Biocidal Products Directive for arsenic, chromium and copper compounds have been accepted as complete by the European Chemical Bureau.

Full data dossiers are now being compiled to meet the deadline of 28th March 2004 and assessment of the dossiers is anticipated to be completed by 2006.

With this commitment it is likely that CCA will continue to be used in the future, albeit only in end-uses limited by the Marketing and Use Directive.

There are many potential alternatives to CCA and these can be broadly categorised according to either the defined end-use of the treated wood, or by product type.

i) Water-based organic biocide preservatives which are designed mainly for internal construction timbers such as roof trusses or framing. These products can be used for joinery or in external out of ground situations when a coating is applied. They are not suitable for unprotected out of ground or in ground applications.



Water-based organic biocide preseratives are an option for internal construction timbers

ii) Copper-chromium based preservatives mainly designed for external in-ground and unprotected out-of-ground applications. A number of products are available including CCB, (chromated-copper-boron), CC, (chromated-copper), and CCP, (chromated-copper-phosphate).

These products have been around for many years and to a greater or less extent, have been used commercially in Northern and Central European markets. Chromium fixation in all three products is not so rapid or complete as with CCA although the differences between CCA and CCP are relatively small. In Northern European markets the use of chromium based preservatives is restricted in a similar way to CCA and these products are not allowed in Denmark.

In Denmark, the use of CCA stopped almost 10 years ago and initially it was replaced by CCB and CCP. Views on these two alternatives are mixed. In the EC internet consultation on the proposed restrictions for CCA treated wood, one Danish company proposed CCB as the preferred alternative because experience of the use of CCP treated wood was not particularly good. Apparently there were numerous cases of premature decay in CCP impregnated wood which excluded it as being a viable alternative. This view is supported independently via work carried out at the Danish Technological Institute.

Arch Timber Protection's favourable experience of the performance of CC in Benelux and Denmark is similar to that expressed by others for CCB although, the slower fixation rates for both these products required extended holding times following treatment (or controlled fixation technologies) in their respective countries.

iii) The third and the most popular group of alternative products are those based on copper in conjunction with an organic biocide. These products are less generic than the traditional chromated preservatives and performance and ancillary features depend on the composition and treatment parameters. TANALITH E from Arch Timber Protection is based on a unique blend of copper and triazole fungicides. The product has been in successful use on the European market since 1993 and is now sold in over 20 countries worldwide. Wood treated with TANALITH E can be used in internal and external constructions and in ground contact exterior situations. Favourable long term field test data are available from 23 sites around the world to underpin the products performance.

ACQ's are based on copper plus a quaternary ammonium chloride organic biocide and are available in ammoniacal or amine form with different quaternary compounds. In the UK, they are marketed by Rockwood and Osmose.

There is no doubt that the range of alternative products with proven performance provide the market with a real choice. Whilst costs of treatment may be slightly higher for some end-uses for many end-uses they are similar or even lower. When the Danish government stopped the approvals of CCA and then chromium-based products in the early to mid-nineties, the industry expressed concern about its future. However, companies embraced the challenge and through the change to copper based preservatives aggressively marketed own brands and unique features of their products. Contrary to many forecasts, the industry has flourished and benefited from the changes as treated wood continues to be the material of choice. In the UK and Eire, the industry is also responding to the challenges posed by the Directive. At the beginning of September over 75% of Arch Timber Protection's customer base had converted to TANALITH E and the programme for conversions is scheduled for completion by the end of January 2004. Interest in new or improved installations is running at a high level indicating a growing confidence in the future of alternative products and treated wood.

Wood for Good with its emphasis on the beauty and environmental credentials of wood has done much to increase confidence and demand for wood. Treatment of wood with alternative protection products which are not restricted enhance the Wood for Good message and provide the specifier or consumer with a first class durable and attractive product designed to meet their every requirement.

Centre for Timber Engineering Advisory Board Meeting

11th June 2003 at the Merchiston Campus, Napier University, Edinburgh,
report by Dr Martin Ansell, FIWSc, FIMMM

The Centre for Timber Engineering (CTE) based in the School of the Built Environment at Napier University Edinburgh was established in 2002 to promote teaching and research in the field of timber engineering under the direction of Professor Ban Seng Choo. The lack of provision for courses in timber engineering at undergraduate, postgraduate and HND/BTEC levels was identified as a major weakness in the context of UK timber and construction industries. As a result the CTE was set up to provide the support base to establish timber as a key material for construction. Courses will be delivered at undergraduate, postgraduate, pre-degree/technician and CPD levels and strategic research will be conducted in the field of timber engineering.

A key factor in the establishment of the Centre has been the strong financial and moral support from the timber industries and associations and Scottish Enterprise (£415k). Major sponsors include wood. for good, the Timber Trade Federation, UKFPA, Forest Enterprise, Scottish Enterprise, James Donaldson and Sons Ltd, Stewart Milne Timber Systems, Finnforest (UK) Ltd and the Scottish Forestry Trust. The CTE held its formal launch on 17th January 2003 and Iain Gray, then Minister for Enterprise, Transport and Life Long Learning, opened the Centre. David Bills, Director General of the Forestry Commission spoke on the potential of timber as a resource and an exhibition was staged in the CTE Timber Structures Laboratory.

The Director of CTE, Professor Ban Seng Choo, was recruited from the University of Nottingham where he was Reader in Structural Engineering. Dr Dan Ridley-Ellis, also from the University of Nottingham took up the post of Consultant Research Engineer in April 2003 and he was joined by Mr Ian Stewart, Technical Consultant, in May 2003. The CTE's industrious Administrator is Ms Joanne Astbury. Professor Robin Mackenzie (Acting Dean of Faculty of Engineering and Computing) and Professor Ian Pyrah (Professor of Civil Engineering) were responsible for carrying out much of the preparatory work which led to the establishment of the Centre.

The IWSc is represented on the CTE Advisory Board and highlights of the meetings held on 4th December 2002 and 11th June 2003, ably chaired by Paul Marsh, are reported here. A BSc Honours degree programme in Civil and Timber Engineering will run from October 2003 and applicants have been offered places on this course and a sponsorship scheme is in place. Professional accreditation from the Institution of Civil Engineers and the Institution of Structural Engineers at IEng level will be sought. An MSc in Timber Engineering and teaching material at pre-degree/technician level for use by FE colleges will also be available from October 2004. CTE is in discussion with the School of Agricultural and Forests Sciences at the University of Wales Bangor and the Department of Architecture at the University of Strathclyde with regard to collaboration in the use of teaching material for the MSc. A high priority is to develop CPD courses on Eurocodes EC0, EC1 and EC5 to be offered from October 2003 as well as CPD courses on timber in construction. Two additional staff posts are being advertised to run CPD activities as demand is expected to be high.

Two Teaching Company Scheme (TCS) programmes are up and running in conjunction with Oregon Timber Frame Ltd and James Jones and Sons Ltd. CTE will host the prestigious CIB-W18 meeting in September 2004 (International Council for Research and Innovation in Building and Construction, Working Commission W18 - Timber Structures). A major bid has been made to the Scottish Higher Education Funding Council for a collaborative programme of research on Sitka spruce in collaboration with Glasgow University and Forest Research. CTE will be the university partner in a timber cladding research programme led by the Highland Council with funding from the Northern Periphery Programme which involves Norwegian partners. Professor Choo has been invited to join the UK Timber Engineering Group, the Forestry Engineering Group, the Scottish Forest Industries Cluster (SFIC), Leadership Group and InTec (Innovative Timber Engineering in the Countryside). He also joined the SFIC tour of New Zealand in February 2003 to better understand the interaction between forestry and timber engineering issues and to place this knowledge in the context of the UK's forestry and construction industries.

The launching of the CTE is an exciting development for timber engineering in the UK and there is much to interest members of the Institute. CTE is a Corporate Member of the IWSc. Further information on the CTE may be found at: cte.napier.ac.uk.

From left to right, Mr Ian Stewart, Professor Ban Seng Choo, Ms Joanne Astbury, Dr Dan Ridley-Ellis and Professor Robin Mackenzie.

Technology For Timber – A Profile

TFT, as the company is more familiarly known, began life in the Spring of 1991 in the spare bedroom of Jim Coulson's house in Harrogate. Two years later, when he moved home to Ripon, North Yorkshire, TFT moved as well; and there it has remained, now occupying offices overlooking the market square of this small and attractive Cathedral City.

Jim Coulson, TFT's founder (and of course currently president of the IWSc), had the idea of creating a technical consultancy practice which would offer help and support to the suppliers, specifiers and users of timber, but which at the same time would seek to enhance the reputation of the raw material through better understanding of its properties and uses (hence the word "For" in the company's title, which is intended to signify "in support of").

Woodblock floor suffering from severe shrinkage. (It had been sawn "green" but installed in a library where the equilibrium moisture content was about 12%. Need we say more?)

So, in a nutshell, TFT uses its knowledge of Wood Science and Timber Technology for the good of timber and its many customers.

TFT's client base has steadily expanded over the past decade and now numbers well into the hundreds – ranging from local authority Trading Standards Officers, to solicitors, architects, housebuilders, shopfitters; and of course the Timber Trade. Its work has also developed from a concentration on training "stress graders" in the early 90's, along with occasional site investigations, to running numerous tailored in-company training courses on a variety of subject areas, and undertaking each year dozens of Expert Witness commissions from legal professionals.

A sash window joint which was dismantled to prove that no sealing or gluing of the timber had taken place at the time of manufacture. (In service, the window was leaking rainwater internally at this crucial joint, which had been formed by "trenching" through the entire cill section.)

Technology For Timber is a member of the Association of Consulting Scientists, and its Expert Witness services are approved by the Law Society.

Although based in the North of England, TFT's activities are by no means confined to that part of the world. UK-based training courses have been held in places as far apart as Inverness and Exeter, Shrewsbury and Ipswich; and technical investigations have taken place in locations as diverse as America, France, Switzerland and Saudi Arabia. Jim Coulson also acts in a subcontract capacity for BRE Certification, and regularly undertakes grader assessments in a number of European and Baltic countries.

Whilst it is true to say that the wood science expertise within TFT rests primarily with Jim Coulson, it is not always realised that TFT provides many other services to the Timber Trade and its customers. Under the TFT banner, there are a number of Associates who can handle many different wood-industry related topics. Timber Engineering and structural design services are provided by Roy Waite, whilst complex statistical projects and studies involving life-cycle analysis of materials are carried out by Anette Diers (a native German now living permanently in the UK). Marketing studies and customer-focused projects are the province of Angela Spatcher-Johnson, and Personnel & Recruitment matters are handled by Lesley Bers. Each of TFT's specialists can be brought in to give their expertise on a particular aspect of a client's business, where appropriate – but the most important thing about TFT is the fact that it is grounded in, and operates exclusively for, timber in its widest context.

As can be seen from the above article, TFT are committed to timber; and we believe that our deep understanding of the material and the wood industry is a vital tool in helping our clients to achieve solutions to their problems.

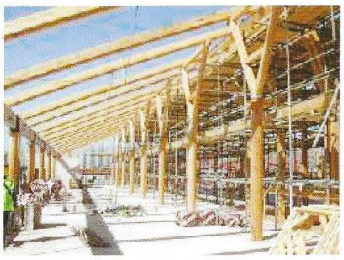
Blue-stained timber as delivered to a quayside in the UK-claiming to have been freshly-sawn from clean logs, with the blue sapstain having developed during transport. But it should be obvious from the depth of the staining that this is "log blue" which was well developed before sawing took place.

Old barn timbers, intended for structural re-use in situ: but the decision in this case was that there was too much deterioration from insect and fungal attack to warrant any guarantee of future life in the conversion to a new dwelling.

An example of TFT's training work, showing a group of new trainees sponsored by a major international company, and using the IWSc Foundation Course as the basis of a "timber experience" course. This not only trains the students in the basics of timber, but also takes them to Sweden, where they learn about forestry operations and visit a major softwood sawmill.

European Redwood for Specialist and Conservation Use.

Many of you will have read the article in the spring edition of Wood Focus by David Woodbridge on the Green Oak Carpentry Company and the project they undertook building the Resource Centre at the Harper Adams University in Shropshire. The timber was supplied by Conservation Pine, a new company formed to source Scandinavian pine appropriate for historic and specialist uses.



Harper Adam University

From a timber perspective the unique feature of this building was that the whole structural framework (with the exception of the wall plates) measuring on plan 20m by 56m was built using European Redwood *Pinus sylvestris* from Sweden.

Over 60m3 of timber was used in the structure, possibly representing the most significant building using coniferous timber built in England, perhaps since the days of the timber frame warehouses. (The writer will be interested to know of other large buildings constructed in recent times using coniferous timber).

What this volume represents in terms of actual specification is worth highlighting:

Rafters:
40 / 11.5 m of 125 x 325 mm – these are all original lengths not laminated sections! As you can see from the photograph, these were cut two pieces ex log.

Butt End - Each template is 125x325

Columns 44 / 3.6 m of 300 x 300 mm. These were cut in Sweden to octagons and subsequently turned into rounds for columns in the UK.

The Critical 'Top End'

Light wells:
150 x 150mm cut 2 ex and 4 ex from large logs.

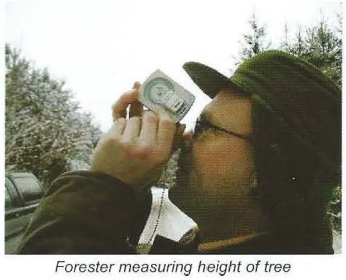
For those of you familiar with softwood supplies of European Redwood from your local merchant, such dimensions are quite extraordinary.

The real key to a unique supply like this is that the timber needs to be sourced directly from the forest, working with foresters, to identify appropriate trees and the right growing conditions.

The octagonal columns

The logs are then taken to our specialised mill which is uniquely capable of handling large logs and converting them to our specification.

The specification for Harper Adams highlights the principle that highly specialised and unique projects like this require that we start with the forest identifying and converting timber with the end use in mind.



Forester measuring height of tree

We evaluate the standing tree using a hollow core boring augur to produce a radial sample core. From this we can establish rate of growth, proportion of heartwood to sapwood and possible defects such as heart rot. This gives us vital information before taking the decision whether to fell.

Hollow core auger

The pine for Harper Adams was supplied green and whilst the inevitable development of drying checks was understood and accepted, considerable thought was given as to how this could be minimised. All the pine logs were winter felled, valuable to ensure no discolouration of the sapwood (temperature too low) but also important to ensure that the moisture content of the timber was low. Sapwood probably varies between 25% moisture or less in the winter to, say, 100% (percentage of water to the dry weight of the wood) in the height of the growing season. Heartwood on the other hand remains at about 35%, and sometimes less, throughout the year.

Of course large sections such as these cannot be effectively kiln dried by conventional means.

We have been experimenting with surprising success using microwave drying of sections as large as 300 x 300 mm to be used for windmill stocks.

300 x 300 section of Pine cut after microwave drying revealing no drying checks (temperature was -15° C thus the 'white' look to the end grain!

In the case of the Harper Adams timbers we chose to adopt some more traditional techniques, particularly for the larger section columns. We looked at centre boring, a technique used successfully in Norway.

Centre boring in Norway, siz of hole is critical

However the choice was to go for an artificial check and like the centre bore hole, needs to be introduced whilst the timber is green.

The columns were shipped to England in January and the artificial check made after turning into rounds during February – later than the ideal, but still very much in the winter period when limited drying takes place.

The 'check' was made with a series of saw kerfs to provide a wide groove.

These were cut radially towards the heart centre and throughout the length of the piece. The technique is very effective and you may have noticed in large square sections that naturally occurring large drying checks on one side often allow the other three sides to dry almost check-free as the stresses associated with tangential shrinkage are relieved.

Large natural drying checks on the rear of a post

This technique has been used for centuries in Scandinavian log building, particularly Norway. To be fully effective the section needs to be boxed heart and the cut should be made when the timber is green. Ideally, therefore, undertaken as soon after primary conversion as possible. A big advantage of the artificial check is that it provides some control in that it can be made in the side of the timber that will not show in its final in-situ position; the upper side of a beam, for example, or the outside of an external wall post.

This technique is just one example of the value of learning from the past. Science and technology provide us with many answers today but particularly where

The face side of the same post showing a 'check-free' surface

demanding situations arise we have much to learn from the wisdom of previous generations who often had a much closer affinity with their materials and learnt empirically by trial and error of the best techniques.

The past has much of value to tell us!

Searching and researching the old ways is part of the raison d'etre of Conservation Pine Ltd.

Research into old forestry practices often adopted for naval stores (pine for ships' masts for example); also the study of the use of pine in historic buildings in Scandinavian countries is helping to build an understanding of how pine was selected, converted and used for optimal results by previous generations.

Pine from Scandinavia and the Baltics, has been imported regularly into England at least since the early 13th century and almost certainly before. Its use has been extremely widespread and significant.

Historically there was a close affinity between forest and 'wright' – whether, for example, wheelwright, cartwright or housewright. The 20th century had seen steady erosion of this knowledge and skill. To further compound the problem the growth of high production sawmills in the Nordic countries requiring standardised logs, who convert for maximum yield rather than end use, has further detached us from the true potential of the forest.

In future articles we will discuss some of the factors that need to be given consideration to enable best use to be made of Europe's Principle Pine, *Pinus sylvestris*.

We are indebted to Professor Knut Larsen of the University of Science & Technology in Trondheim, Norway, for the photos of the centre bored timber and his observations on Norwegian historic practices. Professor Larsen is an Associate Director of Conservation Pine.

For further information you may contact:-
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Trees and their Products in the Bible

By John Brazier DSc FIWSc

Zacchaeus....sought to see Jesus who he was; and could not for the press, because he was little of stature.
And he ran before, and climbed up into a sycomore tree to see him;for he was to pass that way. *Luke,* **19**, *3-4.*

So Zacchaeus climbed a sycomore for a better view and, no, it is not mis-spelt. It was not the tree we know as sycamore but a type of fig, *Ficus sycomorus*, though not the fig which is commonly eaten. But it is a large tree, up to 15 m and with a trunk 1-2m in diameter; Zacchaeus could well have had a good view from its branches.

What of other trees and their products mentioned in the Bible?

Noah was instructed to make an ark of gopher wood (Genesis, **6**, 14) which is believed to be the Mediterranean cypress, *Cupressus sempervirens*; this was a good choice because the wood is easily worked and long lasting, though whether Noah welcomed a long spell in the ark is open to question. In the event, it was little more than a year before Noah could leave the ark and for such a short period almost any wood would have sufficed. Perhaps it is an early example of over-specification!

Another builder who knew the worth of his timbers was Solomon who 'sent to Huram the king of Tyre, saying, As thou didst deal with David my father, and didst send him cedars to build him an house to dwell in, even so deal with me. Send me also cedar trees, fir trees and algum trees, out of Lebanon' (II Chronicles, **2**, 3, 8). Tyre, today in southern Lebanon, was then a great maritime power and Phoenician port for the (then) vast forests of its hinterland. By 2700 BC there was a thriving timber trade with Egyptians and Babylonians using cedar wood, a pleasantly scented wood with good durability. Some 800 years later when Solomon built the temple, it is little wonder that he chose the outstanding wood of the region. Today, only a few small groves of ancient cedar forest occur in Lebanon but such is the fame of the tree that it is the State emblem, on flag and national airline. 'The greater house he ceiled with fir tree' (II Chronicles, **3**, 5). The fir of the region is *Abies cilicia*, a true fir. It is a lighter weight wood suitable for roof timbers though it is likely that, then as today, fir was used as a general name to include the local pine, much as we refer to Scotch fir for what is, correctly, Scots pine.

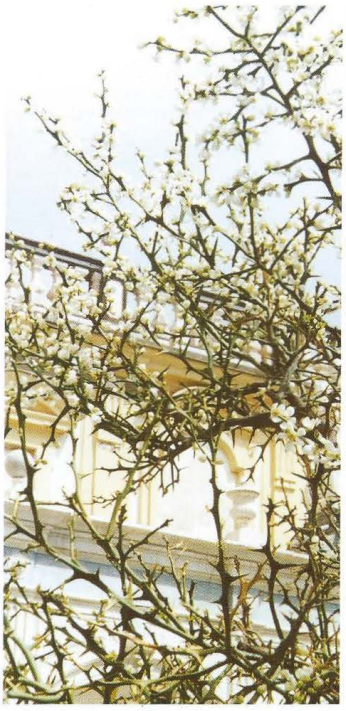
Algum or almug wood is a most interesting choice. In the same context but in I Kings, **10**, 11 - 12, it is written, 'And the navy also of Hiram, that brought gold from Ophir, brought in from Ophir plenty of almug trees, and precious stones. And the king made of the almug trees, pillars for the house of the Lord, and for the king's house, harps also and psalteries for singers.....' Almug and algum are accepted to be the same, but what is this versatile wood, used for pillars, harps and psalters (a kind of dulcimer)? The belief is that it is a padouk or red sanders, *Pterocarpus santalinus*, a dark red, decorative, hard, durable, very stable wood, resistant to white ants (termites) and even today highly prized. It grows in the Coromandel forests of South-east India and in Sri Lanka and if it came from Ophir, a region of north-east Africa, it attests to a trade, more than 3000 years ago and most probably by sea, to the Middle East from the Indian sub-continent and perhaps beyond. Other evidence for this trade is given in Ezekiel, **27**, 15, 'The men of Dedan were thy merchants; many isles were the merchandise of thine hand; they brought thee for a present horns of ivory and ebony'. Ivory could be from Africa or India and there is a hard, dense, black wood, but not an ebony, in East Africa. True ebony occurs in Madagascar but the finest black ebony comes from Sri Lanka and this suggests that, like gold and gemstones, fine woods were shipped from great distances.

But not only timbers were traded, so were their products. The wise men brought to the infant Jesus frankincense and myrrh. Both are resin exudates, from *Boswellia sacra and Commiphora abyssinica* respectively, closely related genera of the same botanical family, Burseraceae, characterised by having many species of shrubs and trees with resin ducts in their bark Frankincense is a shrub and myrrh a small tree; neither grows in Israel but both occur in Arabia and north-east Africa from where the resin was traded by Phoenicians via the so-called spice route from Sheba through western Arabia. Both were used for incense, in perfumeries and as ingredients for ointments and cosmetics.

Other familiar trees are mentioned in the bible, some undoubtedly growing locally and cultivated for their fruits, fig, olive, apple, pomegranate, mulberry; the sycamine tree mentioned by Luke (**17**, 6) is believed to be the mulberry. John (Matthew, **3**, 4) ate locusts, the bean of the carob, *Ceratonia siliqua*, a leguminous tree, and there are references to familiar nuts, almond and pistachio; the nut orchard referred to in the Song of Solomon (6, 11) is reputedly of walnuts, a tree now grown in all parts of Israel. Some of our familiar timber trees are listed, oak, chestnut, plane, willow, poplar, but it is not certain that such translations from the Hebrew and Aramaic texts are always correct. What we can be sure about is that the species would be different from those familiar to us.

The crown of thorns, mentioned by Matthew, Mark and John, is popularly believed to be from the tree known as the Christ thorn, *Zizyphus spina-christi,* but there is no certainty as to its identity and there were, and still are, many other spiny plants growing around Jerusalem. The thorny burnet, *Sarcopoterium spinosa,* a shrub up to 50 cm high is particularly common as a hedgerow plant around Jerusalem and it has been suggested that it would be a more likely source of spiny branches for the Roman soldiers to plait a crown of thorns. And finally Judas, who we know hanged himself but on what tree? Though the Judas tree, *Cercis siliquastrum,* grows in Israel, the gospels give us no clue; its form, typically a low, straggling tree, suggests it would not have served Judas's purpose well.

The article above first appeared in the Bledlow *Parish Messenger*. For more information, the reader is referred to *Plants of the Bible* by Michael Zohary Cambridge University Press, 1982, on which the above is based in part.



Zizyphus spina-christi growing in the cloisters of the Certosa di San Martino, Naples. Photo by D E Woodbridge

Career and Training Profile

by Kevin Cooksley CMIWSc

The question is often asked as to how training can help the individual to develop his or her career and its value to both the person concerned and those for whom he or she may work. This profile looks at the training and career (to date) of Kevin Cooksley since he, at the early age of eight, first discovered his interest in wood.

Kevin is now employed by J T Sydenham and Co Ltd at their Maiden Bradley branch. His duties include sales management, covering Wiltshire, Dorset, Somerset, and Devon and surrounding regions, directing production, purchasing stocks, product development and quality control. In his sales capacity he deals with contractors, joinery companies, furniture and cabinetmakers, shopfitters, kitchen component manufacturers and at the craft end of the market, wood turners and carvers.

To see how Kevin's career has progressed to this point and the training that he has undertaken along the way we have his own enthusiastic account. This is as follows:

My first interests in wood began when, on my parent's farm we cut down trees for various purposes. This opened my eyes to the different timbers and their characteristics. This interest was maintained at school in woodwork. However my interest was first put to a real test when, at 16, I joined a timber merchant in their sales office. From then on I was hooked!

Having left school at 16 it was however clear to me that my education was far from complete, but with a commercial interest to follow, the obvious direction for future study had to be associated with timber and the timber trade. Two timber courses with the Builders Merchants Federation followed by a BTEC in Construction provided the initial impetus and with those behind me I crossed the divide between an industry intent on selling wood to one that uses it. I got my hands dirty as the saying goes and worked, self-employed, essentially as a carpenter but covering brickwork and groundworks along the way. This opened up new territories of experience, those of the architectural and structural disciplines all of which inevitably made me more aware of how the pieces of the complex jigsaw that goes to make up the building industry begin to fit together.

Situations changed and after three years I was back in the timber trade, fulfilling a number of roles and progressing through four different timber suppliers. Over this period though I can summarize my development and activities as becoming much more of a specialist rather than a generalist. My sales work focused on the merchant trade, furniture manufacturers, kitchen suppliers, boat builders, shopfitters and musical instrument makers.

With all this activity it did however become clear that some technical and scientific training would not go amiss. The range of selling opportunities, the contacts with the timber buyers over such a wide range of product manufacturers and craftsmen made me realize that there were large gaps in my basic understanding. It was at this stage that I embarked on the Institute of Wood Science Certificate Course under Martin Wall at the Isle of Wight College. This was in 1999. My life changed immediately. Not just because of the volume of work, but because so much of what I had taken for granted, seen in connection with my sales work or which I had just not fully understood, began to fall into place. As the two years of study progressed I began to realize something else too. And that was, in addition to becoming a reasonably accomplished and useful member of staff, my employers were beginning to see an added value, one of a knowledge that was backed up by a technologically sound understanding of timber, timber processing and panels.

Another aspect, which all this has unexpectedly opened my eyes to, is the support given by the IWSc and my tutor, Martin. When one needs to know something new or maybe just to have the confirmation of ones own conclusions to a question or situation arising in the day to day commercial world of supplying wood,

such networking is invaluable.

To get a Distinction in the IWSc Certificate Course Examination in 2002 was a great boost in many ways. It is always good to have the opportunity to prove ones self! It also has had the effect of driving me on. Learning does not stop when you get a certificate to frame and hang on the wall!

I am now furthering my studies with the Institute's Associate Course for which Martin Wall continues to be my tutor. The big hurdle at this higher level of Course is not so much the exam but the project. With the former now (successfully) behind me I am well on with my research project into the bending of ash to make furniture. One of the outcomes of this investigation is expected to be a greater awareness of how timber generally can be formed into curved components and from that, potential benefits and opportunities in markets for timber.

So what does all this really tell us? Although hard at times, the rewards of study are great. And when pursued in parallel with ones normal work they do have added meaning and significance. The combination of the two makes one much more a master of the situation and that alone is a great confidence booster.

And so where to next. Perhaps an MSc in Timber Technology?

Charles Sherbone, Joint Managing Director of Sydenhams, has responded enthusiastically to this article and has made the following observations about the value of appropriate training.

"It has long been a tradition of Sydenhams to provide opportunities for staff to undertake training as appropriate to their individual needs and to help support their career development within the Company. Kevin is no exception to this policy and his achievement in the Institute's Course has not gone unnoticed. What is also clearly apparent is his considerable enthusiasm for wood. This, coupled with the increasing fund of product knowledge, especially in hardwoods and panels, has quite clearly increased his confidence. Under his management the sales of his branch have increased dramatically. This would seem to imply that the customers too recognise and benefit from his knowledge. This is good news for Kevin and very good news for Sydenhams. As an employer it provides both satisfaction and proof that a positive approach to training has a measurable commercial value."

Martin Wall, Kevin's tutor, remarks that the Institute's Timber Technology Courses have been instrumental in the professional development, over the years, of many people in the timber trade some of whom now hold senior and executive positions. He also reports on the way he has witnessed students develop in confidence and work related performance during their studies. This, along with high student motivation to succeed, does not usually go unnoticed by employers too. Other outcomes include positive relationships that may develop between the company, the student, the tutor and the Institute.

BRANCH AND TRAINING NEWS

Institute of Wood Science (Canadian Branch): Report for 2002-3

The Institute of Wood Science Canadian Branch is a little over a year old. Registered numbers in the branch have doubled since the formation of the branch and now stand at 19, including 11 Fellows, 4 Associates, 3 members and one retired Fellow. Most of the branch members are located in British Columbia, but there are also members based in Alberta and New Brunswick. Professor (emeritus) Bob Kennedy is the President of the Branch and Professor Philip Evans, Director of the Centre for Advanced Wood Processing (CAWP) at University of British Columbia, is the Secretary/Treasurer. Administrative support for the Branch is provided by Mrs. Wendy Johnston of CAWP. Since the formation of the branch two seminars (see below) have been delivered by Dr Laurie Cookson of the CSIRO, Australia and Dr Chris Williamson of Department of Chemical & Process Engineering, University of Canterbury, New Zealand, respectively. There are plans for two further seminars this year. Institute affairs are publicized in the newsletter of CAWP, which is published 6 times per year. Copies of the newsletter are available at http://www.cawp.ubc.ca/cawp_newsletter.htm

The Canadian Branch of the Institute of Wood Science located in the heart of Canada's forest and timber industries would be delighted to host visits from other branch members and we look forward to closer contact with colleagues overseas. For further information on the branch please contact Mrs. Wendy Johnston at Tel 604 822 6122; Fax 604 822 9159; wendyj@interchange.ubc.ca.

Institute of Wood Science (Canadian Branch) Seminars

"Degradation and Protection of Wood in the Marine Environment" by Dr. Laurie Cookson, CSIRO, Australia, October 2002
This seminar covered all aspects of the degradation and protection of wood in the marine environment and was given by Dr Laurie Cookson, Team Leader, Preservatives and Chemicals section of CSIRO Forestry and Forest Products Laboratory in Melbourne. Laurie holds a BSc (Hons) in Zoology and Microbiology from Latrobe University, and MSc (entomology of termites) and PhD (marine borers) degrees from Monash University. He has published over sixty papers on various aspects of wood preservation and is a leading authority in the field of marine borer control. His major achievements in this area include discovery of new species of marine borers (18 of the 56 species of Limnoria in the family), development of more environmentally sensitive biocides and treatments for timber used in the marine environment, and the elucidation of the mechanism by which silica controls the activity of limnorid borers.

"Process Simulation for the Finger Jointing Process" by Dr. Chris Williamson, Senior Lecturer, Department of Chemical & Process Engineering, University of Canterbury, New Zealand, January 2003
The wood products industry in New Zealand has the potential to become the largest single contributor to gross domestic product. However, the industry must meet the challenge of converting a variable raw material into a product with properties that match the needs of the customer. The development of engineered wood products meets this challenge but requires a shift from traditional saw milling to an industry that has more in common with classic manufacturing processes. This change in focus means that technologies that have helped to revolutionize design and operation in the process industries, such as process simulation, are now suited for application to wood products manufacture. Software describing the finger jointing process, discussed in this seminar, is an example of process simulation in the engineered wood products industries. The program is a section of a larger piece of software under development to model the production of engineered structural members from sawn logs.

At the Institute's Annual Conference in Newcastle the winners of the Associate and Certificate Course Examinations during 2002 were present to receive their awards.

Pippa Latham (James Latham PLC and a Member of the Institute's Education Committee) presenting the Bryan Latham Award (a cheque) to Associate Course winner, Desmond O'Toole (Griffner Coillte, Republic of Ireland).

Rosemary Urquhart (Timber Trades Journal) presenting the TTJ Challenge Cup to winner, Peter Openshaw (David Cover and Son Ltd) Peter is currently studying for the Associateship qualification.

News and Views from the Director

by Jim Lumsden MCIPD MIWSc

INSTITUTE TO LAUNCH NEW WEBSITE

A new website is currently being piloted and will soon be launched replacing the existing site. The new site will include a number of additional features including a password protected members only section that will be a source of information to members, students and permitted visitors. Each member/user will be provided with a unique password/user name determined by the Institute who will keep a database to ensure validation.

This restricted access section will contain a searchable database of PDF files in logical and easily navigable sections that will include such areas as; member information, containing minute of meetings; IWSc business documents; featured papers from the Journal; papers from the annual conference; a register of members skills in a searchable database and training material.

The nature of the PDF files means that visitors will have the option to either view and print them online or download them to their computer for later perusal.

The new website will also provide facilities to record visitor information such as pages visited; number of visitors to each page; duration of the visit; country of origin; type of organisation (e.g. education establishment, government department, company, search engine, etc.); whether unique or repeat visitors and many other statistics to enable us to analyse the usage of the site.

Members who agree to have their special interests/skills published will be able to go to the members' only page and complete the necessary form online. This will provide a searchable database from which enquirers could retrieve the names and contact details of members' self-declared competency in wood science/technology/trade. Members will be able to enter and update their own details.

THE FOUNDATION COURSE – TWO YEARS ON.....

The early success of the Foundation Course has continued with the number of enrolments doubling since the last report in August 2002. To date 537 students have been enrolled on the course and of those 231 have successfully passed the examination and been awarded the Institute's Timber Studies Award.

Further Irish Successes

At a presentation ceremony held in Dublin on 18th September 2003, some 34 awards were made to successful students from the Irish Timber Trade Association. The group pictured below represented a wide range of Irish timber companies.

This year's winner of the ITTA challenge trophy for the student with the highest marks in the Irish examination was Gillian Brophil from Coen Holdings, Tullamore, County Offaly. *Congratulations to Gillian!*

The Irish Timber Trade Association continue to support and promote the benefits of training to their members and have now enrolled over 100 students on the course.

A further group will be enrolled later this year. Through these pages we would like to record our thanks to Anne Jefferies, Secretary of the ITTA for her work in centrally organising the enrolments and administering the course.

The Foundation Course goes International!

The Foundation Course has widened its geographical boundaries. To date enrolments have mainly come from the UK and Ireland, however a recent enquiry from the WWF resulted in 14 staff being enrolled from offices in Sweden, Switzerland, Netherlands, Denmark, Italy and Bolivia.

Continued on page 16

Membership Matters

NEW CORPORATE MEMBERS

We are pleased to announce the following additions to the list of corporate members:

Forest Products Association of Canada

FPAC is the voice of Canada's wood, pulp and paper producers nationally and internationally in government, trade and environmental affairs. They provide an active forum for advancing ideas and issues of key importance to the Canadian forest products industry and the 1,200 communities it sustains across the country.

With the help of member companies, FPAC designs programmes to promote Canada's leadership in trade and economic matters, sustainable forest management and environmental stewardship.

The Association has its head office in Ottawa, Ontario and a European office in Brussels, Belgium.

James Donaldson & Sons Ltd

We are pleased to wecolme back into membership one of Scotland's longest established, largest independent timber importers and sawmillers, specialises in meeting customer satisfaction through product and service. Their sister company, Donaldson Timber Engineering specialises in design and manufacture of trussed rafters, specialist timber products like the TJI Silent Floor System, and packaged house lots.

Based in Fife, the company operates from its Leven Sawmills and has eight timber engineering centres throughout the UK.

MDM Timber Ltd

Established independent importers and distributors of a wide range of quality forest products. The company operates from premises at Basildon, Essex

For further information about Corporate Membership and the benefits that it offers please contact the Institute direct.

SUBSCRIPTION RENEWAL

At the next renewal date, it is proposed to issue members with a membership card showing the members name, grade of membership, and membership number. At the same time members will be asked to voluntarily provide additional information to improve the quality of information held on the computerised member database. Information such as employer, job title, e-mail address would help us to communicate more effectively with the membership.

In addition to the existing subscription payment methods (direct debit and cheque) it is planned to add the facility to pay by credit card. This has been requested by a number of members who believe it would make payment easier for them. Once again we would welcome your comments on these plans.

MEMBERS VIEWS

The Institute welcomes the views of members and encourages active participation at all levels. We would be happy to hear your views on recent activities and developments e.g. the new style Wood focus magazine, the website, the Annual Conference and the Foundation Course.

We would also like to hear your views on what you consider would add value to your membership.

Why not write to the Director on these or any other matters that affect your membership, he would be happy to hear from you and you never know, your views could make a difference.

REGIONAL CONTACTS

For information on branch and/or regional and overseas activities, the contacts are:

Bath and the South West - Dr. Martin Ansell FIWSc (01225 826432)

Chilterns and Thames Valley - Dr. Vic Kearley AIWSc (01494 563091)

Midlands - Tom Shaw FIWSc (01789 840605)

Ireland - Anne Jefferies ITTA (itta@indigo.ie)

Liverpool and the North West - Geoff Bagnall CMIWSc (0151 724 1206)

London - John Park AIWSc (01252 522545)

Scotland - Andrew Gibson AIWSc (01416 321299)

South Coast - Patrick Gilbert MIWSc (023 9259 2715)

North East - Jim Coulson AIWSc (01765 601010)

Yorkshire - Neil Ryan AIWSc (01302 802226)

Overseas

Australia - Prof. Peter Vinden (pvinden@unimelb.edu.au)

Canada - Prof. Philip D Evans (e-mail: phevans@interchg.ubc.ca)

For details of individual and corporate membership, contact the Institute direct.

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