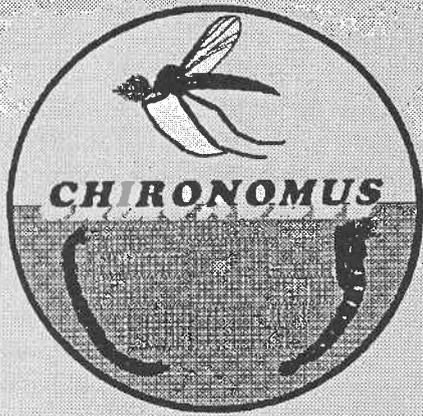


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NEWSLETTER OF CHIRONOMID RESEARCH

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No. 4

June, 1992

AMSTERDAM

From the 12th to 14th of August 1991, the 11th International Symposium on Chironomidae was held at the venerable Aula of the University of Amsterdam. The Aula and Senate Room, which are housed in a beautiful Gothic church at the historical heart of the city, created a special atmosphere for the meeting.

The chairman Dr. Kees Davids, the secretary Dr. Floor Heinis, and their cabinet (Dr. K. van de Guchte [Treasury], Wouter van de Bund, Michiel Kraak [Foreign and Home Office]), and the well trained junior staff directed the conference so brilliantly, that the participants did not perceive the hard back-stage work at all.

129 active participants and 25 accompanying persons from 31 nations had attended the meeting. The Thienemann Lecture, held by Dr. David M. Rosenberg, led the twelve sessions during which 61 lectures and 37 posters were presented. The Proceedings will be published in the Hydrobiological Bulletin later this year.

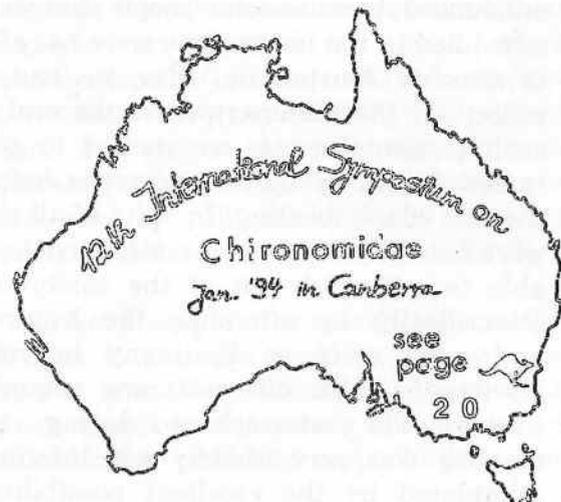
When the scientific sessions were over, the party began. The exquisite (post) conference dinner was served aboard an old Dutch ship. Despite the sailors appearing to be close to mutiny, the cook's mate did

an excellent job and the lively musicians brought the president of the conference, Professor E. Josef Fittkau, to the dance-floor.

For three days, 31 people attended the post conference tour which led from tranquil natural wetland reserves, chateaus of the Royal Family, to a medieval ship-dock, and the high-tech construction of the Oosterschelde dyke. The closing ceremony of this diversified tour took place in a 8 m² hotel room with about 20 colleagues enjoying a midnight-drink.

The 11th International Symposium was much more than just a scientific meeting!

Ulrike Nolte





A LOOK BEHIND THE SCENES OF THE AMSTERDAM MEETING

Since the chairman of the meeting happened to be our supervisor, some time in the autumn of 1989 we suddenly found ourselves being members of the Organizing Committee of the 11th International Symposium on Chironomidae. Naive Ph.D. - students as we were, we agreed with Kees Davids to make the scientific programme and to edit the proceedings, underestimating of course the amount of work involved. For us, the real work began when the abstracts started to come in; we had to read through all of them, trying to group them into coherent sessions and find appropriate chairpersons.

The conference itself was rather hectic for us, as could be expected; last-minute programme changes had to be made and announced, because some people that were scheduled in the programme were not able to come to Amsterdam. Also, we had to collect all the manuscripts at the end of each session, because we wanted to give review copies to the chairpersons before the end of the meeting. In spite of all this work behind the scenes, we also have been able to get much out of the conference scientifically, by attending the lectures, and even more so by many informal discussions with old and new acquaintances. The atmosphere during the meeting was very friendly and informal, stimulated by the excellent possibilities

the inner city of Amsterdam has to offer to the curious scientist.

Since the Dutch have to keep a reputation in piracy, we could not have found a better location for the conference dinner than the "Comagnie van Verre". The number of participants that joined the President of the conference, Professor Fittkau, on an extensive pub tour after the dinner says much about the good atmosphere within this group of chironomid scientists.

The following day the conference was officially ended for the participants. The next morning, however, at 9 o'clock sharp, Stefan, Erik, and the two of us (Wouter and Michiel) were back in the university aula again to remove the poster boards and transform the conference hall into a church again.

And even then, the work was not over yet; as a matter of fact, you can say that the most important part of the work only started: 66 manuscripts had to be sent to the referees, judged, sent back to the authors, sometimes re-judged, sent to the authors once again, etc., etc. Needless to say, at the moment we write this (end of March), we are still in the middle of this process. About half of the manuscripts have been accepted for publication and sent away to the journal, and we still expect to be able to get the Proceedings published in the autumn of this year. At that time, this conference of only five days will have kept us busy for two-and-a-half years. It is a lot of work, but we did it with pleasure. We are hoping that Kees will prolong our contracts, enabling us to do some research again for a change.

Wouter van de Bund and Michiel Kraak
Dept. of Ecology, Sect. Aquatic Ecology
University of Amsterdam
(The Netherlands)

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ABOUT THE NEW AND OLD *CHIRONOMUS*

Editorial

CHIRONOMUS: the 25 year-old newsletter presents a new face. Founded in 1967 by E. J. Fittkau and F. Reiss, publication had ceased in 1985. At the Amsterdam symposium it was decided to resurrect the newsletter, and Richard K. Johnson, Endre Willassen, and I have taken over this responsibility.

Approximately one year after this decisive meeting, we are glad to present the new *CHIRONOMUS* and are curious about response. During this year, the newsletter has succeeded in setting up a network of regional representatives (see page 6) for obtaining information from all over the world. As *CHIRONOMUS* had to start its second life penniless, I am grateful for the support afforded by the Swedish University of Agricultural Sciences in Uppsala, which has made printing of *CHIRONOMUS* possible.

The newsletter is an informal bulletin with the aim to circulate news and information on chironomid research, working groups, expeditions, publications, and grey literature. I shall be happy if many colleagues will make the best use of *CHIRONOMUS* in utilizing it for the exchange of ideas and experiences as well as a notice-board for research requests and miscellaneous advertisements.

The best success *CHIRONOMUS* can achieve, is an improvement of contacts between individual workers or working groups. For this purpose at least two columns will be published regularly: (i) A Current Bibliography which will be acquired by efforts of Odwin Hoffrichter (Germany), and (ii) a world-wide Directory of Chironomid Workers. This list will be compiled from information input to the regional representatives and to Don Oliver and Mary Dillon (Canada), i.e. its completeness and updating depends on your input to *CHIRONOMUS*.

In contrast to its predecessor, the language of the *CHIRONOMUS* newsletter will be exclusively English. Colleagues from eastern Europe, Russia, and other countries of the former USSR, where the German language appears to be more practised than English, are invited to send their contributions in German, and I'll do my best to translate them, as *CHIRONOMUS* should take the chance to intensify contacts between parts of our globe which have been separated by political ideologies, making contact and the exchange of ideas difficult.

Another change in the newsletter's profile is that it excludes contributions with a taste of scientific publications. There are a great number of journals in circulation which offer sufficient opportunities for

publishing original scientific data on Chironomidae ... but there was a lack of an informal forum for our area of research, and it is exactly this need that provided the stimulus for the newsletter's revival.

This first issue is free of charge. However, to meet our future expenses we will have to charge for the production and distribution costs of forthcoming issues. Please note the subscription form on the last page of this newsletter. Details on finances are given in the "Financial Editorial" below.

Financial editorial

The editorial committee intends to make the bulletin available at a relatively inexpensive price, thereby making it available for everyone who is interested in research activities on chironomids. Therefore, *CHIRONOMUS* will be a non-profit, low cost product with a minimum of lay-out glamour. This first issue is distributed free of charge. However in order to cover the expenses for production and distribution of coming issues of *CHIRONOMUS*, it is required to charge a fee from the recipients. In view of the expected low costs of the bulletin, we find it impractical to price subscriptions on a year-to-year basis. A multi-year subscription appears much more serviceable and a contribution of 15 US\$ from individual subscribers will presumably keep *CHIRONOMUS* going for another year or two, depending on the printing volume. The printing volume will depend on the influx of submissions. Thus, after some time, when the treasurer is able to discern the bottom of the money chest, and it is deemed necessary to fill-the-coffers, recipients of the newsletter will be asked to renew their subscriptions.

Some countries have problems with inconvertible currency, and differences

Our idea is to publish one issue per year, but if the newsletter should meet with such a good response that hot news and gossip are to be circulated more frequently, we editors are prepared to do this.

Ulrike Nolte

between national price levels makes it difficult or even impossible for them pay a subscription fee. We would still like these good colleagues to receive the newsletter. We recognize 'chironomid people' as generally gentle personalities and feel that subscribers will accept that a certain quota of free copies of *CHIRONOMUS* will be distributed.

The subscription fee should preferably be paid to your regional representative, who may have to keep an amount necessary to cover distribution expenses. The surplus will then be remitted to the treasurer and will be used for production and printing. Individual subscribers may also transfer money directly to the bank account in Norway (see order form page 39) if no regional representative seems to cover their area. We are looking forward to see how this model works and hope the newsletter will live up to the expectations of the readers.

Endre Willassen

CHIRONOMUS Bank Account
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N-5008 Bergen
No. 8225.40.825 18

Acknowledgements for donations



As mentioned, *CHIRONOMUS* is a non-profit production, we are therefore grateful to receive donations or commitments for long-term subscriptions. We would like to acknowledge Dr. P. S. Cranston, CSIRO, Canberra, who provided the first sum of financial support to the newsletter. Additional donations have been promised from Dr. E. J. Fittkau, Zoologische

Staatsammlung, Munich; Dr. L. C. Ferrington, University of Kansas, Lawrence; and the Organizing Committee of the Symposium in Amsterdam, especially Drs. C. Davids and C. van de Guchte. On behalf of future *CHIRONOMUS* readers, we would like to extend our gratitude to the above mentioned persons and their institutions for their important contributions.

Endre Willassen

CHIRONOMUS' Current Bibliography

Years ago a comprehensive "Bibliography of the Chironomidae" was published by Fittkau, Reiss and Hoffrichter (1976) and Hoffrichter and Reiss (1981). Since then, the enduring efforts of Odwin Hoffrichter in collecting references have yielded a considerable increase in information on literature about Chironomidae, which will be published in a complete and updated bibliography in the near future. Afterwards, O. Hoffrichter will continue this work in publishing a "Current Bibliography" in the *CHIRONOMUS* newsletter. As he is doing this "just" as a side-line, and compilation of extensive literature lists is easiest via a comprehensive information input, please, be so kind and send references of your publications to Dr. Odwin Hoffrichter (address see next page). Thank you very much.



Ulrike Nolte

On the future of the Bibliography of the Chironomidae

The bibliography has been published in 1976 in "Gunneria" (Vol. 26), the periodical of the Royal Museum at Trondheim, Norway. In 1981, this bibliography was supplemented in Gunneria Vol. 37, with both volumes together covering over 8000 titles. Since then, continuous work has been done in collecting and compiling old, and in particular, ever new appearing titles. Currently the number of titles included is thought to be in excess of 12000.

The production of a completely revised, extended and rearranged bibliography, in brochure form is planned for the near future. During the Symposium at Amsterdam, it was decided to take 1991 as the last year of publication to be included. This revised and updated bibliography will be published in another Norwegian series. However, details have yet to be worked-out. It is hoped that the purchasing price will not exceed 50 US\$. In addition, a computerized extended index is anticipated as a supplement, whereas the bibliography itself could also be made available on diskette upon request. Since I am elaborating this bibliography merely as a sideline, I unfortunately, can not announce a definite date when it will be published.

I should like, however, to appeal to any author to send me information about new publications (at least up to 1991), if she or he wants to see it included in the new edition. Thank you in advance for your cooperation.

Odwin Hoffrichter

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Regional Representative - what does it mean?

The regional representatives (RR) are links between scientists interested in chironomids and *CHIRONOMUS*. There are 24 colleagues from many parts of the world who at present cooperate as RR with the newsletter. Addresses and the respective regions are listed below.

- RRs collect information about all and everything which has something to do with chironomid research. As they cannot walk around to gather information you are invited to send news, requests, advertisements etc. to your RR. The official language of *CHIRONOMUS* is English, but if you cannot write your contribution in English, don't hesitate to send it in your language to "your" RR since she or he will translate it before forwarding it to the newsletter.

- RRs distribute the newsletter in their region since this will save time and money. This means, merely for receiving the *CHIRONOMUS* regularly, it is worthwhile to contact your RR, so she or he knows who and how many colleagues in the region are interested in chironomids. Accordingly, the RR can order the appropriate number of newsletter copies from Richard K. Johnson for local distribution.

- RRs collect subscription payments which, again, saves money since international remittance fees are very expensive. Each RR will convert all local currency receipts in one single transaction. If you are interested in subscribing to *CHIRONOMUS*, please fill in the form and send it to your RR. In response she or he will inform you about the regional bank account and send the forthcoming issues to you.

Scanning the list below, you may be unable to find a representative appropriate for your region. In this case, please contact Richard K. Johnson directly for subscription, and remit your subscription fee to the Union Bank at Bergen. I look forward to receiving your contribution for our next issue.

Although the international network of regional representatives is formed by 24 colleagues, the newsletter has not yet succeeded in covering all regions. Perhaps you would like to become active as an RR to help the *CHIRONOMUS* in covering as many regions as possible; if so, please contact me.

Ulrike Nolte

List of Regional Representatives
(alphabetic order)

Mr. Josef S. AMAKYE, Institute of Aquatic Biology (C.S.I.R.), P.O.Box 38, Achimota, Accra - Ghana
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Mr. Dr. P.K. CHAUDHURI, Department of Zoology - Entomology, University of Burdwan, Burdwan 713104 - W.B. **India** (Phone: +91 BDN 2371-75 [37])

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Mr. Dr. Peter S. CRANSTON, Division of Entomology, CSIRO, P.O.Box 1700, Canberra, ACT 2601 - **Australia** (Phone: +61 6 2464282; Fax: +61 6 2464000)

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Mr. Dr. Henri LAVILLE, Laboratoire d'Hydrobiologie, Université Paul Sabatier, 118. Route de Narbonne, F-31062 Toulouse Cedex - **France** (Fax: +61 55 6470 or +61 55 6000)

Mr. Dr. Claus LINDEGAARD, Freshwater Biological Laboratory, University of Copenhagen, 51 Helsingorsgade, DK-3400 Hillerod - **Denmark**

Ms. Dr. Paraskeva MICHAILOVA, Institute of Zoology, Bulgarian Academy of Sciences, boul. Rouski 1, 1000 Sofia - **Bulgaria**

Ms. Dr. Ulrike NOLTE, Universidade Federal de Mato Grosso (UFMT), Rua Nassau 194, Jardim das Américas III, 78.090 Cuiabá - MT, Brazil - **South America** (Fax: +55 65 627 2902)

Mr. Dr. Don R. OLIVER, Centre for Land and Biological Resources Research (CLBRR), K.W. Neatby Bldg., Ottawa - Ontario K1A 0C6 - **Canada** (Phone: +1 631 996 1665, Fax: +1 631 995 1823)

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Mr. Dr. Carlos de la ROSA, Area de Conservación Guanacaste, Estación Biológica Maritza, Apdo. 228, Liberia, Guanacaste Province, Costa Rica - **Central America** (Fax: + 506 660887)

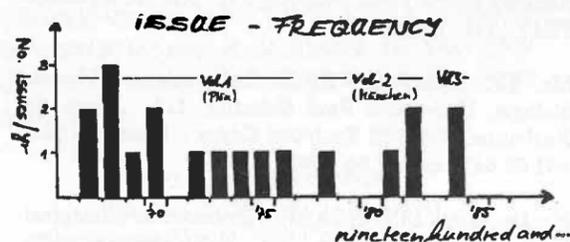
Mr. Dr. Bruno ROSSARO, Dipt. Scienze Ambientali, University of L'Aquila, Coppito I-67010 L'Aquila - **Italy** (Fax: +39 862 433205)

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Mr. Dr. Endre WILLASSEN, Museum of Zoology, University of Bergen, Muséplass 3, N-5007 Bergen - **Norway** (Fax: +47 5 321153)

Ms. Dr. Tatiana ZINCHENCO, Institute of Ecology of the Volga River Basin, Russian Academy of Sciences, 445003 **Togliatti**, Russia - Volga River catchments and basin.

The Predecessor - a historical sketch



The first *CHIRONOMUS* was published by Dr. E. J. Fittkau and F. Reiss in July 1967. At that time, both belonged to the staff of the Max-Planck-Institut für Limnologie in Plön (Germany), where August Thienemann had built up a strong school and had worked and taught for almost 40 years. The newsletter was founded as an informal forum for the exchange of information, requests, and experiences between chironomid researchers. The principal language used was German, but articles have also been published in English, French and Spanish. *CHIRONOMUS* appeared irregularly with up to three issues per year in its early phase (mean 0.8 issues per year, standard deviation = 0.9 (n=24), i.e. contagious distribution; see "issue-frequency-curve" above).

In 1972, it was discussed whether the profile of *CHIRONOMUS* should be changed from a newsletter to a journal specializing in systematics, taxonomy, and comparative morphology of Chironomidae. The majority of the readers agreed with this suggestion but, with fewer than 200 individuals, at that time the community of chironomid workers, i.e. prospective subscribers, was too small for the realization of this venture.

In 1976, E. J. Fittkau was appointed Director of the Zoologische Staatssammlung, so the editorial office was transferred to Munich. At that time *CHIRONOMUS* had attained 350 copies per issue. Two years later, J. E. Sublette joined in as

Associate Editor for the Nearctics, and the official language became English with many contributions coming closer to short scientific papers. However, until its slumber in December 1984, *CHIRONOMUS* remained to be a newsletter which, already sleepy, started again to communicate in German.

References:

- Fittkau & Reiss (eds) *CHIRONOMUS*, Mitteilungen aus der Chironomidenkunde. Vol.1 (1-18) published from 1967 - 1976, Plön (Germany).
 Fittkau, Reiss & Sublette (eds) *CHIRONOMUS*, newsletter of chironomid research. Vol.2 (1-4) and Vol.3 (1-2) published from 1978 - 1984, München (Germany) and Portales (USA).

Ulrike Nolte

About the *CHIRONOMUS* logo

An important element in the logo is that it illustrates life cycle stages of a chironomid. This configuration appeared on the front cover of "Bulletin of the Fisheries Research Board of Canada 196", published in 1977. The figure was originally drawn by Mrs C. A. Galloway, based on an idea by O. A. Saether. Mrs U. Saether used a similar figure in her logo designed for the 9th International Symposium on Chironomidae in Bergen, Norway, 1985. I had the symposium logo digitalized and modified on PC in order to produce a logo for the *CHIRONOMUS* newsletter. An appeal for tolerance of artistic freedom is addressed to readers who may question the identification on the flying midge as a *Chironomus*, and who may also find the behaviour of the larva peculiar.

Endre Willassen

PROFESSOR DR. ERNST JOSEF FITTKAU 65 YEARS

On 22nd July of this year Dr. Fittkau celebrates his 65th birthday. For *CHIRONOMUS* this is an occasion to congratulate a highly esteemed colleague who has helped to determine the destiny of chironomid science.

Already during his studies in Göttingen, Freiburg, and later, in Kiel, Dr. Fittkau became increasingly concerned with chironomids. In 1952, as a student of Prof. A. Thienemann, he began a dissertation on chironomid communities of the Fulda River. A task which, determined by the at that time insurmountable taxonomical problems, was concluded with the well known revision of the Tanypodinae published in 1962. This trend-setting work has retained its taxonomical value to the present day. The genus *Natarsia*, named after a donkey in a radio play of the fifties, is still valid today.

As a postgraduate, Dr. Fittkau received the opportunity to spend several years in the Amazon region of Brazil (1960-63 and 1965) which determined his further path through life. The hydrobiological collection, gathered during many adventurous excursions, is unique in its versatility and extent. For chironomids, the focus of the collection, we can reckon with 1000 unknown species, the description of which will keep taxonomists occupied for a long time.

In 1964, Dr. Fittkau organized the 1st International Symposium on Chironomidae at the Max-Planck-Institut für Limnologie in Plön, an event which has kept its importance to the present.

In 1967, Dr. Fittkau initiated the newsletter *CHIRONOMUS*. It served for internal information within our area of research for 17 years. We may hope that, after several years of intermission and with a new look,

CHIRONOMUS will be blessed with a similar life-span.

Dr. Fittkau always saw himself as a disciple of Thienemann. Accordingly, he tried to continue chironomid research as a harmonic synthesis of taxonomy and biology, or rather, ecology. The possibilities to do this arose during his 15-year tenure as director of the Zoologische Staatssammlung, one of the great museums of Europe, and his teaching position at the Ludwig-Maximilians-Universität in Munich. Besides promoting research on Chironomidae at the museum, to which some colleagues owe longer term study visits in Munich, the supervision of numerous diploma and doctoral theses, the publication of "Spixiana" has to be mentioned above all. Some voluminous chironomid papers have appeared mostly in its supplements, but also in the current issues. As editor of "Spixiana", Dr. Fittkau has to be thanked in this place for the generous and financially not always easy provision of printing space.

We all hope and wish that Dr. Fittkau, besides his numerous other interests, will also in retirement find the time to further attend to his pet animals, the chironomids. Taxonomists and their decades of experience cannot be done without, today less than ever.

Friedrich Reiss



PRESENTATION OF CURRENT RESEARCH AND WORKING GROUPS

Chironomid biomonitoring of agricultural land use

While benthic invertebrates have been successfully used for biomonitoring of sewage and industrial wastes in many parts of the world, little is known about the responses of these organisms to agriculture, the most common human use of land. This is particularly true for chironomids. A collaborative study being conducted by Agriculture Canada and the University of Waterloo is designed to investigate the use of chironomids in biomonitoring the effects of agricultural activities on lotic habitats in the Canadian watershed of the Great Lakes. This study, initiated in late 1990, is supported by the Preservation Fund, Great Lakes Water Quality Program, Agriculture Canada and is part of a larger study of the use of aquatic invertebrates in biomonitoring agricultural land use.

Initially the work has focused on obtaining chironomid collections from the small lotic habitats (up to 2nd order streams) in three distinct physiographic regions in southern Ontario, each of which supports a different type of agriculture. Together they represent most of the kinds of agricultural activity in the Great Lakes drainage of Ontario. The stream sites drained crops of corn, hay, soybeans, mixed grains, tomatoes, and tobacco/ginseng, orchards, and cattle pasture. For reference, when they could be located, relatively pristine streams were sampled. About 1400 samples from have been collected from approximately 300 sites. To test the efficiency of different sampling methods a variety of techniques, kick sampling, Surber samplers, drift nets, dip nets, surface emergence traps and sweep nets have been employed. Much effort has been expended on rearing to associate the immature and adult life-cycle stages. Over

125 species of chironomids, in one stage or another, have been recorded from the streams.

Taxonomic data plus collection data, land use and other site characteristics are being entered into relational database files. These files are being used to construct distribution maps and to investigate the relationships among species, individuals or assemblages, and land use.

We welcome correspondence and exchange of information with other workers studying the effects of agricultural land use on chironomids.

Don Oliver, David Barton* and Mary E. Dillon

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Chironomid research at the University of Kansas

The purpose of this article is to provide an introduction to the chironomid research projects currently being conducted at the University of Kansas. I would like to thank Don Oliver for suggesting that this summary be written for inclusion in this issue of *CHIRONOMUS*, and it is my hope that others will provide similar overviews for future issues. It seems to me that an important function of our newsletter is to provide for informal communication among labs and individual researchers, and summaries of this type can be an effective way to achieve this objective.

Chironomid research at the University of Kansas is facilitated by the joint efforts of

the Department of Entomology, the Department of Systematics & Ecology, the Environmental Studies Program, the Experimental & Applied Ecology Program and the Kansas Biological Survey. All of these units of the University have a tradition of close cooperation on multi-disciplinary environmental research that is both theoretical and applied. The close cooperation among units is enhanced through joint appointments of faculty and technical staff, shared use of field facilities, museum resources and systematics collections, and integration of graduate students into grant funded faculty research projects. As a consequence of the cooperation among units, graduate degrees focusing on chironomids can be pursued through either the Department of Entomology, the Department of Systematics & Ecology or the Environmental Studies Program.

On a day-to-day basis the graduate and undergraduate students in my lab participate in grant-funded research projects. Projects which are currently active are primarily ecological in orientation, and consist of determining (1) the community structural changes of chironomids in streams experiencing excessive organic loading from point sources such as waste-water treatment plants, (2) the effects of pollution by heavy metals (Cd, Pb, Zn & Mn) on stream and reservoir biota near a lead-zinc mining area in southeast Kansas, (3) the effects of groundwater withdrawal for irrigation on the flow characteristics and benthic insect communities of sand-bottom rivers in central and western Kansas, and (4) the potential effects of agricultural pesticides currently in use in the central United States on non-target aquatic organisms.

The objectives of projects (1), (2) and (3) are met by non-manipulative in situ sampling from streams with varying degrees of impact. Project (4) is conducted at our field facility, the Nelson Environmental Studies Area, which is located approximately 12

miles north of the University and is the site of 72 experimental ponds. This project includes controlled additions of pesticides (of varying concentrations) into the experimental ponds, which serve as replicates of small farm ponds occurring in the local region, in order to evaluate the effects on community composition, standing stock densities and emergence biomass.

In addition to ecological projects, I attempt to maintain active research in taxonomy and systematics of chironomids. To this end we have built a research collection of approximately 125,000 specimens identified at least to genus. Most of the collection is slide mounted, however a significant fraction of the adult material is maintained in alcohol. My lab also have access to the pinned material in the Snow Entomology Museum, which includes collections from Mexico, Costa Rica and selected regions in North, and South America. I have recently become involved in a project based at the EL Verde field laboratory in the Caribbean National Forest in Puerto Rico to determine the species composition and emergence phenologies of aquatic insects from low order streams draining rainforest habitats, and this material has been incorporated into the research collections and is available for taxonomic or systematic research. At present, however, there are no students performing dissertation research in systematics of chironomids in my lab, but these opportunities exist.

Graduate students currently involved in chironomid research and their respective thesis or dissertation research projects are summarized in the following paragraphs. Individual projects can either be related to the grant-funded projects already discussed, or can be of an unrelated topic. Each summary was provided by the respective student, and their academic department and degree program is listed.

Chris Wright, Department of Entomology, Masters Student. - My current work is in water quality biomonitoring using pupal exuviae, specifically at chlordane-impacted streams southeast of St. Louis, Missouri. As a result of this work, I have focused on the ecology and taxonomy of immature chironomids and realized the need for much work in this area. Further research in these areas would benefit our ability to analyze effects of pollutants on aquatic systems as well as our understanding of natural variability of those systems. Aside from my work, I am also interested in systematics, adult taxonomy, and behavior of all life stages.

Sara M. Hall, Department of Systematics & Ecology, Masters Student. - My research focuses on the effects of the various formulations of B.t. H-14 on chironomids, specifically *Chironomus riparius*. Currently, my research site is a highly enriched stream as a result of organic loading from two wastewater treatment plants in northeastern Kansas. I hope my work will aid modelling for B.t. H-14 treatment in other stream systems. I am also interested in other forms of bio-remediation and aquatic toxicology.

Bruce Wahle, Department of Entomology, Ph.D. Student. - I am just beginning a Ph.D. research program this semester. Tentatively, my dissertation will deal with studying and modelling a population of *Chironomus riparius* using pupal exuviae in a Kansas stream section. If appropriate, an expert system will be developed for monitoring and/or diagnosing conditions which cause mass emergence of *Ch. riparius*. Mass emergences of this and other chironomid species have caused human hypersensitivity and an area of nuisance. My interests are in ecology, toxicology, taxonomy, classification of aquatic systems with Chironomidae, computer modelling and applications to hydrobiology, and expert systems.

Mary Anne Blackwood, Department of Entomology, Ph.D. Student. - My research interests deal with systematics and biogeography. My Ph.D. dissertation research focuses on biogeographical patterns of chironomids in geologically permanent springs of the Ozark Plateau regions of south-central Missouri. My research area is near the southern edge of the maximum glacial extensions in the central United States during the Pleistocene. I have hypothesized that arctic or subarctic species of chironomids moving southward in advance of the glaciers would have populated the springs in my research area at various times. The relatively constant temperature and flow condition of the springs may have allowed populations to persist in localized refugia. By studying the community structure of chironomids in springs of differing temperature and flow regimes it may be possible to better understand the influence that geological changes in climate have had on contemporary community structure of chironomids. Based upon my findings I hope to be able to make inferences regarding the effects that global warming may have on species richness and biodiversity of benthic chironomid communities.

David Goldhammer, Department of Entomology, Ph.D. Student. - The study of sandy-bottomed streams of the U.S. central Great Plains has been the focus of my dissertation research over the past three years. Specifically, I am quantifying the contribution that chironomids inhabiting the capillary fringe of intermittent streams of the central plains ecoregion make to total riverbed production and emergent biomass in these streams. This forces one, by necessity, to also become somewhat of a taxonomist in order to deal with the number of undescribed species one encounters when studying this previously overlooked habitat. I hope to show that capillary fringe habitat currently is a significant source of insect production and

that it historically was the principal habitat component contributing to overall production in the riverbed (of intermittent sandy-bottomed streams).

Leonard C. Ferrington Jr.

University of Kansas
Kansas Biological Survey
2041 Constant Ave, Lawrence
Kansas 66047-2906 (USA)

Australian Chironomid News

The Australian Symposium - In Amsterdam, at the 11th International Symposium on Chironomidae, Australia was offered and accepted as the venue for the next meeting. Thus, the 12th International Symposium on Chironomidae will be held for the first time in the southern hemisphere, in Canberra, in January 1994.

(For further details concerning the 11th International Symposium on Chironomidae, note the letter by P. Cranston on page 20).

Australian chironomid studies - **Charlie Webb** is our most northerly chironomidologist at Northern Territory University, Darwin. He continues to study Chironomini ventromental plates, with federal funding to investigate silk production mechanisms in relation to ultrastructure. His scanning electron microscopic work on the diversity and phylogenetic significance of plate structures is nearing completion. In a third project, Charlie is the third party with **Jon Martin** (University of Melbourne) and Peter Cranston (CSIRO, Canberra) studying Australian *Chironomus*. In this study, Jon's *Chironomus* rearing facilities are being used to generate material for cytological, electrophoretic, ultrastructural, and traditional morphological analysis in all life history stages.

Also in the Northern Territory, the biological monitoring group of the Office of the Supervising Scientist (who watches over

the activity of an Uranium mine) have been working their chironomids to species, using keys produced under a consultancy to Pete Cranston. **Peter Dostine** has become adept with the larvae but isn't completely convinced that pupal exuviae are the answer to monitoring.

In southeast Queensland, **Angela Arthington** and **Brad Pusey** (Griffith University, Brisbane) have been pumping insecticide into artificial streams to simulate rural run-off. Although chironomid community responses have been observed, at the doses tested there is no extinction and quite rapid recovery (to the previous eutrophic-indicative community). In a further study involving chironomids, Angela's group have been comparing catchments with differing degrees of agricultural impact and Pete Cranston has been assisting in the rearing and identification of the fauna.

Moving south to the Sydney region, the water supplier to our largest city, Sydney Water, is starting up an extensive biological monitoring programme. Invertebrates of the Blue Mountains catchments, including larval and pupal exuvial chironomids, are to be investigated. Sydney's profligate use of water may require new water storage reservoirs and the faunal changes in an almost pristine catchment are to be monitored.

On the southern border of New South Wales with Victoria, the Murray Darling Freshwater Research Centre (MDFRC) has several chironomid related projects. **Terry Hillman's** team (with distant assistance from Pete Cranston) have been looking at the upper Murray River drainage and testing the efficacy of pupal exuviae in monitoring studies. **Rob Cook** proved adept at rearing midges and much valuable new life history information was attained as a spin-off, allowing production of an unpublished key to larvae and pupae.

The MDFRC has been host to identification workshops for several groups of aquatic organisms, with the 1990 chironomid workshop proving very popular. Many aquatic biologists from Victoria attended. This state has probably the greatest concentration of individuals doing some work with chironomids, including those from Rural Water and Sam Lake's expanded group at Monash University. **Vince Pettigrove** is looking at larval deformities in relation to rice cropping and other agricultural practices. **Jon Martin's** genetic research has involved him in chironomid sex determiners studies, but left him less time than previously for chironomid taxonomy until the *Chironomus* study get going.

Moving on to Adelaide in South Australia, where **Chris Madden** continues to examine the induction of deformities in controlled rearing conditions, an extension of his Masters study. As we move west across the Nullarbor freshwater is scarce (though **Bill Williams'** favourite saline habitats are abundant, but fairly depauperate in chironomids). Western Australia (i.e. Perth) has two strong chironomid research groups, with **Don Edward** (University of Western Australia) studying the ecology of chironomids in both natural (granite outcrops) and disturbed (mining...) systems. Don's ex-students are scattered across the country, some still retaining an interest in midges, others loathing them. Across the city, **Jenny Davis** (Murdoch University) has supervised a string of students, including a group that looked at ecology (and control) of pestilential midges in urban lakes.

As you see, there is plenty going on around the country, and in the capital, **Pete Cranston** tries to help these users identify their animals. Illustrated manuscript keys to larvae and pupae are in circulation for testing. Across the road at the Australian National University, **Nick Drayson** is nearing completion of a revision of *Cricotopus* for his Masters degree, and **Rod Hardwick** is doing an

honours project on pupal exuviae drift in the Northern Territory.

So, come to the Chironomid Symposium and see some of these beautiful aquatic systems, but bring your sunscreen and sunglasses - January is hot.

Peter S. Cranston
CSIRO, Division of Entomology
P.O. Box 1700
Canberra, ACT 2601 (Australia)

Remember to send your contributions to *CHIRONOMUS*.



ХИРОНОМЫ

Letters from Russia

"Dreaming won't do you no harm ... as people say here"; this passage, from a letter sent by Tatiana Zinchenco in March of this year, says much about the difficult situation in Russia, and at the same time reflects the deep hope that things will get better.

In the re-established State of Russia, presently convulsed with political and economic problems, where even basic daily life is difficult, this hope is combined with the will to resume international contacts and exchange. Concerning chironomid research, this is expressed by the long letters *CHIRONOMUS* has received from Dr. **Engelsina Erbaeva** (State University of Irkutsk), Professor **N. Ju. Sokolova** (State University Moscow) and Dr. **Tatiana Zinchenko** (Institute of Ecology of the Volga River Basin at Togliatti). I am gratefully acknowledging their encouragements for resurrecting the newsletter, especially when realizing the efforts the Russian colleagues have to make when writing in English. Just imagine the handicap it would mean to you, if you would be obliged to publish in Russian and Kyrillic! (Sokolova: "I am asking you to please excuse the linguistic mistakes. I think our silence has two reasons: (1) The ignorance of foreign languages - we are innocent, we never had the opportunity to study them - and (2) The difficult situation in our country from which sciences in particular are suffering. Many scientists have to seek for auxiliary gains to succeed at least in the living-wage.")

Before summarizing the information obtained through the letters, I wish to thank Tatiana Zinchenco for her invaluable cooperation during the very beginning of the newsletter. With the help of interpreters employed by the Russian Academy

of Sciences, she has translated the circulars which were sent to all regional representatives in order to prepare and set up the new *CHIRONOMUS*. She has distributed the translated circulars, asking chironomid workers from central Russia, Ural, Siberia, and the Russian far east for their assistance with the newsletter (Russia extends longitudinally for approximately 10 000 km!). The activities of Tatiana Zinchenco have made this preliminary report possible.

"Presently it is not the most favourable time to conduct basic scientific studies in Russia. Due to the disintegration of the former Soviet Union, our contacts to the many chironomid workers in Moldavia, Ukraine, and Belorussia are broken. Only 200 scientists (of 600 planned) participated in the last Congress on Hydrobiology. We did not manage to meet and discuss our problems. This country is facing grave political and economic problems and this fact can only negatively affect the scientific studies. Finance is a problem. Personnel reductions are to be expected and even the complete closing down of many institutes. In other words, the task of the institutes is survival by all means. To our regret, the present situation of affairs is rather unpredictable and no one knows for sure what will happen tomorrow. Taking all this into consideration, I suppose that the visit of the Soviet chironomid workers to Canberra is rather questionable and uncertain.

In spite of these problems, Professor **Shilova** is preparing the triennial Meeting on Chironomid Research to help chironomid research to survive. She is inviting all colleagues from Russia and the CIS countries to come to Borok in September this year. The present state of chironomid research will be discussed but also the new situation in the former Soviet Union. According to N. Ju. Sokolova, there is not sufficient money to pay travel expenses for all chironomid workers interested in participating in the meeting, thus only selected representatives can be sent from

the various Russian regions and research centres.

Professor Dr. N. Ju. Sokolova is a member of the scientific board of the UNESCO programme "Man and Biosphere". She is head of the Russian committee for research on aquatic macroinvertebrates, a programme which includes studies on molluscs, crustaceans, and insects. As Dr. Sokolova reported at the symposium in Debrecen, her special interest is dedicated to the genus *Chironomus* and, in particular, to the species *C. plumosus*. Her group at the University of Moscow studies the reservoirs of the Moskva river (water-supply) in respect of hydrology, hydrochemistry, phytoplankton, zooplankton, benthos, and ichthyo-fauna.

Benthos and the chironomid communities, in particular, are studied by Dr. Sokolova and Dr. E. I. Izvekova. Their decades of studies are yielding long-term data on variation in these man-made and man-used biotopes which are extremely valuable since still rare. ("There is no such thing as a representative year; what we have is a series of abnormal years" - quoting W. T. Edmondson's (1991) lectures on Lake Washington.). Succession of the communities of the Mojcaisk Reservoir and the Utcha Reservoir have been studied regularly since they were constructed 30 and 45 years ago. There exist series of data on community composition, population dynamics, standing crop, and on life cycles of the dominant chironomid species, such as *Chironomus plumosus*, *C. muratensis*, *C. balatonicus*, *C. anthracinus*, *Procladius ferrugineus*, *Cladotanytarsus mancus*, *Polypedilum nubeculosum*, *P. bicrenatum*, and *Stictochironomus rosenschöldi*, over many years. The applied aspects under study are the role of chironomids in self-purification processes of the (drinking-water) reservoirs and as fish-food organisms.

Dr. Tatiana D. Zinchenco is a researcher at the Institute of Ecology of the Volga

River Basin of the Russian Academy of Sciences at Togliatti. She studies macroinvertebrates of reservoirs of the Volga river (but also of the Moskva river). As these reservoirs are important drinking-water storages for large cities, all aspects under study have applied backgrounds. They are focussed on Chironomidae since their larvae attain up to 46% of the macroinvertebrate biomass in aufwuchs, which is the most significant habitat in the reservoirs themselves (lentic habitats) as well as in the channels and pipelines (lotic) of the water supply systems.

In the context of water supply and water treatment, chironomids are understood as pest organisms, some species even survive chlorinating (*Cricotopus bicinctus*, *Tanytarsus ex gr. gregarius*). With the objective to elaborate advice and recommendations for the control of chironomid populations in the water supply systems, comprehensive surveys on autecology and synecology of chironomids have been conducted for decades. These are spatial distribution, micro-site preference, diet, biomass, physiological status of individual species related to the trophic conditions of the ambient water, life cycle (emergence), and production (P/B).

Some reservoirs, like the Kuibyshev reservoir, have been studied continuously since their construction 35 years ago. These studies which yield a series of long-term data, have been supervised for many years by S. M. Lyakhov and F. D. Mordukhai-Boltovsky.

Dr. Engelsina A. Erbaeva works at the Institute of Biology at the University of Irkutsk. She studies the zoobenthos, inclusively chironomids, of huge Asian Lakes, in particular Lake Baikal (South Siberia) Lake Khubsugul (P.R. of Mongolia). Man-made lakes such as reservoirs of the Angara river which drains into Lake Baikal (Irkutskoie, Bratskoie and Ust-Ilmskoie) are also studied.

Most of these reservoirs exhibit oligotrophic characteristics which are believed to reflect the influence of Lake Baikal water, cascade effects at the inlets, and short water replacement times. (Oligotrophy is reflected by the occurrence of eight species of Diamesinae, for instance.) Apart from studies about the role of chironomids in benthic communities of reservoirs and lakes, their systematics and morphology are also investigated.

The other important institution in Irkutsk working on Chironomidae is the Institute of Limnology of the Siberian Division of the Russian Academy of Sciences. A group of six chironomid workers, headed by Professor A. A. Linevich, studies morphology, systematic, and cariosystematics. Names and research interests are included in the Directory (page 35).

Due to the initiative of T. Zinchenco and the approval given by Ju. N. Sokolova, it is intended to dedicate one of the next issues of *CHIRONOMUS* mainly to chironomid research in Russia and, if possible, other states of the former Soviet Union. Editing and translation of this issue will be supported by the Russian Academy of Sciences. But even so, the translations will be very difficult. It is my personal concern to enhance information exchange and cooperation between eastern and western countries via *CHIRONOMUS*, so I am appealing to any colleague with a knowledge of both languages, Russian and English, and is willing to cooperate in preparing the "Russian issue" to contact T. Zinchenco or me (addresses see list of RRs, page 7). Thank you.

Ulrike Nolte

SHORT COMMUNICATIONS

Ecotoxicology

During the last decades huge amounts of environmental pollutants have accumulated in aquatic sediments. When water quality is improving the sediments can, instead of being a sink, become an important source of hazardous chemicals, thus being a continuous threat to aquatic communities.

Because the larval stages of many chironomid species have an intensive contact with the sediment they inhabit, they can be important indicators of sediment quality. Not only the abundance of different chironomid species, but also the incidence of deformities in chitin structures like mentum, antennae, and mandibles are thought to be related to the presence of sediment contaminants.

To disentangle effects of contaminated sediments from the effects of waterborne chemicals laboratory bioassays using the eggs and larvae of *Chironomus riparius* have been developed to assess aquatic sediments. Bioassays are also used to assess the sensitivity of sediment dwelling organisms to specific chemicals, and to screen new chemicals on their potential environmental impact.

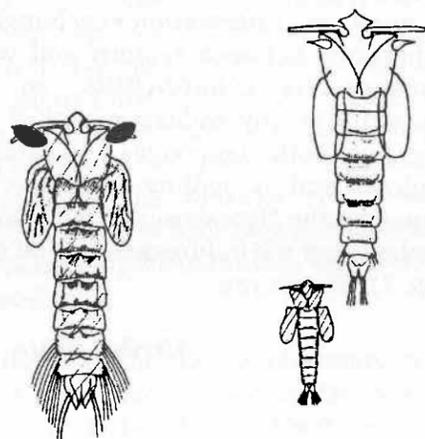
Newly developed guidelines for acute and chronic bioassays using *Chironomus riparius* are available from the Institute of Inland Water Management and Waste Water Treatment (RIZA):

C. van de Guchte
RIZA, Ecotoxicology Division,
P.O. Box 17,
8200 AA Lelystad (The Netherlands)

Announcement on Ecotoxicology

News and hot items in chironomid ecotoxicology will be summarized in this part of the *CHIRONOMUS* newsletter. In order to extract topics from current research and recently published articles, I invite all readers to send materials of interest directly to my address, well before the deadline of 1 April 1993, if the material is to appear in the next issue.

C. van de Guchte



Pupal Exuviae Collection, University of Pittsburgh

A slide-mounted collection of approximately 100,000 pupal exuviae is housed in my laboratory at the University of Pittsburgh. For the most part, this collection was developed from field samples that I have taken over the past 22 years. However, major parts of the collections have been made possible by friends and/or colleagues who have been willing to make collections while visiting "exotic" areas. Although lentic, marine, and terrestrial material is included, the largest part of the collection is from lotic systems. The original purpose for the collection was the making of a permanent record of "what species were found when and where" in my investigations of chironomid assemblages.

For this reason, at least one specimen (and usually several) of each species found in each sample is prepared. The total collection is catalogued to the generic level. I am currently working on a species-level catalogue. I do not know the number of species contained in the collection, but it must be several thousand. The Nearctic (especially the northern part) is the most thoroughly represented, but there are major components of the collection from the Neotropical, Afrotropical and Palaearctic Regions. The Oriental and Australasian Regions are less well represented.

Investigators are welcome to visit my laboratory and borrow what is of use to them. I would also be very happy to correspond with individuals. Unfortunately, the size of the collection (coupled with its state of cataloguing) prevents me from taking the time to search through it for species of large genera and subgenera.

William P. Coffman
Dept. of Biological Sciences
University of Pittsburgh
Pittsburgh, PA 15260 (U S A)

Chironomidae from Italy

Chironomid research in Italy has progressed since 1982, when the first contribution has been published (Ferrarese, *CHIRONOMUS* 2(4)). This is more the fruit of the initiative of individuals than of a systematic program. A list of chironomid species known to occur in Italy has been published in *SPIXIANA* 14 (Rossaro 1988). With this note, I am updating the previous list and inviting all Italian scientists to add names!

Tanypodinae:

Macropelopia fittkai Ferr. & Ceretti
Krenopelopia binotata (Wied.)

Diamesinae:

Diamesa starmachi Kow. & Kow. (= *D.* sp.A sensu Rossaro 1981)

Orthoclaadiinae:

Cricotopus algarum (K.)
C. (Isocladus) brevipalpis K.
C. (Isocladus) ornatus (Mg.)
Epoicocladus flavens (Mall.)
Limnophyes pentaplastus K. (= *L. prolongatus* K.)
Orthocladus rhyacobius K.
O. majus G.
O. marchettii Rossaro
O. rivinus K.
O. pinderi Rossaro (= *O.* sp. A Pinder)

O. ruffoi Rossaro (= *Rheorthocladus* sp. A Thienemann)
O. ticinoi Rossaro
Paratrichocladus gayi Serra-Tosio
P. guidalii Rossaro
P. lanzavecchiai Rossaro
P. micans Rossaro
P. osellai Rossaro
P. pierfrancescoi Rossaro
P. veronicae Rossaro
Smittia amoena Casper (= sp. FZ FY FX sensu Rossaro 1988)
S. aterrima (Mg.)
S. foliacea (K.)
S. nudipennis G.
S. pratorum G.
S. scutellosetosa Caspers (= sp. E sensu Rossaro 1988)

Please send comments and supplementary species recorded from Italy to:

Bruno Rossaro
Dipt. Scienze Ambientali, Univ. of L'Aquila,
Via Vetoio Località Coppito
67100 L'Aquila (Italy)

NOTICE-BOARD

Meetings

September 1992: Russian Symposium of Chironomidae
January 1994: 12th International Symposium on Chironomidae in Australia
August 1994: 3rd International Congress of Dipterology in Canada

Russian Symposium on Chironomidae

In September 1992, all chironomid workers from Russia and other CIS countries are invited to meet for the traditional tri-annual chironomid meeting at Borok (Jaroslavskaia District) for presentation and discussion of current research programs, but also to communicate about the new and difficult situation to which scientists are faced within all countries of the Ex-

USSR. The conference will be held at the Institute of Inland Water Research of the Russian Academy of Science, following the invitation of Dr. A.I. Shilova.

N. Ju. Sokolova and T. Zinchenko

12th International Symposium on Chironomidae

Canberra, April 1992

Dear Colleague,

In Amsterdam, at the 11th International Symposium of Chironomidae, Australia was offered and accepted as the venue for the next meeting. Thus, the 12th International Symposium of Chironomidae will be held for the first time in the southern hemisphere, in Canberra, in January 1994.

January is mid-summer and long vacation time at Australian Universities and accommodation of varying degrees of comfort (and price) will be available on campus. The scientific session will be held at the Commonwealth Scientific and Industrial Research Organisation, which is within 500 metres of the University accommodation.

Apart from the inevitable high airfare, conference costs can be kept quite low. On campus, University House offers accommodation used by visiting academics at the following (1992) daily rates: Single room, with bath A\$75; single shared bathroom A\$46; twin room with bathroom A\$84; double suite with bathroom A\$87. Burton & Garren Hall, one of the student halls of residence, currently offers bed and breakfast daily rate of A\$32. In 1990, we organised the Annual Conference of the Australian Entomological Society in Canberra, with a registration cost of A\$120. With low inflation these costs will not increase much.

At present, I am looking at the period Saturday 22nd January 1994 until Wednesday 26th January, with a mid-conference full-day break to visit a local wildlife reserve. I would prefer to avoid parallel sessions for scientific and logistical reasons. If the demand for oral presentations is greater than can be handled in single sessions, poster presentations will be encouraged.

I encourage all intending participants to investigate whether their home country has reciprocal exchange programmes with Australia. There are many such programmes in existence and the best source of information will be the Australian High Commission or Embassy. Many of the arrangements are between the Australian Academy of Science and your own national Academies of Science: please contact them soon. If you need formal letters of invitation, please contact me:

Peter S. Cranston
CSIRO Entomology
GPO Box 1700
Canberra, ACT 2601 - Australia
(Phone: [06] 246 4282; Fax [06] 246 4000)

Australia has strict laws concerning its fauna and flora. Collecting permits are required from each State, separately for National Parks and State Forests. It is unlikely that these bureaucratic procedures will alter before 1994. The most important control (from my perspective) is that holotypes described from Australian material must be returned to Australia - this is a condition of export permission. If you intend to collect in connection with your visit, then ask me for details of state and federal agencies to consult.

Looking forward to your visit.
Yours sincerely,



Peter S. Cranston

3rd International Congress of Dipterology

The 3rd International Congress of Dipterology will be held August 15th to 19th, 1994 at the University of Guelph, Guelph, Ontario, Canada. Steve Marshall (Dept. of Environmental Biol., Univ. of Guelph) is chairman of the organizing committee, and has asked that I organize the section pertaining to Chironomidae.

Anticipated cost for attendance include a registration fee in the vicinity of 140 US\$, and accommodation on campus with meals (about 45 US\$ per day). Hotel accommodation is also available. Guelph is located within a half-hour drive of Toronto International Airport. Regular limousine service between the airport and Guelph is available for approximately \$25.00 U.S.

Fortunately, the 1994 congress will not conflict with the chironomid symposium; organizers are hoping that many chironomid enthusiasts will contribute to the meeting's success.

If you are interested in attending and would like to receive further information, abstract forms, and registration forms, or would like to contribute ideas/help with organizing the sessions please contact me at my new address:

Ian R. Walker
Biology Department
Okanagan College
Kelowna, British Columbia
Canada V1Y 4X8
(Tel: [604] 762-5445 local 4519, Fax: [604] 862-4910)
(E-Mail: iwalker@admin.okanagan.bc.ca)

Advertisements

A key to pupal exuviae of West Palaearctic Chironomidae

This key was published in the spring of 1991 and covers the greater proportion of known West Palaearctic Chironomidae. It is privately printed and may be obtained from the author. It costs £24 with postage and packing extra (currently by airmail this is about £5 to Europe and £9 to North America).

Update on "A key to pupal exuviae of West Palaearctic Chironomidae"

A letter has been sent to all who have purchased from me a copy of my recent key, containing corrections and additions. Those who have a copy of the key and have not received the circular should write me for a copy.

Peter H. Langton
3, St. Felix Road,
Ramsey Forty Foot, HUNTINGDON,
Cambridgeshire, PE17 1YH (England)

Catalogue of the Diptera of Belgium

This catalogue has been published by Patrick GROOTAERT, Luc DE BRUYN and Marc DE MEYER in 1991, as Number 70 in the series "Studiedocumenten van het K.B.I.N.". The checklist of Belgian Chironomidae included has been compiled by B. GODDEERIS and F. BEHEN. The catalogue is available at the price of BF 800.

Boudewijn Goddeeris
Royal Belgian Institute of Natural Sciences
Vautierstraat 29
1040 Brussel (Belgium)

Separata of Goetghebuer still available

Some of the publications of the Belgian chironomidologist Dr. M. Goetghebuer (1876 - 1962) are still available at the Royal Belgian Institute for Natural Sciences. The following list of these publications is in conformity with: Fittkau E.J., Reiss F. & Hoffrichter O. (1976) A bibliography of the Chironomidae. *Gunneria* 26: pp. 177.

Unfortunately, the publications in the "Bull. Anns. Soc. r. ent. Belg." are not available as separate fasciculi, but as complete year volumes of that journal, which increases the price considerably.

The list gives year and price (BF = Belgic Franc) of each publication:

1921 b: 436 BF
1923 a: 276 BF
1927 a: 618 BF
1928 c+d: 540 BF
1929 a+b: 884 BF
1931 a+c: 612 BF
1932 a+e: 704 BF
1933 a,b,c+d: 874 BF
1934 a,b,c,d,e,f,g,h: 870 BF
1935 c+d: 894 BF
1936 b,c+d: 962 BF
1937 b,c+d: 1008 BFF*
1938 a,b+c: 1094 BF

1940 a+b: 426 BF
1945 a: 520 BF
1946 b: 582 BF
1948 a+b: 600 BF
1950 a: 516 BF
1955a. Mem. Soc. r. ent. Belg. 27: 293-243: 1030 BF

*Gtgh & Timon-David 1937a; **Gtgh & Timon-David 1939a

Papers of M. Goetghebuer published in the Bull. mus. r. Hist. nat. Belg. (later: Bull. Inst. r. Sci. nat. Belg.) which are still available:

1939 c: 5 BF
1939 d,e+f: 1012 BF**
1941 b: 20 BF
1941 c: 30 BF
1942 b: 40 BF
1942 c: 10 BF
1949 a: 20 BF
1950 b: 38 BF

If you want to purchase one or more of these publications, please send your request to me. The separata will be sent together with the invoice.

Boudewijn Goddeeris

(see address p. 21)

Proceedings of the Chironomid Symposium at Debrecen (1988) still available

Dear Colleagues, we are pleased to inform you that some copies of the Proceedings of the 10th International Symposium on Chironomidae held at the 25th - 28th of July 1988 in Debrecen (Hungary) can still be ordered. The bibliographical data are:

Devai, G. (ed.) 1989. Advances in Chironomidology. Part 1. Systematics, molecular biology, cytology, population genetics, zoogeography and phenology. *Acta Biol. Debr. Oecol. Hung.* 2: 1-437
Devai, G. (ed.) 1989. Advances in Chironomidology. Part 2. Faunistics, population dynamics, ecology, production and community structure. *Acta Biol. Debr. Oecol. Hung.* 3: 1-386

The two volumes can be ordered by individuals as well as by institutions (Departments, Libraries). If you intend to order the Proceedings, please send 60 US\$ in cash or by cheque to the address of Dr. Odwin Hoffrichter, Institut für Biologie I (Zoologie) Albertstrasse 21a, D-7800 Freiburg (Germany).

We will send the two volumes when having received the money, and we will also enclose an invoice/receipt/acknowledgement if you wish.

György Dévai

Ecological Institute of L.Kossuth University,
Debrecen, Pf. 14 - 4010 (Hungary)

Annales de Limnologie: call for contributions

This International Journal on Limnology is published in France since almost 30 years. Its main topics are: - Taxonomy, distribution, biology, ecology of freshwater organisms; - Experimental and conceptual studies which integrate laboratory and field work on physiology, toxicology, population dynamics, management, mathematical modelling; - Ecological aspects of applied problems and techniques for sampling chemical analysis of freshwater.

Despite the broad scientific scope covered by the Annales de Limnologie, it is intended that greater focus will be placed on publications on chironomid research. So I am inviting you to send contributions, preferably written in English, either to me or to one of the journals Associate Editors, which are: G. Bonomi, Univ. of Bologna (Italy); K.W. Cummins, Univ. of Pittsburgh (USA); J.M. Elliott, Inst. of Freshwater Ecology Windermere (Great Britain); R. Marzolf, Geological Survey Center Denver (USA); J. C. Micha, UNCED (Belgium); N. Prat, Univ. of Barcelona (Spain).

Articles are printed in approximately three to four months after acceptance by the Editorial Board; - 25 reprints are free of charge; - photogravures and additional reprints are charged to the author.

Henri Laville (Editor-in-Chief)

Lab. d'Hydrobiologie, Univ. Paul-Sabatier
118, Route de Narbonne
31062 Toulouse Cedex (France)
(Fax: +61 55 6000)

Third part of "De Larven der Nederlandse Chironomidae" published

At the end of 1990, the third part of this work has been published: Moller Pillot, H.K.M. & R.F.M. Buskens: De Larven der Nederlandse Chironomidae (Diptera). Deel 1 C: Autoekologie en Verspreiding. Nederlandse Faunistische Mededelingen 1 C: 1-85.

Available from: Bibliotheek Nationaal Natuurhistorisch Museum, Postbus 9517, 2300 RA Leiden, the Netherlands (phone: 71 143844). Price: Dutch Fl.20,- (a receipt will be sent together with the publication).

The authors treat the autecology and the distribution of more than 200 taxa in the Netherlands. Except for the tribe Tanytarsini, all the subfamilies occurring in the Netherlands are included.

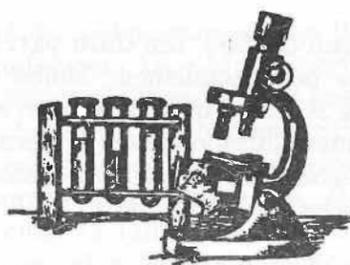
The autecology of the larvae is given in ecological spectra including values of geographic distribution, water type, habitat, oxygen, pH, trophic status, and chloride concentration. The presence of larvae in the columns of the table with spectra on their ecology has roughly been indicated with a scale from 0 to 4. The table is followed by a short text describing aspects of the autecology which is not included in the table. For most of the species, the months are mentioned when last larval instar and pupa are present. The autecological spectra can be applied in a number of ways. Some examples are given. The spectra are a useful tool in biological monitoring of waters.

Finally, maps with the geographical distribution of most of the taxa in the Netherlands are given. The book is written in Dutch, but the supplementary sheet in English makes the autecological data available for many users.

Henk K. M. Moller Pillot

Leyparkweg 37
5022 AA Tilburg (The Netherlands)

Research Requests



If not "filaments", then what?

For many years the broad flattened setae on chironomid pupae have been called "filamentous setae" or "filaments". This is a misuse of the word "filamentous", which strictly means thread-like, i.e. those setae that are presently referred to as "non-filamentous" are more correctly "filamentous"! As a result, there is some move towards referring to them as "lamellar setae"; however, lamellar means composed of (overlapping) plates, and so is equally inaccurate. "Flattened setae" would not be adequate because narrow flattened setae also occur on pupae. An alternative that does not run the danger of mistranslation may have to be contrived from the Classics: redimicula? taeniae? lemnisci?

Comments and suggestions please to my address. The results of this discussion will be published in a later edition of this newsletter!

Peter H. Langton

3, St. Felix Road, Ramsey Forty Foot
HUNTINGDON, PE17 1YH (England)

Wanted: mounted or alive !!! - *Derotanypus sibiricus* Kruglova & Chernovski 1940

During studies on the chironomid fauna in a Bavarian (FRG) limnocene during the winter season 1988/89 (see abstract page 30) I have succeed in rearing many individuals of *Derotanypus* sp. This species has been mentioned by Fittkau & Murray (1986), Fittkau & Roback (1983), Murray & Fittkau (1989) and Reiss (1982, 1983), but actually has yet to be described.

From the Palaearctics, only one species, *Derotanypus sibiricus* Kruglova & Chernovski (1940), has been reported (cf. Chernovski (1949), Pankratova (1977)). Unfortunately, none of these descriptions provide sufficient details to decide whether or not the species I have reared is *D. sibiricus*. During my efforts to clarify this problem, I had the chance to examine individuals of a species of *Derotanypus* from Mongolia, to which material Prof. Dr. E. J. Fittkau allowed me access. This Mongolian species definitely differs from the Bavarian species, I have reared.

To decide, if one of the two species examined belongs to *D. sibiricus* or if one or even both species are still undescribed, I do need specimens of *Derotanypus sibiricus* ... dead or alive!

I would be very grateful if any material available of this genus could be send to my German address: Mr. Frank Schirmer, c/o Prof. E. J. Fittkau, Zoologische Staatssammlung, Münchhausenstr. 21, D-8000 München 60 (Germany).

Frank L. Schirmer, Biología
Universidade Federal de Mato Grosso (UFMT)
Avenida Fernando Correa s/n
78.098 Cuiabá - MT (Brasil)

An Indian *Chironomus*: one species or more?

From the mountains of Shillong (Meghalaya, India), Mr. Rishi Das has collected *Chironomus ramosus* Chaudhuri & Das, a species which has been recorded so far from the plains of India. Mr. Das is now revising this species by means of morphological as well as biochemical aspects. He is employing electrophoresis, chromatography, and oxygen equilibrium methods. Advices in respect to biochemical methods for species differentiation are welcome. Please contact Mr. R. Das, Dept of Zoology, Tinsukia College, Tinsukia 786 125 (India) or Dr. P.K. Chaudhuri.

Mangrove: a very special biotope

Together with my research group, I am studying life cycles of Orthoclaadiinae and Chironominae collected from mangrove ecosystems of West Bengal. These studies include also ecological aspects of the midges. Exchange of ideas and experiences with this dynamic biotope as well as reprints from colleagues around the world will be gratefully acknowledged. Please send suggestions to:

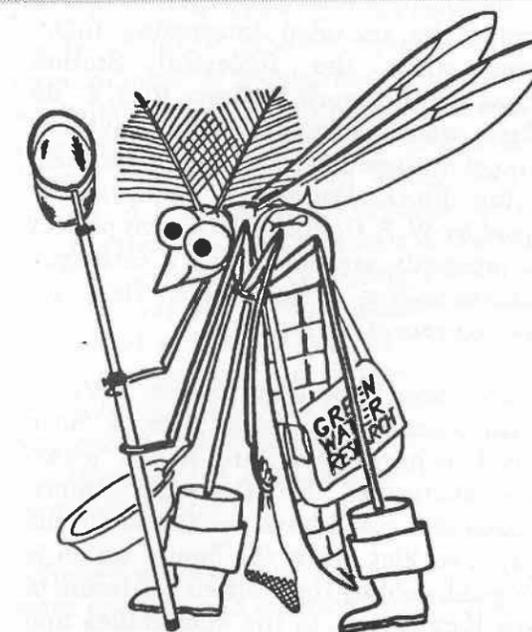
P.K. Chaudhuri
Dept. of Zoology - Entomology
University of Burdwan
Burdwan 713104 (W.B. India)

EXPEDITIONS

Costa Rica - Guanacaste National Park

In 1990, during a trip through the north of Costa Rica, we paid a brief visit to the new "Maritza Biological Station" at the Guanacaste National Park, east of the Interamerican Highway. It is situated at the foot of the Orosí Volcano and is one of several new research stations being developed in the new park. Dr. Carlos de la Rosa is a Research Associate of the Academy of Natural Sciences of Philadelphia, Pennsylvania, USA, and as the resident biologist at the Maritza station he manages several research and education projects there.

One aim of the program at Maritza is extensive research in the ecology and systematics of running water macroinvertebrates. The region around Orosí offers a great diversity of habitats reaching from lowland dry forest to humid montane forests. Although Dr. de la Rosa and his Costa Rican staff are still engaged in the development of research facilities, many field collections have already been made which result in impressive faunistic mater-



- 1a. wings very slender, m-cu lacking, macrotricha lacking2
- b. wings other than above .
- 2a. distribution: England, particularly near Bristol3
- b. everywhere but England...
- 3 other than above, hind-tarsi furnished with gum boots, midge always smiling8
- 8*Caligula retifera*

n.gen. n.sp. **Ronald S. Wilson** 1988.

ial awaiting scientific processing. Guest scientists are welcome to find Maritza a contemplative and fascinating place to work.

For further information contact: Dr. Carlos de la Rosa, Área de Conservación Guanacaste, Estación Biológica Maritza, Apdo. 228, Liberia, Guanacaste Province (Costa Rica).

H. Wolfgang Riss and Günter Brückmann

Zoologische Staatssammlung
Münchhausenstrasse 21
8000 München 60 (Germany)

Dr. Carlos de la Rosa has sent me a letter in which he included interesting information about the Biological Station Maritza and his work in Costa Rica. C. de la Rosa, who is originally from Venezuela and as of 5 years ago resides in Costa Rica, did his Ph.D. theses in Pennsylvania advised by W. P. Coffman. In a joint project they presently are developing a catalogue of Chironomidae of Costa Rica. Here are some excerpts of his letter:

"Since there is no other person working on chironomids in Costa Rica, I have decided to begin something like a "awareness campaign" for the chironomids. Towards this goal I have written so far one popular booklet about the family which is being published by the National Museum of Costa Rica, a key to the subfamilies and tribes of Costa Rican chironomids, a glossary of pupal and larval chironomid terminology, and I plan to develop regional treatments for the different subfamilies present in Costa Rica. All these papers are published in Spanish, mostly to increase the chance of attracting promising students to work and specialize in this group.

In the area of stream monitoring (still in

its early stages of development in Costa Rica), I am working with W. P. Coffman in the development of a series of keys to Costa Rican genera of pupal chironomids and promoting the use of pupal exuviae collections in water quality and impact assessment studies. This past January, I also taught a workshop on chironomid identification at the Maritza Station which was attended by ten students and technicians, most of them Costa Rican, working on aquatic insects. From this workshop (and another one in Ephemeroptera and Trichoptera identification) we have developed the first drafts of keys to genera of larval and pupal chironomids for the region. One of our research projects in the rainforest areas of northern Costa Rica is explicitly trying to develop protocols to use the chironomid fauna as a tool in stream quality monitoring.

Two months ago, I hired a Costa Rican student to begin to work on our enormous chironomid larvae collection. This has been collected as part of a quantitative study of macroinvertebrate community structure from six streams draining primary forest in northern Costa Rica. Ms. Rosibel Barrantes has already made over 3000 microscope preparations of larval chironomids, which is the most complete collection of this kind in Costa Rica (and she is only starting). Rosibel is also learning to identify the chironomids and she is the first Costa Rican to receive this specialized training."

Carlos de la Rosa (& Ulrike Nolte)

Indian Himalaya - Chironomid Habitats at 4300 m a.s.l.

In August and September 1991, I had the opportunity to spend six weeks in the northwest Himalaya, Himachal Pradesh, India. The main goal of the expedition was to study the biodiversity of insects with

special reference to Chironomidae and other Diptera, and for studying the practically unknown fauna of high elevations of the Himalaya up to a height of 4500 m a.s.l. and beyond.

The first two weeks in August, we spent in the Kullu Valley at the base camp at Manali. Here we have collected very rich chironomid material and studied several aspects of midge behaviour. Near the Rhala Fall, I succeeded in studying the swarming and reproductive behaviour of *Brillia*, which is considered to be a rare taxon in this region. During the last four days of the second week in August, we faced a very heavy rain and snow fall in the valley thus we could not move out for our studies.

The 20th of August was a rainy morning, when we started to the Batal (Lahaul-Spiti Valley). After a long and cumbersome twelve-hour journey by bus, we reached at Batal, 3912 m a.s.l., a place on the right bank of River Chandra, where there is no human population at all. Here we spent five days in studying Chironomidae and, also, to become acclimatized to the new conditions. Now, our sole aim was to approach the Chandratat Lake which is situated at the Great Himalian Range in the Lahual Spiti Valley.

On the 25th of August, we started to track to Chandra Tal Lake (4281 m a.s.l.) accompanied by a guide especially trained for these high altitudes and two porters. Our eight pack-animals carried the scientific instruments, luggage, and food supplies. After a track of 18 kilometres along the left bank of river Chandra, we reached the Chandratat Lake. We were welcomed by several swarms of non-biting midges so that it sometimes became difficult to move along the shore line of the Lake. Here we stayed one week for our studies.

Lake Chandratat is covered with snow for about six months per year. The name of the lake is derived from its half circle shape because "Chandra" means "moon". Chandratat is approximately 1750 m long and at maximum 650 m wide. It is fed by the melting winter snow, the permanent glaciers and a number of natural springs. The lake is occupying a shallow trough on the left bank of River Chandra, into which its drains, and appears to have been formed in the basin of an ancient extinct glacier. Two earlier visitors of the lake, Moorcroft (1841) and Stewart (1916), have written that "not a weed deformed its pallid and tranquil waters. There seems to be no fish, nor was any bird or even a fly in its vicinity".

Our recent experience, however, revealed that Lake Chandratat is rich in life. There occurred several birds, such as two pairs of ruddy shelduck (*Tadorna ferruginea*), a large number of greybacked-yellowheaded wagtails and some dippers. The waters supported many insects and crustaceans. Among midges we have found several species of *Micropsectra*, *Corynoneura* and other orthoclads. At the outlet of the lake, I have succeeded in collecting pupal exuviae of a number of chironomids. (Through this outlet at the southern end of the lake, the water gushes out to meet the River Chandra after a stretch of approximately 2 km and an incline of 500 m. To the west of the lake there is the big glacier known as Samundra Tapu.)

These few weeks at the northwest Himalaya were exciting and eventful, and yielded in rich entomological material. The expedition was accompanied by Prof. Santokh Singh (prof. emeritus), Dr. M. Ipe (Mr.) - head of the School of Entomology) and Dr. A. Ipe (Ms.) - St. John's College at Agra.

Girish Maheshwari

School of Entomology, St. John's College
Agra 282002 (India)

THESES AND DISSERTATIONS

With this subheading, the newsletter intends to inform about theses and dissertations which in general are hard to obtain through the usual channels. I am calling for information about all theses/dissertations recently completed, hoping for the cooperation of research students working towards graduate degrees (Master of Science and Doctor of Philosophy) as well as their supervisors.

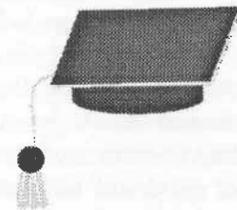
SPAIN:

Rieradevall, M. 1991. Ecology and production of benthos in Lake Banyoles. Ph.D. thesis, University of Barcelona, 242 pages. (written mainly in Catalan with some chapters in English). Supervised by Dr. Narcís Prat, Department d'Ecologia, Facultat de Biologia. Published: Rieradevall & Prat (in press) Hydrobiological Bulletin.

Abstract - The Lake Banyoles (NE Spain) is a very interesting aquatic system because of its karstic origin and its subterranean water inflow. Our objective has been to study the zoobenthic community in sublittoral and profundal sediments. Samples were taken monthly, from August 1986 to December 1987, with a modified large Ekman grab (400 cm²) in eight stations situated at different basins and depths. We also monitored temperature and dissolved oxygen of water, as well as pH, conductivity and Secchi disc depth, and we also studied the granulometry, the organic content and the composition of 28 chemical elements in the sediments.

We identified many meiobenthic organisms and the macroinvertebrate fauna at species level. All together there were 73 taxa classified in: Nematoda (7 species), Oligochaeta (9), Bivalvia (4), Cladocera (7),

Contributions under this section should include the original and English title, authors name, address, University or College where the thesis was defended, and supervisors name. An English abstract is welcome as it will enhance the informative value of the notice.



Copepoda (5), Ostracoda (8), Amphipoda (Gammaridae) (1), Hydracarina (4), Ephemeroptera (1) and among Diptera the families Ceratopogonidae (1), Chaoboridae (1) and Chironomidae (24).

Our results show that oxygen was the main factor controlling the distribution of benthos. There were three different situations in the lake: (1) One month of oxygen depletion in basin I (at 12 m and 20 m depth) allowed the establishment of diversified benthic communities (31 species), with mean annual densities of 2000 ind./m² and with Oligochaeta as the most important group. (2) Four months of anoxia at 13 m depth in basin IV limited the community to few species (18 taxa) with low densities. (3) Meromictic conditions in basin III allowed the presence of only *C. flavicans*.

In the sublittoral zone, with sufficient oxygen throughout the year, the community was similar to the profundal community (19 to 25 species depending on zones) but with chironomids prevailing, and with annual mean densities of 10500 ind./m² at 5 m depth. In the sublittoral, the particle size of the sediment was important for the distribution of organisms.

In general, predatory species dominated in abundance and diversity over the detritivorous ones. A good relationship was observed between the density fluctuations across the year of predators along with meiobenthic species upon which they presumably fed.

Nine species of Chironomidae (*Procladius* cf. *choreus*, *Tanytus punctipennis*, *Cladopelma virescens*, *Microchironomus tener*, *Chironomus bernensis*, *Ch. nuditarsis*, *Ch. plumosus*, *Cladotanytarsus atridorsum*, and *Tanytarsus lestagei* group) accounted for 97% of the total chironomid community. We have studied the population dynamics of these species. Their number of generations per year varied from one to four depending on species and depth. The annual production of the chironomid community varied from 1 g/m² at 20 m to 5 g/m² at 5 m depth (both values in basin I). These values corresponded to the oligotrophic characteristics of Lake Banyoles.

Maria Rieradevall

Dept. d'Ecologia, Universitat de Barcelona
Avgda. Diagonal 645, 08028 Barcelona (Spain)

RUSSIA:

Kravtsova, Lubov 1991. Zoobenthos in the system of the hydrobiological monitoring of Lake Baikal. Thesis, Scientific-Research Institute of Biology, Irkutsk State University.

In the thesis a specific structure of coenosis was analysed, including chironomids, and the possibility of their application in the hydrobiological monitoring of Lake Baikal was assessed. (For further information, please contact the RR for south Siberian, Dr. E. Erbaeva).

NORWAY:

Bjørklund, A. 1991. Direct and indirect effects of predation from three-spine stickleback (*Gasterosteus aculeatus* (L.)) on benthic chironomid larvae (Diptera: Chironomidae). [In Norwegian] Candt. scien.-thesis, Museum of Zoology, University of Bergen, Norway.

Farstad, M. 1992. Diel vertical migration in larvae of *Sergentia coracina* (Zetterstedt) (Diptera: Chironomidae). Cand.scien. -thesis, Museum of Zoology, University of Bergen, Norway.

INDIA: (Theses completed after 1984)

Das, Samir Kumar (year not given) **Studies on the systematics and biology of limnobiontic chironomids of South Bengal, India.** Ph.D. thesis, S.C.College, Hooghly, West Bengal (India). Supervised by Dr. P. K. Chaudhuri, Dept. of Zoology, University of Burdwan, Burdwan 713 104, W.B. (India).

Bhattacharyay (Mukhopadhyay), Samapti (year not given) **Systematics and distribution of Orthoclaadiinae of Darjeeling and its adjoining areas.** Ph.D. thesis, Jawaharlal University of New Delhi (India). Supervised by Dr. P. K. Chaudhuri, Dept. of Zoology, University of Burdwan. Published: Bhattacharyay, Ali & Chaudhuri (1991) Beiträge zur Entomologie 41: 33-349.

Chattopadhyay, Sailesh (year not given) **A study of chironomids inhabiting rice fields of the gangetic West Bengal.** Ph.D. thesis, C.S.R.T. Institute (Government of India), Berhampur, West Bengal (India). Supervised by Dr. P. K. Chaudhuri, Dept. of Zoology, University of Burdwan. Published: Chaudhuri & Chattopadhyay (1990) Tijdschr. voor Ent. 133(2): 149-195. Chaudhuri & Chattopadhyay (1991) Reichenbachia 28: 177-180. Chattopadhyay, Mazumdar & Chaudhuri (1991) Proc. nat. Acad. Sci. B: 291-301.

Datta, Tapati (year not given) **A study of Tanytarsini occurring in south of the Himalaya of West Bengal.** Ph.D. thesis, Central Sericultural Research Centre, Kalimpong, West Bengal (India). Supervised by Dr. P. K. Chaudhuri, Dept. of Zoology, University of Burdwan. Published: Chaudhuri & Datta (1990) Proc. Zool. Soc. Calcutta 44(1): 29-33.

GERMANY:

Schirmer, F. L. 1989. **Faunistische Untersuchungen (Makroinvertebraten) des Winteraspekts einer präalpinen Limnokrene (Quelltümpel).** "The macroinvertebrate fauna of a prealpine limnokrene" Diplomarbeit, Masters thesis, University Berlin (FU), 146 pages. (written in German). Supervised by Prof. Dr. Ernst Josef Fittkau, Zoologische Staatssammlung, München.

Abstract - During winter and spring 1988/89, the macroinvertebrate fauna of a prealpine spring was studied, which is situated 533 m a.s.l. in southern Bavaria (Lakes of Seeon). The size of the limnokrene was 32 m in length, 16 m in width, with a maximum depth of 3.5 m. An average temperature of between 7.0° and 9.0°C and a high allochthonous input in conjunction with a low outflow of the spring characterized this unique biotope. The N and P concentrations were low, with values in the range of oligotrophic lakes. The substratum consisted to 70% organic material and formed a sediment of at least 1.5 m thickness. It was mainly overgrown with *Chara aspera* var. *subinermis*.

Samples of the soft substratum were taken fortnightly, as well as drift samples, and selective catches at the shoreline and among the macrophytes. In the course of 6 months, 121 taxa of invertebrates have been collected. Euryecious species were dominant, and species typical for nordic and alpine waters were numerous. Some cold-stenothermic species were also present.

Chironomidae were dominant, representing more than 50% of all individuals. The structure of the chironomid community was of special note, which mainly consisted of *Procladius choreus* (28% of total macroinvertebrate specimens), *Derotanypus* sp. (8%), *Tanytarsus gibbosiceps* (6%), *Macropelopia nebulosa*, *M. goethghebueri*, *Zaurelimyia hirtimana*. Tanypodinae, which are mostly predators, constituted 60% of

the Chironomidae species and 80% of the number of individuals. The main food source for the tanypodids, attaining abundances of about 70 individuals per 10 cm², was an ostracod population (mainly *Cyclocypris ovum*) which was well developed during the winter. Among the Chironomidae, 11 of the 19 species identified are considered to be krenophilous. *Derotanypus* sp., *Tanytarsus gibbosiceps*, *Psectrocladius octomaculatus*, and *Sergentia longiventris* are glacial relicts. These species are well known from alpine and nordic biotopes, and obviously have been able to survive at this prealpine spring due to its constantly low temperature.

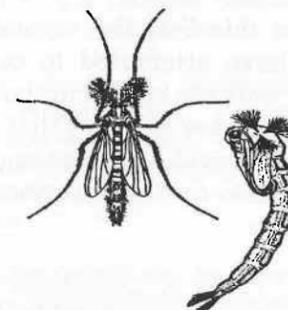
Frank L. Schirmer

Universidade Federal de Mato Grosso, Biología.
Av. Fernando Correa s/n, 78098 Cuiabá - MT
(Brazil)

Hoffmann, Thomas. 1990. **Die Larvalentwicklung einiger Chironomiden (Diamesinae, Orthoclaudiinae) des Breitenbachs.** "Life cycle of some chironomids of the Breitenbach (upland stream)". Diplomarbeit, Masters thesis, University of Göttingen, 67 pages. (written in German). Supervised by Dr. Ulrike Nolte, Flußstation des Max-Planck-Instituts für Limnologie Schlitz. Published: Nolte & Hoffmann (1992) *Ecography* 15: 25-30. Nolte & Hoffmann (in press), *Hydrobiological Bulletin*.

Otto, Claus-Joachim. 1991. **Benthosuntersuchungen am Belauer See. Eine ökologische, phänologische und produktionsbiologische Studie unter besonderer Berücksichtigung der merolimnischen Insekten.** "The benthos of Belauer Lake: A study on ecology, phenology and production biology especially of aquatic insects." Ph.D. thesis, University of Kiel, 239 pages. (written in German). Supervised by Prof. Dr. Klaus Böttger, Institut für Zoologie, Ohlshausenstrasse 24-26, 2300 Kiel (Germany)

PERSONALIA



Addresses changed

Mr. Prof. Dr. A. D. Harrison
111A Berg Road
Fish Hoek 7975, South Africa

Mr. Dr. Ronald S. Wilson
Mudgley Elms Coldnose Lane
Mudgley Wedmore
Somerset BS28 4TH, U.K.
(Phone: +44 934 712863)

Geraldo E. Torres: 07.05.1947 - 23.02.1991

Geraldo Eustáquio Torres, 43, docent in biology at the Federal University of Minas Gerais (Belo Horizonte, Brazil) passed away in the middle of an active life.

From 1972 to 1980, G. Torres studied population dynamics of Culicidae and *Planorbis* molluscs as vector organisms of waterborne diseases. He also started with ichthyological studies on limnetic habitats degraded by mining activities in the State of Minas Gerais.

From 1980 to 1983, G. Torres stayed in France as a Ph.D. student, where he defended his dissertation entitled the "Ecology of Chironomidae of Lake Créteil" at the University of Paris. Invited by E. J. Fittkau, he spent eight months at the Zoologische Staatssammlung München, in 1984, for advanced studies on morphology and systematics of chironomids.

Stimulated by his time abroad, Torres initiated benthological studies on Brazilian lakes on the Rio São Francisco, one of the largest central Brazilian Rivers. During this research his interests shifted more and more from chironomidology to general limnology and ichthyology. The many

commitments at the University of Minas Gerais did not allow him to publish all results of these studies. G. Torres was member of the board of the Sociedade Brasileira de Limnologia.

With the passing of Dr. Geraldo E. Torres, Brazilian limnology lost a many-sided and very active colleague.

Publications pertaining to chironomids:

- Torres, G.E. (1980) Les chironomides - Clé systématique pour les larvas. In: Faune et Flore de Lac de Créteil. Pub. Av. de l'école normale supérieure 18: 43-62
- Torres, G.E. (1981) Distribuição espacial de quironomídeos e oligoquetos (bentos). III Simpósio Nacional de Ecologia, Belo Horizonte - MG (Brasil), 7 pages
- Torres, G.E. (1983) Ecologie des Chironomidae (Diptera) du Lac de Créteil (Val-de-Marne, France), Ph.D. Theses Univ. of Paris, 187 pages.
- Torres, G.E. (1984) Exploração dos recursos alimentares pelas larvas de Chironomidae (Diptera). 36th annual meeting of the SBPC, São Paulo: p.601.

Francisco A.R. Barbosa

Biología
Universidade Federal do Minas Gerais
Box 2486; 30.161 Belo Horizonte - MG (Brasil)

DIRECTORY OF CHIRONOMID WORKERS

With the following list, *CHIRONOMUS* is starting a world-wide Directory of Chironomid Workers. The objective is to give an overview of the variety and extent of world-wide chironomid research to aid in developing dialogues between chironomid workers. In the forthcoming issues this list will be continued in the ordering of regions from which the newsletter (regional representatives) attains sufficient information. The directory will be compiled in alphabetic and regional ordering with a synopsis of the research of each worker. One will be able to scan the list and find out who has similar interests.

The complete directory will be published as a special issue of *CHIRONOMUS* which, additionally, will provide a listing of chironomid workers according to their research interests. **Mary Dillon** and **Don Oliver** have agreed to look after the directory.

To prepare this list, the regional representatives have attempted to contact all chironomid workers known to them. I hope that any interested workers that were not contacted will send information on their research either to their regional representative or to

Don Oliver and Mary Dillon,
Agriculture Canada, C.L.B.R.R., K. W.
Neatby Building, Ottawa, Ontario
K1A 0C6, Canada

I thank all of those who responded promptly to the request for information, and invite you who have not done so, to submit a synopsis of your interests using the form on the last page of this newsletter.

Ulrike Nolte



AUSTRIA (compiled by R. Contreras-Lichtenberg)

Ms. Dr. Ruth **Contreras-Lichtenberg**, Naturhistorisches Museum, 2. Zoologische Abt., Burgring 7 (Box 417), A-1014 Wien, Phone: (0222) 934541. present Interests: Revision of the Palearctic species of *Glyptotendipes* ("*Phytotendipes*").

Mr. Dr. Berthold **Janecek**, Universität für Bodenkultur, Institut für Hydrobiologie Feistmantelstrasse 4, A-1180 Wien.

Ms. Dr. Marta **Margreiter-Kownacka**, Vivenotgasse 47, A-1120 Wien.

Mr. Dr. Reinhard **Saxl**, ARGE Limnologie, Wassertalstrasse 7, A-6410 Telfs. Interests: Ecology, limnology.

Mr. Dr. Peter-Erich **Schnid**, Biologische Station, A-3292 Lunz.

Ms. Gabriele **Wieser**, Institut für Seenforschung, Flatschacher Strasse 70, A-9020 Klagenfurt. Interests: Ecology, environmental assessment from chironomid communities.

Mr. Georg **Wolfram**, Biologische Station Neusiedler See, A-7142 Illmitz (home address: Franz Keimgasse 48-54/10, A-2345 Brunn/Geb.). Interests: Taxonomy and phylogeny; Diplomarbeit (Masters thesis): Community composition, abundance and distribution of Chironomidae of the Neusiedler See as a function of eutrophication.

BELGIUM (compiled by B. Goddeeris)

Mr. Dr. Marc **Evrard**, Facultés Universitaires Notre Dame de la Paix - Namur, Rue de Bruxelles 61, B-5000 Namur. Interests: Spatial distribution of Chironomidae in River Meuse.

Mr. Dr. Boudewijn **Goddeeris**, Koninklijk Belgisch Instituut voor Natuurwetenschappen, Afdeling Zoetwaterbiologie, Vautierstraat 29, B-Brussel. Interests: Nich segregation in chironomid larvae (food, habitat, life cycle), particularly in Tanytarsini.

Mr. Dr. Luc **Int Panis**, Universitaire Instelling Antwerpen, Dept. Biologie, Universiteitsplein 1, B-2610 Wilrijk. Interests: Spatial distribution of Chironomidae in standing waters.

Mr. Dr. Luc **Janssens de Bisthoven**, Katholieke Universiteit te Leuven, Lab. voor Ecologie en Aquacultur, Naamsestraat 59, B-3000 Leuven. Interests: Deformations in chironomid larvae in relation to pollution.

Mr. Dr. Dirk **Verschuren**, Universiteit Gent, Lab. voor Ecologie der Dieren.

CANADA (compiled by D. Oliver and M. Dillon)

Ms. Shelley **Ball**, M.Sc. Student, Department of Zoology, Erindale Campus, University of Toronto, Toronto, ON, L5L 1C6. Phone: (416) 828-5304. Interests: Ecology and adaptive life history strategies, including antepredator behavior, of larval chironomids.

Mr. Dr. David R. **Barton**, Professor, Department of Biology, University of Waterloo, Waterloo, ON, N2L 3G1. Phone: (519) 885-1211. Fax: (519) 746-0614. Interests: Influence of land use on lotic chironomid distribution; chironomid ecology in the Great Lakes.

Mr. Bohdan **Bilyj**, Biologist, Freshwater Institute, 501 University Crescent, Winnipeg, MB, R3T 2N6. Phone: (204) 983-5254. Fax: (204) 984-2404. Interests: Tanytopodinae systematics, ecology (biomonitoring).

Ms. Louise **Cloutier**, Coordinator of Zoological Collections, Collection Ouellet-Robert, Département de Sciences biologiques, Université de Montréal, C.P. 6128, Succ. "A", Montréal, PQ, H3C 3J7. Fax: (514) 343-2293. Interests: Ecology, taxonomy, biogeography, biological indicators.

Mr. Dr. Murray H. **Colbo**, Associate Professor, Department of Biology, Memorial University, St John's, NF, A1B 3X9. Phone: (709) 737-7498. Fax: (709) 737-3018. Interests: Ecology of chironomids of headwater streams, particularly springs and seeps, and of coastal rock pools.

Mr. Dr. Ian J. **Davies**, Benthic Biologist, Freshwater Institute, Department of Fisheries and Oceans, 501 University Crescent, Winnipeg, MB, R3T 2N6. Phone: (204) 983-5208. Fax: (204) 984-2404. Interests: Acid rain, eutrophication, biomonitoring, chironomid community structure.

Ms. Mary E. **Dillon**, Centre for Land and Biological Research Resources, Research Branch, Agriculture Canada, K.W. Neatby Building, Ottawa, ON, K1A 0C6. Phone: (613) 996-1665. Fax: (613) 995-1823. Interests: Systematics of Chironomidae and Tanytopodinae; influence of agricultural land use on species composition of lotic chironomids.

Mr. Paul **Dinsmore**, Ph.D. Student, Department of Zoology, CW312 Biological Sciences Bldg., University of Alberta, Edmonton, AB, T6G 2E9. Phone: (403) 492-5497. Fax: (403) 492-9234. Interests: Influence of hypolimnetic oxygen injection on profundal *Chironomus* density, distribution, and production in a deep central Albertan eutrophic lake.

Mr. Sebastian **Lamontagne**, M.Sc. Student, Department of Zoology, CW312 Biological Sciences Bldg., University of Alberta, Edmonton, AB, T6G 2E9. Phone: (403) 492-1299. Fax: (403) 492-9234. Interests: Palaeolimnology of alpine lakes in Western Canada.

Mr. Dr. J.H. **Mundie**, Pacific Biological Station, Fisheries and Oceans, Nanaimo, BC, V9R 5K6. Phone: (604) 756-7600. Fax: (604) 756-7053. Interests: Biology, including chironomids, of artificial spawning channels for pacific salmon.

Mr. Dr. Don R. **Oliver**, Centre for Land and Biological Research Resources, Research Branch, Agriculture Canada, K.W. Neatby Building, Ottawa, ON, K1A 0C6. Phone: (613) 996-1665. Fax: (613) 995-1823. Interests: Systematics; influence of agricultural land use on species composition of lotic chironomids.

Mr. Dr. Richard A. **Ring**, Professor, Biology Department, University of Victoria, Victoria, BC, V8W 2Y2. Phone: (604) 721-7102. Fax: (604) 721-7120. Interests: Chironomidae of intertidal zone and of natural salt springs in British Columbia.

Mr. Dr. David M. **Rosenberg**, Research Scientist, Freshwater Institute, Department of Fisheries and Oceans, 501 University Crescent, Winnipeg, MB, R3T 2N6. Phone: (204) 983-5253. Fax: (204) 984-2404. Interests: Biomonitoring, environmental assessment, hydroelectric development.

Mr. Helmut **Speier**, Entomologist, B.C. Ministry of Environment, Suite 3, 4320 29th St., Vernon, BC, V1T 5B8. Phone: (604) 549 5563. Fax: (604) 549-5436. Interests: Genetic evolution and population dynamics in natural and artificial environments; currently *Cricotopus myriophylli* and related species.

Mr. Dr. Ian R. **Walker**, Biology Department, Okanagan College, Kelowna, BC, V1Y 4X8. Phone: (604) 762-5445. Fax: (604) 862-4910. Interests: Ecology, palaeoecology.

Mr. Dr. W.F. **Warwick**, National Hydrological Research Institute, 11 Innovation Boulevard, Saskatoon, SK, S7N 3H5.

Mr. A. **Wiens**, Bottom Fauna Biologist, Freshwater Institute, Department of Fisheries and Oceans, 501 University Crescent, Winnipeg, MB, R3T 2N6. Phone: (204) 983-5254. Fax: (204) 984-2404. Interests: Reservoir benthic ecology, bio-accumulation of heavy metals in benthos.

Mr. Dr. Dale A. **Wrubleski**, Post Doctoral Research Biologist, Institute for Wetland and Waterfowl Research, 1190 Waverley Street, Winnipeg, MB, R3T 2E2. Phone: (204) 477-1760. Fax: (204) 452-7560. Interests: Chironomid ecology, particularly in wetland habitats. Recent Ph.D. thesis: "Chironomidae (Diptera) community development following experimental manipulation of water levels and aquatic vegetation".

INDIA (compiled by P. K. Chaudhuri)

Mr. Dr. J.R.B. **Alfred**, Jt. Director, Zoological Survey of India, 234/4 AJC Bose Road, 2nd M.S. Building, Nizam Palace, Calcutta 700 020. Interests: Systematics and ecology of Chironomidae.

Mr. Dr. Sailesh **Chattopadhyay**, SBG Section, Central Sericultural Research and Training Institute, Berhampur, Dt. Murshidabad, WB. Interests: Chironomidae of rice-fields, their systematics and biology.

Mr. Dr. P.K. **Chaudhuri**, Dept. of Zoology, University of Burdwan, Burdwan 713 104. Phone: BDN 2371-75 (37), Residence: BDN 5657. Interests: All aspects of chironomids, particularly bio-systematics, ecology and toxicology.

Mr. Rishi **Das**, Dept. of Zoology, Tinsukia College, Tinsukia 786 125, Assam. Interests: Biochemistry of haemoglobin of chironomids and ecology.

Mr. Dr. Samir Kumar **Das**, Dept. of Zoology, S.C.College, Dhaniakhali, Dt. Hooghly, WB. Interests: Taxonomy and Biology of limnobiontic chironomids.

Mr. Dr. Tapati **Datta**, Central Sericultural Research Centre, Technical Service Centre, Tirpai Road, Kalimpong 734 301, WB. Interests: Systematics and biology of Tanytarsini.

Mr. Dr. R.K. **Debnath**, Dept. of Zoology, T.D.B.College, Raniganj 713 347, WB. Interests: Taxonomy of Tanypodinae.

Mr. B.K. **Kaul**, School of Entomology, St. John's College, Agra 282 002, Phone: Agra 67754. Interests: Taxonomy of Chironominae.

Mr. A.K. **Kulshrestha**, School of Entomology, St. John's College, Agra 282 002, Phone: Agra 67754. Interests: Taxonomy of Chironominae.

Mr. Dr. G. **Maheswari**, School of Entomology, St. John's College, Agra 282 002, Phone: Agra 67754. Interests: Taxonomy of Chironominae.

Ms Dr. Samapti **Mukhopadhyay**, Flat No.912, Sector-A, Pocket C, Vasant Kunj, New Delhi 110 030. Interests: Systematics of Orthoclaadiinae.

Mr. Dr. J. **Muthukrishnan**, School of Biological Studies, Madurai Kamraj University, Madurai 625 021, TN. Interests: Ecology of Chironomidae.

Mr. Dr. S.K. **Nandi**, Dept. of Zoology, T.D.B.College, Raniganj 713 347, WB. Interests: Biology of Chironominae.

Mr. A. **Palvesam**, School of Biological Studies, Madurai Kamraj University, Madurai 625 021, TN. Interests: Ecology of Chironomidae.

Mr. Dr. D.C. **Sinha Ray**, Dept. of Zoology, T.D.B.College, Raniganj 713 347, WB. Interests: Systematics and biology of Orthoclaadiinae.

Mr. Dr. G. **Sankarperumal**, Dept. of Animal Physiology, School of Biological Sciences, Madurai Kamraj University, Madurai 625 021, TN. Interests: Physiology of Chironomidae.

Mr. Dipak K. **Shome**, P.G. Dept. of Zoology, Darjeeling Govt. College, Darjeeling, WB. Interests: Biology of Orthoclaadiinae of the Himalayas.

Mr. Dr. Santokh **Singh**, Professor at the School of Entomology, St. John's College, Agra 282 002, Phone: Agra 67754. Interests: Taxonomy of Chironominae.

Mr. Dr. R.K. **Sinha**, Dept. of Zoology, Patna University, Patna 800 005, Bihar. Interests: Larvae of Chironomidae.

Mr. Dr. P.K. **Tiwari**, School of Studies in Zoology, Jiwaji University, Gwalior 474 011. Research Interests: Cytology of Chironominae of India.

ITALY (compiled by B. Rossaro)

Mr. Dr. Marcello **Bazzanti**, Dipt. di Biologia Animale e dell'Uomo, Università degli Studi di Roma "La Sapienza", via Università, 00100 Roma. Research Interests: Benthos of lakes and ponds in central Italy.

Ms Dr. M.G. **Braioni**, Professor at Dipt. di Biologia, Università degli Studi di Padova, via Trieste 75, 35121 Padova. Research Interests: macrobenthos, Chironomidae among other invertebrates.

Mr. Dr. Stefano **Campaioli**, Museo Civico di Storia Naturale VeronaLingadige, Placa ta Vittoria 9, 37100 Verona. Research Interests: macroinvertebrates in biological monitoring.

Mr. Dr. G. **Ceretti**, via Dossoduro 16, 20123 Venezia. Research Interests: chironomids as pest species (*Chironomus salinarius*).

Ms. Monica **Di Francesco**, student at the Dipt. di Scienze Ambientali, Università degli Studi di L'Aquila, Coppito, 67100 L'Aquila. Research Interests: Chironomids from springs in central Italy.

Mr. Dr. Uberto **Ferrarese**, via Lucca 38, 35143 Padova. Research Interests: Taxonomy and ecology especially of Tanypodinae.

Ms. Dr. Annamaria **Nocentini**, Istituto di Idrobiologia, Pallanza CNR l.go Vittorio Tonolli, 28048 Verbania Pallanza. Research Interests: Chironominae, benthos of lakes.

Mr. Dr. Prato **Susanna**, Dipt. di Biologia, Università degli Studi di Bologna, via S.Giacomo 9, 40100 Bologna. Research Interests: Chironomids of running waters as indicators of pollution, river regulation etc.

Mr. Dr. Bruno **Rossaro**, Professor at the Dipt. di Scienze Ambientali, Università degli Studi di L'Aquila, Coppito, 67100 L'Aquila. Research Interests: Taxonomy and geographical distribution of chironomids in Italy; applied statistics.

MALAYSIA

Mr. Dr. A.R. **Ismail**, Jabatan Biologie, University Pertanian Malaysia, 43400 UPM Serdang, Selangor. Interests: Taxonomy of Chironomidae.

SOUTH SIBERIA (RUSSIA) (compiled by B. Goddeeris and M. Grachev)

Mr. Dr. V.N. **Alexandrov**, Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106). Interests: Systematics, morphology.

Mr. Dr. Viktor M. **Belkov**, Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106). Interests: Ecology, systematics.

Ms. Dr. Engelsina **Erbaeva**, Institute of Biology, Irkutsk State University, P.O. Box 24, Lenin street 3, 664033 Irkutsk. (Phone: +7 (3952) 243079) Interests: benthic ecology of big Asian lakes (Baikal, Khubsugul) and reservoirs of the River Angara (Irkutskoe, Bratskoe, Ust-Ilimskoe), with special interest on systematics, morphology and ecology of chironomids.

Dr. M. **Grachev**, Professor at the Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106).

Dr. Lubov **Kravtsova**, Institute of Biology, Irkutsk State University, P. O. Box 24, Lenin street 3, 664033 Irkutsk. (Phone: +7 (3952) 243079) Interests: ecology of benthic chironomids of Lake Baikal.

Ms. Dr. A.A. **Linevich**, Professor at the Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106). Interests: Systematics and morphology.

Mr. Dr. L.I. **Proviz**, Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106). Interests: Caryosystematics, morphology.

Ms. Dr. Valentina I. **Proviz**, Limnological Institute (Russian Academy of Science), Ulan-Batorskaya 3, 664033 Irkutsk. (Fax: +7 95 420 2106). Interests: Caryosystematics, morphology.

SOUTH KOREA

Dr. H.S. **Kim** and Dr. H.I. **Ree**, Dept. of Zoology, Seoul National University, Seoul. Interests: Systematics and biology of Chironomidae of Korea.

SWEDEN (compiled by R. K. Johnson)

Mr. Björn **Bergquist**, Fiskeriverket, S-170 11 Drottningholm. Interests: Macroinvertebrate and fish ecology, particularly the effects of liming and acidification processes.

Ms. Lena **Bondestad**, Länsstyrelsen i Västerbotten, Miljövärdsheten, 901 86 Umeå. Interests: Benthic ecology, taxonomy.

Mr. Dr. Yngve **Brodin**, Swedish Environmental Protection Agency, Research Dept., S-171 85 Solna. Interests: Palaeoecology.

Mr. Dr. Lars **Brundin**, Prof. emer., Swedish Museum of Natural History, Section for Entomology, S-104 05 Stockholm.

Mr. Lars **Eriksson**, University of Agricultural Sciences, Box 7050, S-750 07 Uppsala. Fax: +46 18 673156. Interests: Macroinvertebrate taxonomy.

Mr. Willem **Goedkoop**, Institute of Limnology, Uppsala University, Box 557, S-751 22 Uppsala. Interests: Benthic ecology (microbial, meiofaunal, macrofaunal interactions).

Mr. Anders T. **Hasselrot**, Institute of Limnology, Uppsala University, Box 557, S-751 22 Uppsala. Interests: Benthic ecology.

Mr. Dr. Richard K. **Johnson**, University of Agricultural Sciences, Box 7050, S-750 07 Uppsala. Fax: +46 18 673156. Interests: Benthic ecology, applied multivariate statistics in biomonitoring and assessment.

Ms. Gunilla **Lindgren**, Länsstyrelsen i Gävleborg, Miljövärdsheten, 801 70 Gävle. Interests: Benthic ecology, taxonomy.

Mr. Pär-Erik **Lingdell**, Limnodata HB, Gunnilbo 20 C, S-739 92 Skinnskatteberg. Interests: Benthic ecology, biomonitoring, and taxonomy.

Mr. Per **Mossberg**, PI 3938, Grönbo, S-711 94 Lindesberg. Interests: Benthic ecology, taxonomy.

Mr. Håkan **Söderberg**, Länsstyrelsen i Västernorrland, Miljövärdsheten, box 1000, 871 86 Härnösand. Interests: Benthic ecology, taxonomy.

Mr. Holger **Torstensson**, KM-lab, Box 307, S-651 07 Karstad. Interests: Macroinvertebrate taxonomy.

Mr. Dr. Torgny **Wiederholm**, University of Agricultural Sciences, Box 7050, S-750 07 Uppsala. Fax: +46 18 673156. Interests: Benthic ecology, use of chironomids in water quality assessment.

THAILAND (compiled by P. K. Chaudhuri)

Dr. Hiroshi **Hashimoto**, Dr. K. **Hashimoto**, Dr. C. **Tirawat**, Dr. N. **Wongsiri**, Dr. T. **Wongsiri** and Dr. K. **Yasumatsu**, Taxonomy Branch, Entomology and Zoology Division, Dept. of Agriculture, Bangkok.

U.S.A. (compiled by D. Oliver and M. Dillon)

Mr. Dr. Martin B. **Berg**, Assistant Director, University of Notre Dame Environ Research Center, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556. Phone: (219) 239-7186. Fax: (219) 239-7413. Interests: Ecology of larvae; secondary production of chironomids in streams and lakes, use of chironomids in water quality assessment.

Ms. Mary Ann **Blackwood**, Ph.D. Student, Foley Hall, West Campus, University of Kansas, Lawrence, KS 66047-2906. Phone: (913) 864-7730. Fax: (913) 864-5093. Interests: Taxonomy, systematics, biography and ecology of Chironomidae in springs.

Mr. Michael J. **Bolton**, Aquatic Biologist, Ohio EPA, 1685 Westbelt Drive, Columbus, OH 43228. Phone: (614) 777-6264. Fax: (614) 777-0975. Interests: Chironomid fauna of Ohio. Production of key to lotic chironomid larvae temperate eastern Nearctic north of Florida.

Mr. Dr. Malcolm G. **Butler**, Associate Professor, Department, North Dakota State University, Fargo, ND 58105. Phone: (701) 237-7398. Fax: (701) 237-7149. Interests: Chironomid ecology, especially life histories and production with emphasis on lentic habitats. Systematics of *Chironomus*.

Mr. B.A. **Caldwell**, 2382 Rockwood Way, Stone Mountain, GA 30087. Phone: (404) 656-4905. Interests: Evaluation of *Chaetocladius pigerstamfordi*.

Mr. Dr. William P. **Coffman**, Associate Professor, Dept. of Biological Sciences, University of Pittsburgh, Pittsburgh, PA 15260. Phone: (412) 624-4277. Fax: (412) 624-4759. Interests: Use of pupal exuviae in systematics and determination of species richness and other faunistic properties of, primarily lotic, chironomid assemblages.

Mr. Dr. J.H. **Epler**, Consultant/Curator of Chironomidae (Florida A & M University, Tallahassee); Rt. 3, Box 5485, Crawfordville, FL 32327. Phone: (904) 926-3700. Interests: Systematics of Chironomidae of Florida, southwest and Rocky Mountains in Nearctic, Neotropical (especially Costa Rica) and Afrotropical.

Mr. Dr. L.C. **Ferrington Jr.**, Associate Scientist and Director of Water Quality and Freshwater Ecology Program, (Kansas Biological Survey); Assistant Professor, Department of Entomology, Foley Hall, West Campus, University of Kansas, Lawrence, KS 66047-2906. Phone: (913) 864-7730. Fax: (913) 864-5093. Interests: Systematics, ecology and behavior of Chironomidae.

Mr. David **Goldhammer**, Ph.D. Student, Water Quality and Freshwater Ecology Program, Kansas Biological Survey, 2041 Constant Avenue, Lawrence, KS 66047-2906. Phone: (913) 864-7750. Fax: (913) 864-5093. Interests: Ecology, taxonomy and descriptive studies of Chironomidae in intermittent streams of the Central High Plains.

Ms. Sara M. **Hall**, M.A. Student, Water Quality and Freshwater Ecology Program, Kansas Biological Survey, 2041 constant Avenue, Lawrence, KS 66047-2906. Phone: (913) 864-7750. Fax: (913) 864-5093. Interests: Bt H-14, effects on Chironomidae and non-target organisms.

Mr. Dr. Scott J. **Herrmann**, Professor of Biology, University of Southern Colorado, 2200 Bonforte Blvd., Pueblo, CO 81001. Phone: (719) 549-2492. Fax: (719) 549-2732. Interests: Ecology of Chironomidae in high mountain lakes of Colorado; validation of Thienemann net technique (skim net for pupal exuviae for water quality assessment).

Ms. Dr. Anne E. **Hershey**, Department of Zoology, Birge Hall, University of Wisconsin, Madison, WI 53706.

Mr. Michael W. **Heyn**, Ph.D. Student, Department of Entomology, Clemson University, Clemson, SC 29634. Interests: Systematics and ecology of *Glyptotendipes*.

Mr. Patrick L. **Hudson**, Fishery Biologist (Research), 1451 Green Road, Ann Arbor, MI 48105. Fax: (313) 994-3331. Interests: Taxonomy, life history, distribution and abundance.

Mr. Richard E. **Jacobsen**, Graduate Student, Dept. of Biological Sciences, University of Pittsburgh, Pittsburgh, PA 15260. Phone: (412) 624-6165. Fax: (412) 624-4759. Interests: Taxonomy and ecology of symbiotic chironomids; community structure and dynamics of Chironomidae.

Mr. Dr. Samuel C. **Mozley**, Associate Professor of Zoology, North Carolina State University, Raleigh, NC 27695-7617. Phone: (919) 515-2741. Fax: (919) 515-5327. Interests: Population ecology of Chironomidae, reservoir biolimpology, lotic invertebrates.

Ms. Dr. Annela R. **Soponis**, 110S, Fourth Street, Minersville, PA 17954.

Mr. Dr. John B. **Stahl**, Associate Professor, Department of Zoology, Southern Illinois University, Carbondale, IL 62901. Phone: (618) 453-4134. Fax: (618) 536-7761. Interests: Chironomids of acid lakes and cooling reservoirs.

Mr. Dr. Bernard W. **Sweeney**, Director, Stroud Water Research Center of the Academy of Natural Sciences, 512 Spencer Road, Avondale, PA 19311. Phone: (215) 268-2153. Interests: Use of chironomids for evaluating water quality in N.A. Diversity, community structure, and life history characteristics of chironomids in tropical streams.

Mrs. Mary **Sublette**, Adjunct Professor (University of Southern Colorado); 2200 Bonforte Boulevard, Pueblo, CO 81001. Phone: (719) 549-5064. Interests: Taxonomy and ecology of Chironomidae, especially Tanytarsini.

Mr. Dr. James E. **Sublette**, Professor of Biology, University of Southern Colorado, 2200 Bonforte Boulevard, Pueblo, CO 81001. Phone: (719) 549-2233. Fax: (719) 549-2737. Interests: Taxonomy and ecology of Chironomidae, especially Tanytarsini.

Mr. Bruce **Wahle**, Ph.D. Student, Water Quality and Freshwater Ecology Program, Kansas Biological Survey, 2041 Constant Avenue, Lawrence, KS 66047-2906. Phone: (913) 864-7750. Fax: (913) 864-5093. Interests: Toxicology, ecology, taxonomy, computer applications, classification of aquatic systems with Chironomidae.

Mr. Charles H. **Watson Jr.**, Ph.D. Student, Department of Entomology, Clemson University, Clemson, SC 29634. Phone: (803) 656-5070. Interests: Systematics and ecology of Tanyptodinae, especially *Procladius* and related genera.

Mr. Dr. Mike **Wiley**, Assistant Professor, School of Natural Resources, University of Michigan, Ann Arbor, MI 48108-1115. Fax: (313) 764-6286. Interests: Life history of chironomids.

Mr. Michael **Winnell**, Consultant, 3250 Krause Road, Petoskey, MI 49770. Fax: (616) 347-9752. Interests: Taxonomy, distribution, and abundance of chironomids.

Mr. Chris **Wright**, M.A. Student, Water Quality and Freshwater Ecology Program, Kansas Biological Survey, 2041 Constant Avenue, Lawrence, KS 66047-2906. Phone: (913) 864-7750. Fax: (913) 864-5093. Interests: Bioassessment of water quality, taxonomy, systematics, and ecology.

DEADLINE

Once upon the time there was a *CHIRONOMUS* newsletter. Many people were interested in it - but, unfortunately, there were too many consumers and too few producers. As there hadn't been any allochthonous input either, the unstable equilibrium broke down and the newsletter fell asleep. Fortunately, more favourable conditions have returned, and the newsletter is entering its second life.

If you don't want *CHIRONOMUS* to enter dormancy again, please support the newsletter with your contributions and subscription. Material for the next issue of should reach the Editors by **1 April 1993**.

CHIRONOMUS Newsletter

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Ecotoxicology: (see page 17)
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Directory of chironomid workers: (see page 32)
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