

THE NEXT CONGRESS - DUBLIN 1998

This edition of SILNEWS includes the first circular for the 27th International Congress of Limnology which will be held in Dublin, Ireland from 9–15 August 1998. If you hope to attend this congress please complete and return the appropriate portion of the circular to ensure that you will receive the more detailed second circular. No financial commitment is required at this stage, just an expression of interest.

Einar Naumann - August Thienemann Medal
"De limnologia optime merito"
and the

Founders of SIL, E. Naumann and A. Thienemann

The First General Assembly of each congress of the *Societas Internationalis Limnologiae* culminates with the award of the **Einar Naumann - August Thienemann Medals**. This award is the highest honor that can be bestowed internationally for outstanding scientific contributions to limnology. The engraved bronze medal bears the reliefs of the two founders of SIL and the meritorious inscription in Latin cited above. The Naumann-Thienemann Medal Committee evaluates nominations received from the membership and submits its recommendations to the International Committee for approval. Not more than one medal shall be awarded per year (see Statutes of SIL in the Appendices of the General Secretary's Report of the *Proceedings*).

The medal originated as the Einar Naumann Medal and was first awarded in 1948 (see listing of recipients at the end of this article). The important contributions of August Thienemann to the development and leadership of SIL were fully appreciated later when the early records of the SIL were examined carefully (see Rodhe, 1974, for a detailed account of the events, original correspondence, and meetings that led to the foundation of SIL in 1922). In 1972, at an international workshop to honor the 50th anniversary of the SIL (Wetzel 1974), a decision was made to alter the medal to recognize the different, but fundamental and reinforcing, contributions of both scientists to international limnology.

Einar Christian Leonard Naumann (1891 – 1934) studied in southern Sweden at the University of Lund. In 1917, he completed his Ph.D. in botany and zoology and advanced to docent in botany with studies on phytoplankton and sediment formation in some Swedish lakes. He conducted many diverse limnological studies, particularly in the Aneboda region, and established an Institute of Limnology at the University of Lund in 1929, when he assumed the chair of professor of limnology. Over a period of 23 years, Naumann produced 297 publications, including several books, such as the major work in 1931 *Limnologische Terminologie* (Björk 1988).



SILNEWS 21

1 January 1997

Newsletter of the INTERNATIONAL ASSOCIATION OF THEORETICAL AND APPLIED LIMNOLOGY

General Secretary – Treasurer, Prof. R.G. Wetzel,
Department of Biological Sciences, The University of
Alabama, Tuscaloosa, Alabama 35487-0206, USA.

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Material for the next issue must reach the Editor,
**Dr M.J. Burgis, West Mains, London Road, Ascot,
Berks. SL5 7DG, U.K. by 15 March 1997**

Contributions on a PC formatted disk (large or small),
in WP, any standard word processor, or DOS text
(ASCII) will assist the Editor who can also now be
contacted on e-mail at p.morris@rhbc.ac.uk.

August Friedrich Thienemann (1882 – 1960) was trained in zoology in Innsbruck, Heidelberg, and Greifswald (Ph.D, 1905, on trichopteran pupae), and habilitated as docent at the University of Münster on the distribution of freshwater organisms (Rodhe 1975). In 1917, he was appointed director of the Hydrobiological Anstalt at Plön, then of the Kaiser-Wilhelm-Gesellschaft which later became the Max-Planck-Gesellschaft, and professor of hydrobiology at the University of Kiel. Thienemann directed the Max-Planck-Institut für Limnologie in Plön for 40 years. Over a 57-year period, he published 460 publications, which included several major monographs, particularly on the chironomids and regional comparative limnology (Thienemann 1959).

Thienemann and Naumann possessed enormously different personalities. Thienemann was cultured with a deeply rooted intellectual heritage in philosophy, particularly of Goethe, and the classics, was highly disciplined, balanced, and positive, and possessed an extraordinary working capacity. Naumann, in contrast, was impulsive, energetic, and unpredictable yet highly original and insightful. Despite these differences, their many years of independent limnological study before they met in the early 1920s gave them a commonality that quickly forged an intellectual and a personal friendship. Both scientists had been organizing biological and abiotic differences among lakes which resulted in a fusion of Thienemann's primarily regional (Subalpine-Baltic) lake types based on profundal fauna and oxygen distributions with the primarily trophic lake types of Naumann based on water chemistry and primary production of phytoplankton. The coupling of

these properties with trophogenic and tropholytic zone relationships led to the oligo-, eu-, and dystrophic scheme still used today. Lake typology in the 1920s and 1930s was a catalyst for extensive regional limnological research that amalgamated various subdisciplines of lake studies into limnology (Elster 1958).



Einar Naumann

Thienemann continued to make fundamental contributions to limnology and ecology long after Naumann's early death. As early as 1909 Thienemann organized biota into hierarchical systems, and his published discussions in 1914 of the interactions between the different communities and conditions in the water environment into a "super-organismic unity" anticipated the ecosystem concept (Rodhe 1975). Already in 1918 Thienemann had established the concepts that greater habitat diversity results in greater biodiversity, and that habitat disturbance reduces biodiversity but can lead to greater development of the surviving species. It should also be noted that Thienemann developed and published in 1926, the basic conceptual foundations of cycling of nutrients in water and food cycle relationships among producers,

consumers, and decomposers. This work was noted as foundational by Lindeman in his development, with G. E. Hutchinson, of the classical trophic-dynamic aspect of ecology in 1942.

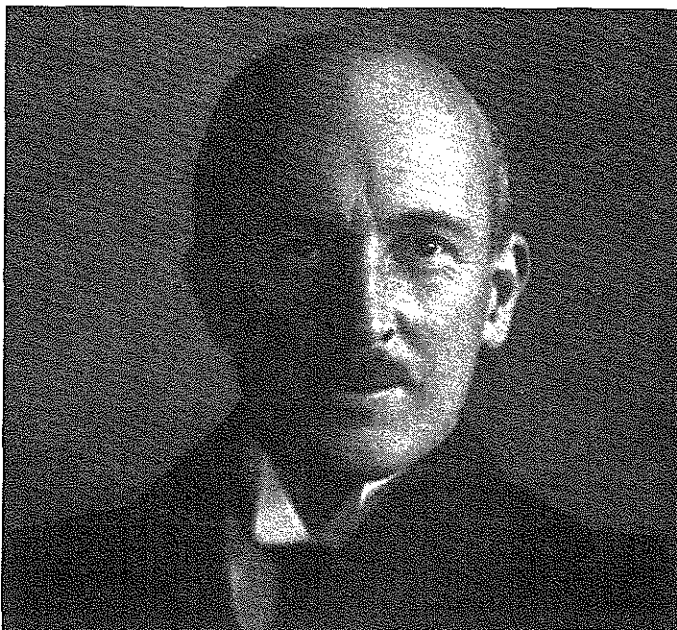
Both Naumann and particularly Thienemann were also active in applying limnological understanding

to applied problems of deteriorating water resources. His missionary statements more than 40 years ago about, for example, the importance of water quality, need for ecological and biological understanding and training among technicians and engineers, rigorous and enforced environmental laws, ecosystem drainage basin management of natural waters, and the importance of experimental scientific research as the foundation of good management are totally applicable and resounding today. Disciplinary service

was also extraordinary. For example, Thienemann was the sole editor of the *Archiv für Hydrobiologie*, a scientific periodical of the SIL, for 40 years and edited over 60,000 printed pages of contributions in this journal alone.

We can learn much from the manifold contributions of these pioneers of limnology. Both Naumann and Thienemann shared great concern and optimism as they worked to encourage the developing science under the constraints of problems of society and their impacts on inland waters. These two men differed greatly in their viewpoints both personally and in science. Yet, they understood the need to collaborate in the profession.

Robert G. Wetzel
University of Alabama



August Thienemann

**DIALOG II: OPPORTUNITY
FOR RECENT Ph.D.
RECIPIENTS IN LIMNOLOGY
AND OCEANOGRAPHY**

The Dissertations Initiative for the Advancement of Limnology and Oceanography (DIALOG) Program was initiated in 1992 to reduce the historical, institutional, geographic and philosophical barriers that limit the exchange of information across the aquatic sciences and to foster interdisciplinary collaborations. Through this program, the dissertation abstracts of recent Ph.D. recipients will be collected and posted on the home page of the American Society of Limnology and Oceanography (<http://aslo.org/>), a symposium will be held to foster cross-disciplinary understanding and collaborations, and a centralized data base of aquatic science researchers started with the first program will be continued.

Eligibility:

The dissertation compilation is open to all aquatic scientists completing Ph.D. requirements after June 1, 1992.

Symposium:

A symposium for 40 recent Ph.D. recipients will be held at the Bermuda Biological Station for Research, October 12 - 17, 1997. It is open to all aquatic scientists completing Ph.D. requirements between September 1, 1994 and March 31, 1997. A committee will select participants based on the application materials submitted. Deadline for completed applications: May 1, 1997

Application Forms:

Electronic forms and submission are available through the ASLO home page, <http://aslo.org/>

Contact person for information:

Susan Weiler, Biology Department,
Whitman College, Walla Walla, WA
99362 USA
aslo.dialog@whitman.edu,
Fax: 509-517-5961

Naumann Medal Awards:

American Society of Limnology and Oceanography (1948)

E. A. Birge (1950)
C. J. Juday (1950)

F. Lenz (1953)
J. Findenegg (1953)

G. Alm (1959)
F. Hustedt (1959)
G. E. Hutchinson (1959)

S. Stankovic (1962)
H. Järnefelt (1962)

K. Berg (1965)
C. H. Mortimer (1965)
W. I. Shadin (1965)

V. Tonolli (1968)

S. I. Kuznetsov (1971)
W. Ohle (1971)

W. Rodhe (1974)

**Naumann-Thienemann
Medal Awards:**

G. G. Winberg (1977)
E. Steemann Nielsen (1977)
E. Schweizerbart'sche
Verlagsbuchhandlung (1977)

D. G. Frey (1980)
W. T. Edmondson (1980)

H.-J. Elster (1980)
J. Hrbáček (1983)

L. Tonolli-Pirocchi (1983)
P. M. Jónasson (1986/7)
R. A. Vollenweider (1986/7)

D. Uhlmann (1986/7)
R. Margalef (1989)

J. F. Talling (1989)
D. W. Schindler (1989)

A. D. Hasler (1992)
V. Sládeček (1992)

R. G. Wetzel (1992)
W. Lampert (1995)

G. E. Likens (1995)
R. Lowe-McConnell (1995)

Literature Cited:

Björk, S. 1988. Einar Naumann. *Svenskt Biografiskt Lexikon 1988*: 474-478.

Elster, H.-J. 1958. Das limnologische Seetypensystem, Rückblick and Ausblick. *Verh. Internat. Verein. Limnol.* 13:101-120.

Rodhe, W. 1974. The International Association of Limnology: Creation and functions. *Mitt. Internat. Verein. Limnol.* 20:44-70.

Rodhe, W. 1975. The SIL founders and our fundament. *Verh. Internat. Verein. Limnol.* 19:16-25.

Thienemann, A. 1959. *Erinnerungen und Tagebuchblätter eines Biologen. Ein Leben im Dienste der Limnologie.* Schweizerbart, Stuttgart. 499 pp.

Wetzel, R. G. 1974. Symposium Semisaeculare: Societas Internationalis Limnologiae 1-14 October 1972. *Mitt. Internat. Verein. Limnol.* 20:31-43.

LAKE SEVAN

A conference was held recently (13-16 October 1996) in Yerevan, Armenia at which results of current research on Lake Sevan were to be presented and a National Strategy for saving the lake was to be discussed. Participants were to include both local government and scientific institutions and international experts. The following notes accompanied invitations to attend this conference.

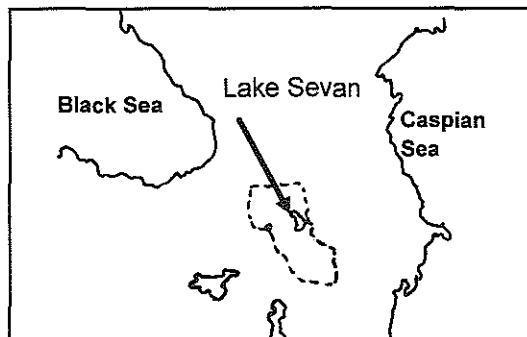
Lake Sevan is the largest high altitude, fresh water body in the Transcaucasus and one of the highest alpine lakes in the world. The Lake Sevan watershed covers an area of 4,851 square kilometers, about one sixth of the total area of Armenia.

Lake Sevan is of great economic importance to Armenia and to the entire Transcaucasian region. Water and energy supply, fisheries and health resorts are directly linked to this unique natural ecosystem. The lake provides drinking water for more than 250,000 people in the water shed. In the last two winters, the water tapped from Lake Sevan to feed six hydropower plants on the Hrazdan River represented up to 35% of Armenia's power production. The lake provides water to irrigate 100,000 hectares of farmland in the Ararat Valley, the most fertile part of the country. The ecosystem of the lake is also a major destination for recreation and fishing and holds special social and historical significance for the Armenian people.

In the 1930s, the large volume of the lake and its 2,000 m head above its only surface outflow, the Hrazdan River, were viewed as resources to be used for energy generation and irrigation of farmland in the Ararat Valley. As a consequence, large volumes of

water were withdrawn to supply a cascade of six hydro-plants on the Hrazdan river, creating more than 500 MW of electricity. The plan was to use water until the lake surface was lowered by about 50 m over a 50 year period.

Water withdrawals for irrigation and hydro-power resulted in a drop of the lake surface by 18.5 m over the next several decades.



Non-sustainable industrial and agricultural use of the waters have induced a loss of 43% of the volume of the lake. This lowering of the water level and decrease in the volume of the lake have brought about considerable changes in the thermal regime and the biodiversity of the lake and its basin.

The unique ecosystem of the Lake's basin includes 25% of the species of the Caucasian flora, among which 167 are declared rare species. Approximately 30 species of birds no longer nest close to the lake, including storks migrating from Russia to Mesopotamia. The lake has also been contaminated by pesticides and heavy metals, including copper, zinc, nickel and cobalt. The falling volume of water has made it increasingly difficult for the Lake to assimilate pollutants and developments have had a devastating impact on traditional fish resources. It is feared that the four species of trout endemic to the lake are in danger of extinction.

Any member of SIL who can report on the meeting would be welcome to write to the editor of SILNEWS.

A PRIZE FOR TROPICAL LIMNOLOGY

The Jean Jacques and Berthe Symoens Prize of Tropical Limnology

The Section of Natural and Medical Sciences of the Belgian Royal Academy of Overseas Sciences has awarded this triennial prize (see SILNEWS 19) to

Dr Yusuf Kizito of Makerere University, Uganda for his dissertation "*Studies of the zooplankton of two Western Uganda crater lakes, Nkuruba and Nyshirya with special emphasis on the bionomics and the productivity of the Cyclopoids*" – Dissertation zur Erlangung des Doktorgrades an der Naturwissenschaftl. Fakultät, Universität Salzburg.

Congratulations to Dr Kizito, who is a former student of Dr A. Nauwerek.

CONSERVATION AND MANAGEMENT OF THE AFRICAN GREAT LAKES VICTORIA, TANGANYIKA AND MALAWI

To be published in the UNESCO Series "Studies and Reports in Hydrology". 133 pp., this publication by R.C.M. Crul (1995) is one of the results of the project "Comprehensive and Comparative Study of Great Lakes (1992 - 1995), a project of the fourth phase of the International Hydrological Programme (1990 - 1995) of the Division of Water Sciences of UNESCO (UNESCO/IHP - IV M-5.1).

The African Great Lakes Working Group of SIL collaborates with UNESCO in implementing the various activities of this project.

Correspondence on this report should be addressed to:
R.C.M. Crul, Crul Consultancy, Mucherstraat 34, 6511 TX Nijmegen, The Netherlands, Tel: +31.24.360 2405 Fax: +31.24.360 6455.



XXVII SIL CONGRESS - IRELAND

UNIVERSITY COLLEGE, DUBLIN
9-15 August 1998

FIRST CIRCULAR

The Royal Irish Academy and the Irish members of SIL invite you to Dublin for the 27th SIL Congress in 1998. We anticipate a record number of participants for SIL98, to be held in the parkland campus setting of University College Dublin, 5 miles (8km) from the city centre. *Please indicate your intention to participate by returning the attached form by June 1997.*

Dublin, famous for its classical architecture, and now emerging as the liveliest of European capitals, has a huge variety of night life - pubs, restaurants, theatres, night clubs - and impressive museums and art galleries. The viking city, Temple Bar, Dublin Castle, are all waiting to be explored. Nearby are scenic Dublin Bay and the Wicklow mountains with extensive blanket bogland and glacial lakes; while the Shannon, Boyne, Lough Neagh, Killarney and Connemara are all easily accessible.

University College Dublin (UCD) is the largest Irish university, with a tradition in freshwater studies. All sessions will be held on campus, in the O'Reilly Hall and a suite of lecture theatres. There are also restaurant, post office, shop and banking facilities, and ample on-campus accommodation, while a range of guest-houses, hostels and hotels from one to five star quality are available nearby or in the city centre. For more information, see the web site <http://www/ucd.ie/aboutucd.htm>

CONGRESS ORGANISATION

XXVII SIL Congress
UCD Environmental Institute,
Richview, Clonskeagh,
DUBLIN 14, IRELAND
e-mail sil98@ucd.ie

SCIENTIFIC SECRETARIAT

XXVII SIL Congress
Royal Irish Academy,
19 Dawson Street,
DUBLIN 2, IRELAND
e-mail sil98@ria.ie

NB The Second Circular, giving details of registration and abstract submission, will only be sent to those responding to this circular or who have sent expressions of interest.

.....
PLEASE COMPLETE AND SEND TO THE CONGRESS ORGANISATION

Family Name..... First Names Title Professor Dr Mr Ms

Address.....

City/Code..... Country

Telephone.....FaxeMail

I am an ordinary member of SIL a student member of SIL a non-member

I intend to give an oral poster presentation in the theme

I suggest a theme area I would like to organise a workshop

Subject.....

I am interested in pre-..... post-..... congress excursions (indicate number if known)

Accommodation: I prefer campus hotel I will arrange myself

I will be accompanied by persons

Other requirements or interests (continue overleaf)

SCIENTIFIC PROGRAMME

Plenary Lectures: The Baldi Lecture will be given by Professor Charles Goldman (Univ. of California, Davis), Vice-President of SIL, on "a century of contrasting change in two Californian subalpine lakes".

The Kilham Lecture will be given by Professor Dan Livingstone (Duke University) on "Historical biogeochemistry of African lakes".

The Conference theme "*Water of Life*" emphasises the diversity of situations where water and living organisms meet. While general sessions will respond to papers offered by members, the committee is keen to have several structured theme sessions preferably linked to keynote papers. The following themes are suggested:

Traditional themes:

- | | |
|---------------------------------------|--------------------------------------|
| 1. Regional limnology | 2. Biology of aquatic organisms |
| 3. Limnology of specific water bodies | 4. Theoretical limnology & modelling |

Other suggested theme sessions:

- | | |
|------------------------------------------------------------|-------------------------------------------|
| 5. Pure & applied integrated catchment studies | 6. Micro-, nano- and pico-scale limnology |
| 7. Biodiversity, endemism, introductions, conservation | 8. Intermittent water bodies |
| 9. Fresh and saltwater interactions, migrations, estuaries | 10. Wetlands, peats and swamps |
| 11. Predicting environmental change; palaeoecology | 12. Marl lakes |
| 13. Agriculture & freshwaters | 14. River & canal management |
| 15. Limnology in water treatment | 16. Education |
| 17. Limnology in the developing world | 18. Transnational issues |

The SIL 98 Committee is greatly heartened by the early response of members who have suggested and offered to convene sessions and workshops on special topics. So far we have specific ideas for sessions on Agenda 21, chironomids and zoobenthos, conservation, cycling of RIT (radiatively important trace) gases in aquatic ecosystems, ecotones between fresh and salt water, education in the tropics, fluvial engineering and limnology, marl lakes, regional representativeness of well-studied water systems. More suggestions are welcome. Intending contributors should contact the Scientific Secretariat for proposers' contact addresses.

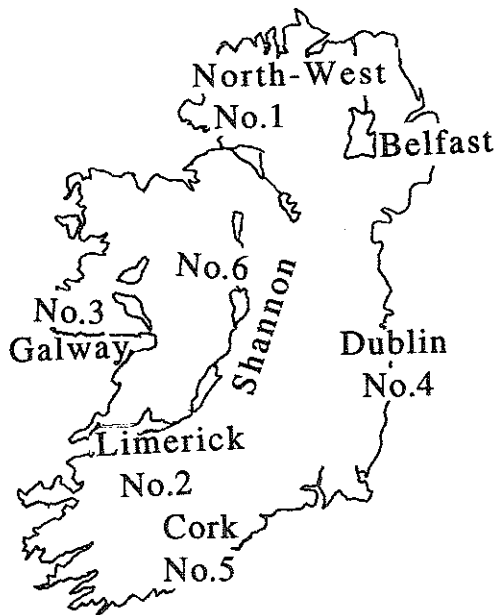
SUBMISSION OF PAPERS

Each registered participant may present one paper, orally or as a poster, in any of the four congress languages (English, French, German, Russian). No participant may co-author more than two papers. There will be prizes for best student presentations. In accordance with SIL policy and the move towards electronic publishing, all contributions must be submitted as hard copy and in disk format. Participants will be encouraged to submit their abstracts by electronic mail. Details will be given in the Second Circular and on the World Wide Web page, at <http://nis.rtc-tallaght.ie/conferences/sil98.home/sil98.html>

EXCURSIONS

MID CONGRESS EXCURSIONS for all registered participants will visit sites of limnological interest within easy reach of Dublin, including glacial lakes, mountain streams, peat bogs, fens, hydro dams, canals, fisheries installations, and water treatment facilities. Some will visit Lough Neagh, Northern Ireland, River Shannon and Lough Corrib.

PRE- AND POST-CONGRESS EXCURSIONS lasting 3-5 days are planned for various regions of Ireland. You may join or leave some excursions at Shannon or Belfast International Airports. Full details of all excursions in the Second Circular.



No. 1 Ireland Northwest: Sligo-Donegal-Fermanagh lakelands. Organised by Dr Chris Gibson (DANI) with assistance from Dr Bob Foy (DANI), Dr Don Cotton (Sligo RTC) and Dr Ciaran O'Keeffe (OPW Glenveagh National Park).

No.2 Ireland Midwest, based on Limerick University Campus and visiting the lakes of Killarney, the lower Shannon, Clare and South Galway. Organised by Dr Tom Harrington (Univ. of Limerick), Dr Enda Mooney (OPW Burren) and Dr J. Larner (OPW Killarney National Park).

No.3 Ireland West, based on campus at University College Galway, with visits to Connemara and the large western limestone lakes Corrib and Mask.

No.4 Ireland East, based on campus at University College, Dublin, the site for SIL98, with day visits to the hard-rock Wicklow Mountains, the Midland limestone brown trout fishery lakes and the canals of the Irish midlands.

No.5 Ireland South, based on campus at University College, Cork, with visits to the large southern rivers Suir, Blackwater, Lee and its reservoirs and flooded alluvial forest, and the lakes and mountains of the south-west.

No.6 Shannon cruise. A floating 2-3 day excursion on the River Shannon, using leisure cruisers and in-board limnologists.

Other pre- and post-congress tours may originate or end in Britain, e.g.

No.7 London - its river and water supply, organised by Dr Mary Burgis in cooperation with the Environment Agency and Thames Water.

No.8 Lake District, Cheshire and North Wales, connecting by plane or ferry to Dublin.

ACCOMPANYING PERSONS will have opportunities during the congress to visit areas of cultural and historical interest, such as the Dublin heritage trail, the Book of Kells at Trinity College, or the ancient burial tomb at Newgrange which pre-dates the pyramids of Egypt. Dublin is an excellent centre for shopping for fine linen, sweaters, antiques, books, crystal, pottery - or just to relax in. We are sure you will enjoy your visit!

TRAVEL

Ireland is strategically located on world and European air routes. Modern car ferries link Ireland with Britain and the European continent. London is only one hour from Dublin by air; there are direct flights from 46 European cities and from North America to Belfast, Shannon and Dublin. Aer Lingus - Irish Airlines - is the officially appointed carrier for XXVII SIL. To avail of special fares, contact your local Aer Lingus office. Delegates from North America should contact Conferences International Inc., Suite 607, 25 Huntingdon Ave., Boston, MA 02116-5713 (Tel. 1-800-2218747, Fax 617-266-5800).

ORGANISATION

The SIL 1998 Dublin Congress is organised by the SIL Congress Committee of the Royal Irish Academy and the SIL Executive Committee, whose subcommittees have responsibility for the Scientific Programme, Finance and Sponsorship, Publications and Social Programme & Excursions. We are working to make the 1998 SIL Dublin Meeting a stimulating, enjoyable and unforgettable experience.

REGISTRATION

Fees for members will be in the region of IR£250. Students will pay a reduced fee. Details of fees and booking procedures will be in the Second Circular (October 1997). In accordance with resolutions passed at the 25th Congress non-members will pay an additional amount equal to 3 times the annual membership fee for 1998.

SPONSORS

We gratefully acknowledge support received from Jameson Whiskey, Allied Irish Banks, The Environmental Protection Agency, Aer Lingus, Ryland Research Ltd., The Royal Irish Academy, University College Dublin and The Office of Public Works.

ANCILLARY MEETINGS

A number of meetings in related disciplines are planned for around the time of SIL 98. To help you get the most out of your travel plans, information on these will be given in the Second Circular or on the web page as details become available.

WEATHER

Irish weather is changeable! Sunny spells and showers are normal for August, with temperatures of 5 to 20°C.

TRANSPORT

Taxis and bus shuttles operate from Dublin Airport to the city centre, and there is a frequent bus service to the UCD Belfield Campus. Good transport links to the city centre are also available from the fermainline stations; details in the second circular.

PASSPORTS AND VISAS

Passports are required for entry into Ireland; visas may also be required for some countries. Persons travelling via UK airports must pass through UK immigration before travelling on to Ireland. Visa information is available from your local Irish Embassy / Consulate or from the Consular / Visa Section, Department of Foreign Affairs, 72-76 St Stephen's Green, Dublin 2, tel. +353-1-4780822, fax +353-1-6686518.

DEVELOPING COUNTRIES

Aid may be provided to a limited number of SIL members living in developing countries. If you wish to apply for financial assistance to attend SIL 1998 and to present a paper, please write a letter outlining your situation to the Secretary, Scientific Secretariat.

SECOND CIRCULAR

The Second Circular, containing registration and abstract forms, general programmes and details of accommodation, excursions and optional visits, will be sent in late 1997 to all those who have responded to this First Circular or have sent expressions of interest.

FURTHER INFORMATION

Updated information may be viewed on the SIL web page at:

<http://nis.rtc-tallaght.ie/conferences/sil98.home/sil98.html>

or from the Congress Organisation at the address above.

Perspectives in Tropical

Limnology. Schiemer, F. and Boland, K.T. (Eds) 1996. SPB Academic Publishing, Amsterdam. x + 347 pp.

Prof. Thienemann, the founder of SIL, was deeply interested in limnological studies in all parts of the world, and wanted to bring together all limnologists (as he said in his SIL Foundation speech in 1922 - *Wir wollen die Limnologen aller Länder zusammenfassen...*). In his quest for understanding of inland waters in different climatic zones, Thienemann, jointly with Ruttner of Austria, organised an expedition to Indonesia – known as the Sunda Expedition – in 1928-29. The year-long studies by a small team of four scientists resulted in such an enormous amount of information that it continued to be published over the next three decades. A study of 228 aquatic habitats ranging from water-filled coconut shells and *Rafflesia* blossoms to large lakes and rivers resulted in 230 scientific papers (7920 pages). Although there were several other expeditions to tropical countries before and after the Sunda Expedition, the scientific impact of the latter is recognised to have laid the foundations of tropical limnology. Indeed, the Max Planck Institute of Limnology in Plön (Germany) and the Limnology Institute in Vienna with which the two leaders of the Sunda Expedition were associated, still continue their work in tropical countries. The Limnology Institute in Vienna has also promoted the cause of limnology in the tropics by organising UNESCO-supported training courses for researchers in developing countries.

Sixty five years after the Sunda Expedition, it was commemorated at an international Conference organised by the Satya Wacana University, Salatiga, Indonesia with

the support of the Limnology Institute of the Austrian Academy of Sciences. The book "Perspectives in Tropical Limnology", includes 28 selected papers out of more than 90 contributions to the Conference. The remaining presentations have been published in Indonesia¹.

The volume begins with a detailed retrospective on the Sunda Expedition (with interesting historical photographs) by Göltenboth. Talling examines the limnological studies in tropical regions before 1928, and then evaluates the Sunda Expedition in its time context and its influence on limnology. Crisman and Beaver provide an excellent overview of the developments in tropical limnology and identify major gaps and weaknesses.

The remaining papers are organised into five sections. The majority of these papers are regional and sectoral studies dealing with one or more components of freshwater ecosystems in one tropical country. Comparative studies are few.

In the section on **Lakes and Reservoirs** (8 papers), Lewis offers an excellent comparison between lakes along the latitudinal gradient. Other papers deal with aspects such as the role of filter feeding fish, with an example from Sri Lanka, effect of drawdown on water quality in a northern Australian reservoir, hypolimnetic oxygen depletion in another Australian reservoir, and seasonal changes in phytoplankton composition in relation to morphometry in two Australian man-made lakes. A detailed study of the sediments of four lakes in Papua New Guinea is presented by P.L. Osborne *et al.* whereas twenty Indonesian lakes are compared by Green *et al.*

The next section, on **Rivers**, includes an important contribution

by Dudgeon and Bretschko who compare the streams in tropical Asia and temperate Europe with reference to the role of allochthonous inputs and highlight the significance of land-water interactions in the conservation of rivers in the tropical regions. The other five papers describe the benthic macroinvertebrates in relation to water quality in the rivers of Java (Indonesia), Papua New Guinea and Nigeria, planktonic rotifers in the River Narmada (India) and organic matter in a Javanese stream sediments.

In the next section, Junk examines the structure and functioning of the Amazon Floodplain and offers comparison with temperate situations. Other papers, again sectoral in approach, deal with the hydrology of Indonesian lakes, phytoplankton of floodplain lakes in Papua New Guinea, constructed wetlands in subtropical Florida and rice terraces in the Philippines.

The section on **Fisheries** has a single paper in which Sena de Silva summarises the knowledge on Asian reservoir fisheries but offers hardly any new information which is not available in earlier publications. Finally, Boon discusses the conservation of freshwaters in U.K. and relevance of those practices to developing countries. He concludes that "large scale restoration is economically untenable in the developing countries of the tropics; in most cases limiting and mitigating damage are the two options most likely to be practicable. However, this will require concentrated efforts at seeking solutions to the difficult problem of implementing integrated catchment management".

Let me pose a familiar question. **What is tropical limnology?** Is it limnology as practiced in the tropics or limnology of tropical waters? Do tropical waters differ from

temperate waters in their physico-chemical environment, biota and functions/processes (rates, magnitudes or pathways) in a manner that their conservation and management would require strategies different from those adopted for temperate lakes and rivers?

Tropical limnology continues to be not only dominated/ influenced by the concepts developed in temperate regions but also by studies made by European and North American scientists in tropical countries. It should be pointed out that much before the Sunda Expedition, the British scientist Annandale, then Director of the Zoological Survey of India, made no less valuable contributions to the study of hydrobiology of the then British India (Afghanistan to Burma). Annandale, assisted by several Indian biologists, surveyed an equally large diversity of aquatic habitats and published extensively on the physical and chemical environment as well as the biota of all kinds of aquatic habitats – caves, marshes, streams, ponds, lakes, and rivers. Unfortunately these studies have never been treated as a part of tropical limnology.

As Crisman and Streever also say, "Historically tropical limnological studies have been conducted primarily through north-south linkages between major universities. By their very nature research emanating from such relationships has been geographically narrowly defined.... far too often the scientific results from such research efforts have benefitted the temperate cooperator and associated students with little direct returned benefit for the tropical host institution or country."

That this trend is not going to be reversed soon is clearly reflected in this volume. The Organizers and

Editors of the Conference considered it fit to select for this volume mostly the articles contributed by temperate scientists, based on their previous studies in the tropics. The papers by native scientists are only few. The studies by native scientists were apparently not found suitable for inclusion in this volume. Further, it is published in Europe making it expensive and inaccessible to the scientists in those very tropical countries from which the included studies originate.

These remarks are not a reflection on the quality of the volume or its contents. The papers included here are definitely of great value as they provide a glimpse of the developments in limnology in Australasian countries (with a few of exceptions – S. Africa, USA, Brazil and India). Several contributions highlight the differences between tropical and temperate waterbodies but the available knowledge is grossly inadequate to develop a theory of tropical limnology. Tropical limnology today may not be an infant crawling on the ground but it is unable to stand on its feet either. Tropical limnology has to shed its crutches – sooner the better. There is an urgent and critical need for local training programs in the tropics that utilize *local* academic expertise. Training tropical students in temperate regions has rarely brought benefits to their native countries. In the majority of cases the students stay in the temperate zone and contribute to the development of the science in those countries.

Brij Gopal, Jawaharlal Nehru University, New Delhi

¹ Timotius, K.H. and Göltenboth, F. (Editors) (1995). Tropical Limnology Volume 1. Present Status and Challenges, Volume II Tropical Lakes and Reservoirs, Volume III Tropical Rivers, Wetlands and Special Topics. Published by Faculty of Science and Mathematics, Satya Wacana Christian University, Jl. Diponegoro 52-60, Salatiga 50711, Indonesia. ISBN 979-8792-00-9.

CHIRONOMID EXUVIAE

A Practical Key to the Genera of Pupal Exuviae of the British Chironomidae (Diptera: Insecta)

Fully revised February 1996, with an account of the CPET method of water quality monitoring.

by R.S. Wilson

Published privately by the author and obtainable from him at Mudgley Elms, Mudgley, Wedmore, Somerset BS28 4TH, U.K.

Price 1-4 copies £12 per copy
5 or more £10 per copy
including postage and packing.

Although the title makes this publication sound rather parochial it is likely to be of use much more widely than just in Britain. It starts with general notes on the Chironomidae and their ecology, followed by a description of the morphology of pupal exuviae and a key which allows those of the Chironomidae to be distinguished from those of certain other aquatic insect groups. Once certain that you are looking at chironomid exuviae, there is first a section for the identification of sub-families and tribes and then the keys to the genera and selected species of the Tanyptodinae, Diamesinae, Prodiamesinae, Orthoclaadiinae, Chironomini and Tanytarsini.

A list of genera and species with ecological notes and a glossary are followed by an introduction to the Chironomid Pupal Exuvial Technique (CPET) for assessment of rivers and canals, a selected bibliography, an aid to the identification of species of *Chironomous* (with glossary) and an index to the genera in the key.

The whole is a very compact (A5) 98 page volume with a lie-flat binding that makes it a convenient working tool. It is abundantly illustrated with small but, to my non-expert eye, clear drawings. The print too is small but clear.

Mary Burgis

INTERNATIONAL HIGHER HYDROLOGICAL COURSE AT MOSCOW STATE UNIVERSITY

This annual UNESCO-sponsored course was established in 1969. The aim of the course is to give professional hydrologists an opportunity to review the latest achievements in hydrological science. The principle subject changes each year and is related to high priority projects of the International Hydrological Programme whose fifth phase runs until 1999. The theme of the 25th course in 1996 was Scientific Hydrology of Surface and Ground Water – a powerful tool for solution of water related problems. The Director was Dr Pavel V. Efremov.

Courses consist of lectures, laboratory classes, seminars and study tours. Lectures are delivered by distinguished specialists from Russia and abroad and participants receive comprehensive information on the state of the art in the subject. They also have an opportunity to discuss theoretical and practical achievements in the particular branch of hydrology under consideration. Participants are encouraged to give accounts of their own experience in research and/or to highlight the work of their institutions.

The working languages of the course are Russian and English with simultaneous translation provided for lectures and seminars.

The course is open to professional hydrologists and hydrogeologists or specialists in other fields related to water and water resources who have experience in research, engineering, teaching or administrative work. There is no age limit. UNESCO funds facilitate participation by trainees from developing countries. Other participants from outside Russia have to find their own travel expenses to and from Russia. →

JOURNALS

Annales de Limnologie

International Journal of Limnology
ISSN: 0003-4088

Published by Université Paul Sabatier - Toulouse III, Centre d'Écologie des Systèmes Aquatiques Continentaux, 118 route de Narbonne, F-31062 Toulouse Cedex, France Tel: +33 61 55 67 30 Fax: +33 61 55 60 96 e-mail: limnol@cict.fr with the participation of the Association Française de Limnologie - AFL. Editors: H. Laville & N. Giani.

Now in its 32nd year the *Annales de Limnologie* publish papers, in French or English, on all aspects of the ecology of freshwater systems, including studies ranging from micro-organisms to fish and other vertebrates as well as physical and chemical aspects related to the biological environment. Review papers are acceptable if they lead to new and important generalizations. The journal is now indexed in Current Contents – Agriculture, Biology and Environmental Sciences as well as other indexes such as Aquatic Sciences and Fisheries Abstracts, Fisheries Review and Biosis.

Revue des Sciences de l'Eau

Journal of Water Science
published jointly by
Groupement d'Intérêt Scientifique
des Sciences de l'Eau France
Lavoisier Abonnements
14 rue de Provigny,
94236 Cachan Cedex, France
and Association Québécoise des
Techniques de l'Environnement
911 rue Jean-Talon est,
Bureau 220, Montréal, Québec,
Canada H2R 1V5

Further information is available from *International Higher Hydrological Course, Faculty of Geography, Moscow State University, Vorobiovy Gory, Moscow 119899, Russia*
Tel. & Fax: +7 095 939 53 26

ON THE INTERNET

EMAP Newsletter On-line

The USA's Environmental Protection Agency (EPA)'s Environmental Monitoring and Assessment Program (EMAP) is now publishing its newsletter on the Internet. The first electronic edition describes the program's new focus, recent research activities, and the upcoming Third Annual EMAP Symposium (see below). Visit "EMAP Currents" at: <http://narexp.nar.epa.gov/emap/html/news.htm>.

Ecological Risk Assessment Guidelines

Though the Environmental Protection Agency's Risk Assessment Forum is best known for creating agency-wide human health risk assessment guidelines, since 1989 the Forum has also been working towards preparation of similar guidance for ecological risk assessment. The agency is seeking public comment on its agency-wide guidelines for risk assessment which may be accessed at: <http://www.epa.gov/ORD/WebPubs/fedreg>

Watershed Information Resource System

The WIRS Database is an online resource centre for information on lake and watershed restoration, protection and management. Operated by the Terrene Institute in partnership with the EPA's Clean Lakes Program, WIRS may be accessed at: <http://www.e2b2.com>.

Third Annual EMAP Research Symposium

- Developing New Tools to Meet the Nation's Monitoring Needs: The Evolution of EMAP. Albany, N.Y. 7 - 11 April 1997 Contact: F de Serres, TPMC, Canterbury Hall, Suite 310, 4815 Emperor Boulevard, Research Triangle Park, NC 27703 Tel: +1 919 941 - 6574; deserres@ix.netcom.com.

From Ecological Society of America Newsletter Numbers 47 & 49.

MEETINGS

ANSWER 97

International Symposium on A New Strategy for Water Environmental Research, 1997

Theme: How can we save lakes
and rivers from progressive
environmental deterioration?

July 20-25, 1997

Shanghai.

Interested participants should
contact: Ms. Michiko Nakagawa
Lake Biwa Research Institute,
1-10 Uchidehama, Otsu 520 Shiga,
Japan. Fax: 81+775+26+4803;
Email: kumagai@lbri.go.jp.

DIAPAUSE IN CRUSTACEA

Ghent, Belgium

24-29 August 1997

The second international
symposium on dormancy in
crustaceans and its ecological and
evolutionary significance.

The second announcement will be
mailed in January 1997 so those
interested should contact the
secretariat immediately:

Luc Brendonck, Freshwater
Biology, Royal Belgian Institute of
Natural Sciences, Vautierstraat 29,
B-1000 Brussels, Belgium
Tel: +32 2 627 43 10 Fax: +32 2
646 44 33 e-mail:
Luc.Brendonck@rug.ac.be

EUROPEAN MEETING ON LITTER BREAKDOWN IN RIVERS AND STREAMS

Bilbao, Spain

24- 26 September 1997

Organized by the Spanish
Limnological Association (AEL) and
the Department of Plant Biology
and Ecology, University of the
Basque Country (UPV/EHU).

This meeting aims to promote the
exchange of experiences on litter
decomposition in lotic systems, to
analyze the mechanisms involved
and the effects of these processes
in the function of rivers and

THE STOCKHOLM WATER PRIZE

On August 8, the King of Sweden
presented the 1996 Stockholm
Water Prize to Jorg Imberger,
Director of the Centre for Water
Research at the University of
Western Australia for his research
on fluid dynamics in surface waters.

The prize was awarded in
recognition of his pioneering work
and development of models which
correlate the interaction of water
dynamics and biogeochemical
cycles in surface waters and their
application to water quality issues.

The Stockholm Water Prize, worth
\$150,000 US, is awarded by the
Stockholm Water Foundation. The
purpose of the Foundation is to
promote efforts to improve water
conservation throughout the world.
from ASLO Bulletin, with permission.

streams. The meeting should help
in improving the efficiency of
investigations on this subject, and
in promoting studies that will
address problems related to the
management of watersheds and
fluvial courses.

For a registration form, please
contact the secretariat:

Dr. Arturo Elosegi
Dpto. Biología Vegetal y Ecología,
Facultad de Ciencias.
Universidad del País Vasco/EHU
Apdo. 644, 48080 Bilbao (Spain)
Tel.: +34 4 4647700 Ext. 2798,
Fax: +34 4 4648500
E-mail: gvpelira@lg.ehu.es

2nd International Symposium on ECOLOGY AND ENGINEERING

Theme - Engineering the Aquatic
Environment

Nov. 10-12, 1997

Centre for Water Research,
University of Western Australia,
Perth, Australia.

Interested participants should
contact Vicki Sly at
sly@cwr.uwa.edu.au

RECENTLY PUBLISHED

ATLAS OF RUSSIAN WETLANDS: BIOGEOGRAPHY AND METAL CONCENTRATIONS

by A.V. Zhulidov, J.V. Headley,
R.D. Robarts, A.M. Nikanorov and
A.A. Ischenko, published by the
National Hydrology Research
Institute, Environment Canada,
11 Innovation Blvd., Saskatoon,
SK, Canada S7N 3H5.

Price \$250 CDN (including
shipping). Cheques or money
orders must be made out to:
Receiver General for Canada and
be in Canadian funds. Orders to:
Publications Coordinator, NHRI.

This is a unique compendium of
information about Russia not
previously available in English and
is an essential reference book for
libraries. There are 20 colour maps
and more than 90 tables of
chemical data. Extensive Russian
references, not previously available
in the west, have been used to
compile a detailed description of
the biogeography and geology of
Russia and the concentrations of
cadmium, copper, lead, mercury
and zinc in the wetlands.

Annotated Bibliography on the Potential Effects of Global Climate Change on Submerged Aquatic Vegetation

by Margaret Platt, William Rizzo
and Hilary Neckles. Summarises
existing research on responses of
submerged vegetation to the
environmental factors associated
with global change. Available free
from: Editorial Section, National
Wetlands Research Center,
700 Cajundome Blvd., Lafayette,
LA 70506 Tel: +1 318 266 8540;
vairinb@nwrc.gov.

Freshwater Quality: Defining the Indefinable?

Edited by P.J. Boon & D.L. Howell.
ISBN 0 11 495754. c540 pp. £85.
Published by The Stationery Office,
Edinburgh, due January 1997.
More details in the next SILNEWS.