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THE NEWSLETTER OF THE BRITISH HYDROLOGICAL SOCIETY

Circulation

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Hydrology:

Science and practice for the 21st century

BHS International Meeting
Imperial College, London
12–16 July 2004

300 delegates from 40 countries, presenting over a 140 papers and 40 posters — what else do you have to include to claim a successful meeting!?! Our President gives more details inside but we can't let the front page go without acknowledging that the Society has done it again, i.e. put on a damned good show which will have long-lasting benefits for hydrological practitioners, wherever they are.

Those members who attended can attest to the excellence of the papers, the professionalism of the the presentations and the smooth organisation of the event. This will continue, in that we are planning to gild the lily by publishing electronically the posters of all those who have sent in appropriate copy. This 'additional Conference volume' will be put on the Society's web site shortly. Further, for those of you who couldn't get to the meeting for whatever reason, and would like to read the original papers rather than the summaries that will appear in the write-up of the meeting, copies of the CD containing all the papers presented are available at £3.00 each, including P&P.

Please send cheques (and ideally an address label) to:

Celia Kirby
Newton House
Newton Lane, Kington
Herefordshire
HR5 3NG

[Note that this offer expires at the end of the September when I move house again.]

President's piece

I make no apology for devoting the whole of my piece for this issue of *Circulation* to the highly successful International Conference on *'Hydrology: Science and Practice for the 21st Century'*, which was held at Imperial College, London between the 12th and 16th July and was one of the largest events to be staged by the Society in recent years. The meeting was attended by some 300 delegates with participants from nearly 40 countries. Approaching 140 oral papers and a substantial number of posters were presented in two sets of three parallel sessions, and written papers were available in two hardcopy volumes and as a CD pre-published by the Society. A half-day programme of technical and social visits separated the sets of scientific sessions, and a rolling exhibition of hydrological equipment, software and publications was held throughout.

The venue for this, the second international event that the BHS has staged, could not have been more appropriate given the leading role that Imperial College has played in the development of hydrology as a discipline both at home and overseas, and it was particularly appropriate that **Professor Peter Wolf,** who was instrumental in founding hydrological teaching and research at the College, was able to participate in the conference. Lecture and other facilities in the Sir Alexander Fleming Building were excellent, and delegates who took advantage of the modern college accommodation at Beit Hall would not have been disappointed (see photos).

The context for this meeting was well set during the Opening Ceremony in presentations by **John Sexton** (Thames Water Utilities), **David King** (Environment Agency of England and Wales), **Mike Bonell** (UNESCO) and **Howard Wheater** (Imperial College). During the following two days, the conference addressed the themes of *Hydrology of Extremes*, *New Techniques in Hydrology* and *Interdisciplinary Hydrology and its Application*. It is anticipated that full accounts of the work presented in these themes will appear in *Circulation* in due course, but some of the advances that can be highlighted through preliminary reflection on these sessions include improvements in methods to down-scale and disaggregate rainfall data, to characterise floods and to detect non-stationarity in hydrological extremes. With respect to new techniques of hydrological modelling, it was apparent that a 'models–of–everywhere framework' is emerging, that new techniques for the assessment of uncertainty are being developed and that there is a new demand for data management tools. Increasing integration between hydrology and other disciplines, involving scientists, stakeholders and politicians was evident from papers presented at Imperial. It is clear that hydro-ecology is a rapidly expanding focus of study, although contributions also stressed that several challenges remain in the interfacing of hydrology with biological, social and other sciences.

Wednesday afternoon saw a range of interesting technical and social visits to the LOCAR catchments of the Pang and Lambourn, the Jubilee River, the London Wetland Centre at Barnes, the Thames Barrier and Windsor Castle. In the following two days, the theme on *New Techniques in Hydrology* continued but with a focus on observational methods rather than models, and further themes relating to *Global Hydrology and the Impact of Global Change*, *Urban Water* and *Integrated Catchment Management* were addressed. Again, it is hoped that full accounts of the work presented in these sessions will be reported in *Circulation* but a selection of some of the highlights can be reported here. In a global context, the maturing of international programmes, such as HELP, PUB and SAHRA which partly grew out of a need identified at the first BHS International Conference, was stressed, and work on linkages between vegetation and hydrology and on rhythms and patterns of streamflow emerged as new research foci. Launching of new satellites in the coming decade will facilitate global assessment of soil moisture, while at more local scales, new approaches to observation, for example by making use of mobile phone networks, will facilitate the development of distributed modelling for research and operations. In urban environments, the need for hydrology to interface with economic and social systems, to better understand interactions with ecology for river rehabilitation, to assemble databases of infrastructure assets and to develop appropriate technology and knowledge tools for the developing world were identified. Integrated catchment management was an important theme at the conference which was specifically addressed in one session but also recurred in many papers throughout the scientific programme. It was clear that much progress has been made in this area but a number of challenges remain especially in dealing with a growing need for public consultation and participation, in explaining hydrology to technical and lay people outside of the discipline and in interfacing with other fields to achieve a fully integrated approach.

Guest Editorial

Well, its very nice to be back in the driving seat, just for once.... Of course its quite different now, although you have only to click on lumps of text on the screen to move them about, there are lots more design decisions to be made (which is where John is so good). When I did the first *Circulation*, we used to get the typed copy (yes, typed, not keyed) set on an IBM compositor in a neighbour's back bedroom and then paste up the pages using liquid wax (so you could move them around to line up the text with a straight-edge on a copy board). I particularly remember the first issue because our nice type-setter thought she was doing me a favour and set Enda O'Connell's name as Edna and – up against printer deadlines as always – I had to do some nifty work with a razor blade to restore Enda's masculinity.

This issue brings lots of goodies. First a preliminary write-up by Bruce of our very successful second International meeting held at Imperial College last month and second, more information on our 21st anniversary meeting to be held in November. And, as usual, several informative accounts of BHS meetings that have taken place since the last issue of *Circulation*. Both events surely put the seal on the Society's credentials as an organisation that is here to stay, alongside the other professional society stalwarts such as the Geol. Soc. and the Royal Met. Soc. [All we need to do now is set up our own journal and we really will have arrived. But more of this later.]

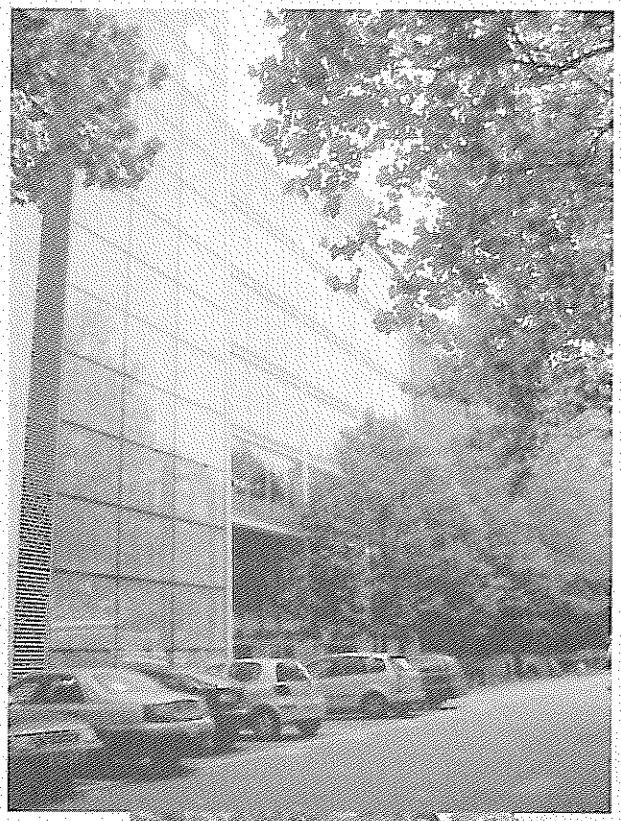
Celia Kirby

It was particularly pleasing at the conference to have a strong participation of younger hydrologists from both home and abroad. The BHS has a tradition of awarding prizes to younger scientists who contribute the best papers and presentations at is major meetings. As the standard of presentations by younger workers was very high, it was exceptionally difficult to pick the winners but **Brian Hornbuckle** (Iowa State University of Science and Technology, USA) and **Doug Booker** (Centre for Ecology and Hydrology (Wallingford), UK) were identified as worthy recipients of the two prizes available.

Of course, not all of the time at this meeting was devoted to the scientific sessions and there was a carefully planned programme of social events to divert delegates from papers, posters and discussions. Particular highlights included a stunning and only mildly scary trip on the 'London Eye', and a spectacular Conference Banquet, which was held in the Flight Gallery of the Science Museum, where delegates were treated to an entertaining and interesting after-dinner speech by **Sir John Harman** (Chairman, Environment Agency of England and Wales).

I'm certain that all those who participated in *'Hydrology: Science and Practice for the 21st Century'* will have felt that it was a very enjoyable and successful event, and the Society is extremely grateful to all those organizations and individuals that made it so. Great thanks are due to our co-sponsors who included UNESCO, International Association of Hydrological Sciences, Thames Water Utilities, Environment Agency of England and Wales, Scottish Environment Protection Agency, Department of International Development, American Geophysical Union, and Centre for Ecology and Hydrology Wallingford and provided much appreciated financial and other support. The lead convenors for each conference theme, **Nigel Arnell**, **Christian Onof**, **Neil McIntyre**, **Robert Gurney**, **Mike Acreman**, **Cedo Maksimovic** and **Hilary Smithers**, and their teams of co-convenors, did an enormous amount of work in processing papers for the scientific programme, and **Celia Kirby** was responsible for preparing very professional and highly attractive Proceedings Volumes, while **Neil Andrassy** (Halcrows) skilfully produced the CD version. The distinguished scientists who gave keynote addresses (**David Butler**, **Keith Beven**, **Hoshin Gupta**, **Ignacio Rodriguez-Iturbe**, **Dan Rosbjerg**, **Jim Shuttleworth**) enhanced the scientific programme, and all contributors of papers, posters and discussion helped to stimulate a highly level of scientific interest.

Several individuals from London Universities and other organizations assisted with the local arrangements before and during the event, and **Peter and Liz Walsh** were on hand throughout the week in London to provide help when required. However, the main burden of organizing this major conference lay with Imperial College and in particular the Environmental and Water Resource Engineering section within the Department of Civil and Environmental Engineering. Particular thanks are due to **Howard Wheater** who chaired the National Organizing Committee for the event with great skill and charm and to **Adrian Butler** who masterminded the local organisation with enormous enthusiasm, effort and effectiveness. **Neil McIntyre**, **Angela Frederick**, **Judith Barritt** and **Ruth Butler** provided major contributions to the very smooth running of the conference and students from the college provided much helpful and cheerful assistance. The Society congratulates Imperial College for all its efforts in making BHS2004 a great success and looks forward to the next International Conference which is scheduled for 2010.





Bruce Webb
B.W.Webb@exeter.ac.uk

52nd NABS Meeting

Vancouver, British Columbia, Canada, 6–11 July 2004

With the receipt of a BHS travel grant, I was fortunate to be able to attend this meeting held last month in Vancouver. The meeting was the largest NABS conference to date, with over 640 presentations. Although the society is primarily concerned with freshwater ecology, the conference provided several interesting sessions linking hydrology and ecology. In particular, sessions on: Small Streams and Forestry, Large Rivers, Hyporheic Processes and Land-Water Interfaces were particularly relevant for hydrologists. A number of talks in other sessions also incorporated hydrological processes into stream ecology, most notably with respect to community and disturbance ecology (see; http://www.benthos.org/Meeting/nabs2004/index.htm for further details).

The conference was opened by NABS past president Catherine Pringle (University of Georgia), who gave an interesting talk about the ecological effects of variations in hydrological connectivity. Particular emphasis was given to the effect of dams upon migratory fish. Other less obvious effects of dams were also discussed, such as influences upon the transport of inorganic dissolved silica to downstream areas, and potential impacts upon stream and coastal food web structure. Other aspects of this talk concerned the ecological impact of inter-basin water transfers (e.g. for hydropower schemes).

As part of the Small Streams and Forestry session, Sherri Johnson (US Forestry Service) presented a paper investigating stream temperatures as metrics of effective forest practices. The talk reviewed current understanding of the effects of forest practices on stream temperatures, with an emphasis on North American guidelines, which are primarily concerned with impacts upon fish. The paper went on to discuss how guidelines should be extended to include potential effects of altered thermal regimes upon other ecosystem processes and macroinvertebrate communities. Later talks in the same session discussed the importance of retaining riparian forest buffers in harvested catchments, due to their influence upon stream temperatures in trout streams (K.L. Jones *et al.* [University of Georgia], and also T. Gomi *et al.* [University of British Columbia]).

As part of a session entitled Landscapes, M. Parsons *et al.*, (University of the Witwatersrand, South Africa) presented a paper on how catastrophic flood disturbances may promote heterogeneity in riverscape mosaics. Using a GIS approach, the authors were able to demonstrate that floods decreased areas of vegetation patches, and increased unvegetated patches. Variation in pre and post-flood patches varied among channel types and flow-inundation zones, showing that flooding promotes complex riverscape heterogeneity. In the same session, Geoffrey Poole *et al.* (Eco-metrics, USA) spoke about geomorphic and hyporheic controls on water temperatures. Hyporheic exchanges were shown to create a diversity of thermal conditions along the Umatilla River, Oregon, influencing the longitudinal pattern of main stream temperatures, and at times, even reversing expected downstream warming trends. Some consequences of channel engineering upon stream thermal patterns were then presented.

In the Large Rivers session, M. Döring et al., (EAWAG, Switzerland) talked about the influences of large-scale surface-subsurface water exchanges in the Tagliamento River, Italy, and their influence on ecosystem processes. Nitrate concentrations were found to be lower in losing zones of the river, but periphyton biomass and average sediment respiration were greater in gaining zones. Results indicated that large-scale patterns do not conform exactly to patterns previously observed at the pool-riffle scale.

My talk was entitled Hydroecological response of alpine streams to dynamic water source contributions: a case study from the French Pyrénées (co-authors David Hannah and Sandy Milner), and was presented in the Community Ecology session. In-stream macroinvertebrate community dynamics in relation to variable water source inputs (snow, glacial ice and groundwater), and, thus, variable physicochemical habitat conditions are not fully understood. My paper tested a recent conceptual model (Brown *et al.*, 2003) that challenges the applicability of traditional alpine stream classifications (principally static and based on water temperature), by hypothesising that ecological communities respond to spatially and temporally dynamic water source contributions. My presentation aimed to:

(1) to identify spatial and temporal variations in alpine stream water source contributions,
(2) to describe associated changes in key physical and chemical habitat conditions, and
(3) to relate these habitat changes to ecological community dynamics.

I presented data collected at two sites within the Taillon-Gabiétous catchment, French Pyrénées, over the 2002 and 2003 summer melt-seasons showing how alpine water source (listed above) contributions to streamflow varied within and, potentially more importantly, between the melt seasons. This water source variability results in changes in stream physical habitat conditions (i.e. discharge, turbidity, water column and streambed temperatures [Brown et al., in press] and electrical conductivity), which in turn, play an important role in determining benthic macroinvertebrate community composition. I was able to demonstrate clear changes in the abundance of key macroinvertebrate taxa across each melt season, and also between the two years of the study. From the results of the study I concluded that macroinvertebrate taxa may be useful as indicators of changes in the timing and magnitude of contributions from these alpine water sources, and explained how these hydroecological relationships may be used to predict alpine stream ecosystem response to potential scenarios of climate change.

Overall the meeting enabled me to hear presentations on state of the art research, present my own research and gain useful feedback, and build professional relationships and contacts for future research. I would like to thank the BHS for their funding which made this opportunity possible.

References

Brown, L.E., Hannah, D.M. & Milner, A.M. (2003) Alpine Stream habitat classification: An alternative approach incorporating the role of dynamic water store contributions. *Arctic, Antarctic and Alpine Research* **35**: 313-322

Brown, L.E, Hannah, D.M. & Milner, A.M. (In press) Spatial and temporal water column and stream bed temperature dynamics within an alpine catchment: Implications for benthic communities. *Hydrological Processes*

Lee Brown
School of Geography, Earth and Environmental Sciences
University of Birmingham

Travel grants

Travel grants are available to help BHS members whose travel expenses are not met by an employer to attend scientific meetings. The amount will depend on the nature and location of the meeting and the case put forward.

Grants are mainly intended to help younger members, but are open to all. Successful applicants will be expected to write a short report for *Circulation*.

The Exeter Fund, looked after by BHS, offers grants to help British hydrologists take part in IAHS events.

To apply for a grant, please contact the BHS Hon. Treasurer, **Steve Parsons**, Mott MacDonald Ltd, Demeter House, Station Road, Cambridge, CB1 2RS *(tel 01223 463926, email sbp@mm-camb. mottmac.com).*

Hydroecology and the Habitats Directive

South-East Section Site Visit, Itchen Valley Country Park, 10th June 2004

The River Itchen is the subject of a major environmental study that involves joint work between Southern Water, the Environment Agency and English Nature. The four-year River Itchen Sustainability Study is concerned with the long-term management of the river, which rises near Alresford in the Hampshire Downs and flows through Winchester and Eastleigh before it flows into Southampton Water. The study combines hydrological, hydrogeological, hydraulic, ecological and water quality modelling techniques to develop a target flow regime for the protection of target species, communities, habitats and assemblages in and around the River Itchen. The Study was officially completed in December 2003 and is now at the reporting stage. Its outcomes are being used to inform the on-going *Habitat Regulations Review of Consents: Stage 3 Appropriate Assessment* being undertaken by the Environment Agency and English Nature.

Designated as an Area of Special Scientific Interest, the river is also a Special Area of Conservation that indicates its national and European importance. The study is being carried out as part of the Environment Agency's National Environment Programme.

The chalk stream is a particularly important habitat for plants, invertebrates, fish, birds and mammals. It is also noted for its populations of southern damselfly, an internationally threatened freshwater macro-invertebrate. The study will improve significantly current scientific understanding of the requirements of southern damselfly and establish a monitoring strategy, which will improve the protection of this rare species in the future.

Work carried out includes surveys on bird, otter, water vole and crayfish habitats, fish migration studies and surveys of water levels, river flows and weed growth. The study linked the hydrology of the river system to the local ecology, focusing on conservation issues.

The River Itchen sustainability study is therefore important because it will recommend a sustainable management strategy for the Special Area of Conservation.

40 people attended the recent South East Section Site Visit to the River Itchen, with the theme of the afternoon being Hydroecology and the Habitats Directive. The group met at Itchen Valley Country Park on a sunny afternoon and listened to two presentations detailing the current work being undertaken in the River Itchen Sustainability Study. The first one by **Rod Murchie** (Environment Agency) introduced the River Itchen and the Itchen Sustainability Investigation. **Mike Packman** (Southern Water) gave the second presentation and discussed innovations in the Sustainability Study and work carried out on target flow regimes for the River Itchen.

After lunch and the presentations, the group embarked on the mini tour to visit key points of interest on the middle and lower reaches of the River Itchen, led by **Trevor Muten** (Southern Water), **Mike Packman** and **Rod Murchie**.

Sites visited were Southern Water's WWTW at Morestead and WTW at Otterbourne. Whilst at Otterbourne, the group had the opportunity to walk along a small stretch of the Itchen Navigation.

Helen Procter
Environment Agency

Water on our doorsteps:

Hydrology of urban areas in the UK

BHS National Meeting
Centre for Ecology and Hydrology, Wallingford
12th May 2004

A one day national meeting, on urban hydrology, was held at the Centre for Ecology and Hydrology (CEH), Wallingford by the South East Section of the BHS. The meeting was very well attended, with more than 60 participants from academia, consultancies and the public sector. It provided a timely opportunity to discuss key themes in urban hydrology.

Gareth Old (CEH, Wallingford) opened the meeting by setting the scene. The importance of the hydrological impacts of more than 150 years of rapid urbanisation in the UK was emphasised. He stated that significant advances had been made in our understanding of the urban hydrological environment over the last five years and the aim of the meeting was to deliver key aspects of this research. The presentations considered urban groundwater, sewer flows, surface runoff, surface water quality, in-river ecology and management issues. **Alan Jenkins** (CEH's Water Science Director) then gave a short presentation to welcome participants to the Centre for Ecology and Hydrology, Wallingford. He gave an overview of the scope of CEH science and its organisation.

The first session focused on urban flooding and was chaired by **Roger Simpson** (Simpson & Partners). **Richard Ashley** (University of Bradford) gave the first presentation: *Flooding from urban sewers and drains—what do we know?*

The extent of urban flood risk and its prediction was discussed. The need to develop better tools to predict urban flooding, flood pathways and hence to manage control and mitigation measures was emphasised. He also believed a scientific, risk-based approach was needed for both prediction and mitigation rather than the current 'return period of rainfall' approach.

John Packman (CEH, Wallingford) then spoke on *Surface Runoff in Urban Areas.* He presented results from a comprehensive monitoring and modeling study of the flood response of the Cut at Binfield, a mixed urban/rural catchment including the new town of Bracknell and several flood reduction measures. The SCHEME model, a semi-distributed model developed at CEH Wallingford, was applied successfully to 31 flood events. He concluded that SCHEME provides a working method for assessing the impacts of hydrological variability and the impacts of hydraulic interventions in mixed urban/rural catchments.

Rae Mackay (University of Birmingham) spoke on *Groundwater Flooding Risks and Flows to Rivers in Urban Areas.* The reasons for the perceived increased hazard of groundwater flooding in urban areas were discussed. He also mentioned that if flooding risk increases in future years in response to climate change then groundwater seepage effects should be managed in addition to surface water. The most effective solutions are likely to involve a combination of groundwater table control and groundwater exploitation strategies.

The second session focused on urban water quality and was chaired by **James Blake** (CEH Wallingford). **Paul Ellis** (University of Birmingham) spoke first on *The groundwater contribution to urban river quality —River Tame, West Midlands.* Sample data demonstrated that in many places in the study area, groundwater quality was better than surface water quality and in these places the groundwater input was beneficial. However, in other areas contaminant plumes were identified discharging from the riverbed although they are generally diluted in the surface water column. Paul concluded by saying the impact of groundwater is small at present but may be more significant in future if surface water quality improves.

John Tellam (University of Birmingham) then presented *Groundwater Quality and Wellwater Quality in the Birmingham Urban Aquifer.* He mentioned that Birmingham's wellwater is still, on average, 'good' despite the city's long industrial history. Limited data indicate trends in inorganic contamination are spatially varied. He believed that future prospects for the aquifer/well system are good given the currently tighter legislation regarding pollution. However, he felt that concentrations of some organics are probably still increasing and the impact of this is not yet clear.

Damian Lawler (University of Birmingham) presented a paper *Storm-event turbidity dynamics and hysteresis in an urban headwater system: the Upper Tame, West Midlands, UK.* He discussed the dynamics of turbidity that were observed during multiple storm events in 2001. Damian explained how his observations were not consistent with the classic 'first-flush' effect: instead, considerable suspended solids transport continued throughout the storm events with little evidence for sediment exhaustion.

Gareth Old (CEH Wallingford) then spoke on *River flow and associated transport of sediments and solutes through a highly urbanized catchment-Bradford, West Yorkshire.* He described and accounted for the dynamics of river flow, solute and suspended sediment transport that were

identified at monitoring stations located throughout the heavily urbanised Bradford catchment. Gareth emphasised that understanding the spatial and temporal variations of flow and the transport of suspended sediment and solutes in rivers in urbanised subcatchments is crucial to their effective management and monitoring.

The third session focused on Urban River Ecology and was chaired by **Gareth Old** (CEH Wallingford). The first speaker was **Doug Booker** (CEH Wallingford) who spoke on *Modelling the effects of channel design on fish habitat during high flows.* He used 3D-CFD simulations to assess the available physical habitat for fish at high flows in two urban river reaches. His results demonstrated that straight and heavily engineered channels provided limited flow refugia for fish during high flows. This research illustrated the importance of physical habitat for fish survival in urban rivers.

The fourth session focused on urban river management and was chaired by **Graham Leeks** (CEH Wallingford). **Mark Scott** (Environment Agency) presented *Sustainable Urban River Management – An Integrated Approach.* He described the Sustainable Management of Urban Rivers and Floodplains (SMURF) partnership project. The aim of this project is to investigate how to manage urban rivers more sustainably. It includes the development and dissemination of a methodology for urban water management, extensive citizen consultation and the development and demonstration of a GIS based land-use planning model.

Angela Davenport (Kings College London) then spoke on *Sustainability Indicators for Urban Rivers.* She pointed out how urban rivers are often described as homogeneously poor in quality when current management tools and methodologies are used that have been developed outside urban catchments. However, Angela explained how urban rivers may display high levels of physical and ecological diversity. She described a series of sustainability indicators that have been developed specifically for urban rivers and concluded her presentation by saying that, "These tools will enable river managers to assess the current status of the river, its potential for recovery and restoration, and enable targets to be set for its long term sustainability".

The final presentation of the day was made by **Bob Sargent** (Marcus Hodges Environment Limited) who considered *Urban Development Impacts on the Aquatic Environment.* He described how Sustainable Urban Drainage Systems (SUDS) aim to reverse the trend of often polluted and flashy urban river flow regimes by reinstating selected features of a natural drainage system. There is evidence that SUDS provide a more favourable hydrological regime that is less polluted. Bob concluded that, "with careful planning SUDS should enable urban areas to be developed (and redeveloped) without the aquatic degradation of the past".

Graham Leeks (CEH Wallingford) then raised several key issues to stimulate the closing discussion. He posed the following questions:

Is monitoring sufficient in the urban environment?
Are our methodologies generic?
How can we build on what we know to successfully apply our research?

Furthermore, he noted that there are currently missing links with the disciplines of socio-economics and public health.

Gareth Old (CEH Wallingford) suggested that although several methodologies have been developed in specific urban environments, the challenge is to now test their generic applicability. **Angela Davenport** (Kings College London) explained how there are often problems when applying methodologies developed in rural systems to the urban environment. A lively discussion followed on the application of the sustainability indicators presented by Angela. **John Turner** (Environment Agency) thought that the application of this methodology would be very useful. **Brian Ellis** (University of Middlesex) initiated a discussion on the applicability of Angela's scoring system. The need to weight scores for particular application types (e.g. rehabilitation, flood defence) was raised. An interesting discussion followed on the sustainability of Sustainable Urban Drainage Systems (SUDS). From this discussion it was clear that robust SUDS datasets are needed to evaluate their effectiveness fully and the data collection efforts should be co-ordinated nationally.

Gareth Old thanked the speakers and participants for a very interesting and constructive meeting during which several key issues had been discussed, new management tools presented and future challenges identified.

Presentations from the meeting are available on-line through 'the past meetings' section of the BHS website at *www.hydrology.org.uk.*

Gareth Old
CEH Wallingford

News from members

Hilary Smithers has let us know that she has left the Environment Agency for a post in water resources at SEPA. She says she is looking forward to a new challenge north of the border but that no doubt there will also be some cross-border issues too!

Hilary's new email address is: hilary.smithers@sepa.org.uk

New members

A warm welcome to the following new members of the Society:

Katie Bunting ..... Capita Symonds, East Grinstead
Helen Rosemary Butlin ..... Halcrow Group Ltd., Exeter
Jennifer Ann Covey ..... Environment Agency, Wallingford
Darren Andrew Evans ..... DFID, Brazil
William Hancock ..... Environment Agency, Bodmin
David Jonathan Mould ..... CEH, Wallingford
Nevil Wyndham Quinn ..... University of West of England, Bristol
MMalcolm Slater ..... University of Newcastle upon Tyne
Sharon Wallace ..... Entec UK Ltd., Shrewsbury
Keith Weatherhead ..... Cranfield University, Silsoe
Richard John Williams ..... CEH, Wallingford

Forthcoming BHS and other meetings

BHS TO COME OF AGE!

The 21st Anniversary of the formation of the British Hydrological Society falls in November 2004. To mark this milestone, BHS is holding a National Meeting at the Institution of Civil Engineers, London on the 10th November. The theme will be 'Past Trends and Future Directions in BritishHydrology', and the intention is to have a series of keynoteaddresses from the country's leading hydrologists.

The idea is that speakers across different areas of scientific hydrology, and from government agencies and hydrological consultancy, will summarise the major developments that have occurred over the past 21 years and will identify key areas for future work over the next couple of decades. The emphasis will be on the achievements in, and future roles of, British Hydrology, including advancing our knowledge of the hydrological cycle in Britain and in developing new techniques, methodologies, concepts and theories that have relevance not only at home but also abroad.

There will also be a general discussion session, focusing particularly on future directions, and a reception to celebrate the Society's coming of age will be held at the end of the event. We hope that as many BHS members as possible will want to participate in this milestone meeting.

Diary

22nd September 2004
BHS National Meeting + **Annual General Meeting**
"Low flows: measurement, theory and practice" — *see flyer for details*
Venue: ICE, London
Contact: Dr Andy Young, CEH Wallingford *(tel 01491 692347, email ary@ceh.ac.uk)*

29th September – 1st October 2004
IFAC workshop on modelling and control for planning and managing water systems
Venue: Venice, Italy
Details: *http://www.elet.polimi.it/IFAC_TC_Environment/Venice2004*

13th October 2004
Scottish Hydrological Group meeting
"Incidence of Catastrophic Flooding on Scottish Railways, 1830-2002"
Venue: Royal Society of Edinburgh, George Street, Edinburgh
Time: 6.00 for 6.30pm
Contact: Mike Cranston (*tel* 01738 627989, *fax* 01738 630997, *email michael.cranston@sepa.org.uk*

14th October 2004
South East Section meeting
"Latest Developments in Flood Mapping & Forecasting"
Venue: ICE, London
Time: 18.00
Contact: Joe Pearce *(tel* 01903 703874, *email joe.pearce@environmentagency.gov.uk*

20th October 2004
BHS South West Region Meeting
"Hydro-meteorological forecasting in the south west: science & applications"
Venue: The Met Office, Exeter
Time: 11 a.m. to 4 p.m.
Contact: Prof. Paul Bates, School of Geographical Sciences, University of Bristol, University Road, Bristol BS8 1SS *(tel 0117 928 9108, fax 0117 928 7878, email paul.bates@bristol.ac.uk)*

Copy deadline for *Circulation* No. 83 15th October 2004

10th November 2004
BHS National Meeting
"Past trends and future directions in British hydrology – in celebration of the BHS 21st Anniversary"
Venue: Godfrey Mitchell Theatre, Institution of Civil Engineers, London
Time: 10:00-17:45, followed by a reception for members and guests
Contact: Prof. Bruce Webb, Dept of Geography, University of Exeter *(tel 01392 263334, fax 01392 263342, email B.W.Webb@exeter.ac.uk)*

25th November 2004
Scottish Hydrological Group meeting
"Hydrological Studies of Flanders Moss"
Venue: Smith Art Gallery and Museum, Stirling
Time: 6pm for 6:30pm
Contact: Mike Cranston (*tel* 01738 627989, *fax* 01738 630997, *email michael.cranston@sepa.org.uk*

25th November 2004
South East Section meeting
"Developments in the South East – Water and Sustainable Construction Needs"
Venue: ICE, London
Time: 18.00
Contact: Joe Pearce *(tel* 01903 703874, *email joe.pearce@environmentagency.gov.uk*

15th December 2004
BHS Midlands Section meeting
"Saving the Severn"
Venue: Aston Webb Building, Birmingham University
Contact: Dr Chris Bradley, University of Birmingham *(tel 0121 414 8097, fax 0121 414 5528, email c.bradley@bham.ac.uk)*

20th Jan 2005
South East Section meeting
"Quality Assurance in Model-based Catchment and River Basin Management"
Venue: ICE, London
Time: 18.00
Contact: Joe Pearce *(tel* 01903 703874, *email joe.pearce@environmentagency.gov.uk*

3rd–9th April 2005
7th IAHS Scientific Assembly
Venue: Foz do Iguaçu, Brazil
(See the IAHS website: *http://iahs.info*)

and finally, ...

don't miss the AGM!

- 1.30 p.m. immediatelly after the lunch break at the *Low Flows* meeting on 22nd September.