CHIRONOMUS NEWSLETTER ON CHIRONOMIDAE RESEARCH
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CHIRONOMID WORK IN MUNICH TO CONTINUE

A year has now passed since the shocking, very premature death of Dr. Reiss whom so many of us had relied upon as a guiding light in chironomid science, not only around the world but of course especially in Germany and Munich. Naturally, having lost somebody who meant so much you can only hope that the void left behind may be somehow refilled, not on the personal level but at least partially with respect to knowledge and work. It was a second hard blow, therefore, when the management of ZSM decided, for various "objective" reasons‘ to not make chironomids a high priority in hiring a new leader of the Diptera section.

However, we are very glad to be able to report to you that the new curator chosen, Dr. Marion Kotrba, is doing her best to maintain the relevant resources at ZSM as available and useful to all of us in the chironomid community as they have been, although the chironomids are (so far) not part of her personal research interests. Please look for the separate article by Dr. Kotrba in this CHIRONOMUS, in which she introduces herself to you.

Meanwhile, research on chironomids has been continuing at and around ZSM. Here we aim to give a brief overview of current activities. Also in this CHIRONOMUS issue you can find an announcement of papers in memory of Dr. Reiss which are being published this year in the journal SPIXIANA. For more information on the ZSM Diptera section and the people associated with it, please visit the website at http://www.zsm.mwn.de/wiss_start.htm and select Diptera.

For the past year, the chironomid group at ZSM has consisted of four doctoral candidates, all supervised by Prof. E. J. Fittkau.

Angela M. Sanseverino from Brazil is in Munich on a fellowship from the German Academic Exchange Service (DAAD). She is in her second year of work on the taxonomy, systematics and phylogeny of Neotropical *Tanytarsus* VAN DER WULP, including a full evaluation of existing species and groups, and the description of new species.

Elisabeth Stur and Sofia Wiedenbrug have recently completed their respective theses and are now, among other things, working together on the chironomids of groundwater springs in Berchtesgaden National Park in the German Alps. This three-year project involves rearing larvae in situ and determining species from one year of continuous emergence trapping at two different localities.

Also, Martin Spies hopes to wrap up his academic program this year. The last publications from his study of nuisance midges in southern California have been published or are in press (e.g., a paper on the general results in Odwin Hoffrichter's Proceedings from the 1997 International Symposium in Freiburg, and "A contribution to the knowledge of Holarctic *Parachironomus* LENZ (Diptera: Chironomidae), with two new species and a provisional key to Nearctic adult males" just published in Tijdschrift voor Entomologie 143).

For the entire year 2000 we have been happy to have another Munich graduate, Prof. Dr. Rodulfo Ospina Torres from Bogotá (Colombia), back here at ZSM on a one-year fellowship from the Humboldt Foundation. Rodulfo has been mostly sorting out the taxonomy of many adult specimens collected in Andean streams. He and Sofia are also collaborating on publishing excerpts from their extensive doctoral dissertations on Neotropical pupal exuviae.

A new project taken up by Martin Spies has developed out of a recent, EU-funded visit to Paris to study the chironomids in the J. W. Meigen collection kept at the French National Museum of Natural History since 1840. Meigen established a significant share of the oldest chironomid names still in use today, especially for central Europe. In spite of this, a number of current interpretations of Meigen's species appear not to be properly based on the specimens in his collection. For example, there are several supposed type series from which no specimen has apparently ever been slide-mounted to verify the species. On the other hand, erroneous type designations have been subsequently published in some cases, e.g. selecting a male as lectotype although Meigen's original description treats the female only.

Many specimens have been taken to Munich to reevaluate their specific identities and type status. This will involve searching out and comparing further material determined by Meigen reportedly existing at other institutions. Concurrently, a comprehensive review of chironomid names published until 1840 is under way. The long-term goal is to strengthen the taxonomic basis of all chironomid work by tying species names to appropriate type specimens wherever necessary and possible, and by integrating the presently scattered or outdated information on chironomid taxa and their types in a global name list and catalog.

Angela Sanseverino, Elisabeth Stur,
Sofia Wiedenbrug, Rodulfo Ospina
and Martin Spies
c/o Zoologische Staatssammlung
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NEW CURATOR OF DIPTERA AT THE ZOOLOGISCHE STAATSSAMMLUNG MUNICH

Dear Chironomid Workers,

The ZSM houses one of the most extensive and important chironomid collections of the world. It comprises about 1/3 of all described chironomid species and about 2/3 of those known from the Palaearctic, including type material of about 500 species. The extensive library of chironomid literature is almost complete for publications on taxonomy and systematics of the family. These collections are predominantly based on the material generated by A. Thienemann and collaborators, E. J. Fittkau, and F. Reiss. During their tenures in Munich, Drs Fittkau and Reiss have turned the ZSM's Diptera section into a „hot spot" of chironomid research. In addition to their own extremely productive research activities they attracted and supervised countless graduate and postgraduate students and cooperated with colleagues all over the world.

In April 2000 I was appointed the new curator of Diptera at the ZSM. As many of you know this position had been vacant since the tragic and premature death of Dr. Friedrich Reiss in August 1999 (obituary in Chironomid Newsletter 12). Although I am myself not a chironomid worker (see CV below), I will do my best to manage and further extend the chironomid collection at the ZSM, and I extend a sincere invitation to all of you who wish to work with our material. I would especially like to point out that there is still extensive undescribed material from all regions of the world, much of it already dissected and mounted. Many new species are sorted out and await their study and description!

Please do contact me at marion.kotrba@zsm.mwn.de if you need any further information. You can also visit our homepage at http://www.zsm.mwn.de

CV Marion Kotrba

1957 born in Nuremberg, Germany

1985 University of Regensburg, Diploma in Zoology. Thesis: „Studies on female selection in *Cyrtodiopsis whitei* CURRAN (Diopsidae, Acalyptrata, Diptera).“

1992 University of Regensburg, Dr. rer nat. magna cum laude. Thesis: „The reproductive system of *Cyrtodiopsis whitei* (Diopsidae, Diptera), especially regarding the internal female reproductive tract.“

1993-94 Postdoctoral Fellow, Department of Zoology, University of Maryland. Research topic: „Phylogeny of the higher flies (Diptera, Brachycera), and especially the acalyptrate Schizophora, by comparative morphology of the internal female reproductive tract“ (Research stipend DFG).

1994-96 Postdoctoral Fellow, National Museum of Natural History, Smithsonian Institution, Washington DC, Department of Entomology (Research stipend DFG / Postdoctoral Fellowship SI).

1997-2000 Curator of Diptera, Museum of Natural History, Berlin.

2000 Curator of Diptera, Zoologische Staatssammlung, Munich.

Research Collaborator of the National Museum of Natural History, Smithsonian Institution, Washington DC, Department of Entomology.

Fields of interest: Phylogeny and systematics of Diptera, especially of the acalyptrate Schizophora; reproductive biology; comparative morphology and functional morphology of the internal female reproductive tract; sperm transfer, sperm storage, and fertilization; sperm competition; postcopulatory female choice; viviparity; phylogeny and biology of Diopsidae; convergent evolution of head projections such as antlers and stalk eyes in Diptera.

Research trips: Jamaica (1982), Malaysia (1986), South Africa (1992, 1994), Costa Rica (1995), Ecuador (1999).

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PUBLICATION ANNOUNCEMENT

Contributions in SPIXIANA in Memory of Dr. Reiss

In July of this year, the special publication announced in CHIRONOMUS No. 12 has appeared as SPIXIANA volume 23, issue 2. Although authors had to add this to all their other work under tight time constraints, the editors received more contributions than could be fit within a regular SPIXIANA, even though the issue was enlarged from the normal 96 to 128 pages. Some papers thus had to be delayed until the next issue to be published in November 2000.

To all colleagues involved in various parts of this production: thank you very much again! You have made this a great tribute to the man we have had to say farewell to. Due to the contributions received this publication contains almost exclusively original scientific papers, but we believe Dr. Reiss himself would have preferred this to eulogies of his person. He would have enjoyed applying them in practical work, and so, we hope, will the readers.

Here is an excerpt from the table of contents, giving authors' names and abbreviated titles of the scientific papers:

BAEHR, M. & M. SPIES (eds) 2000: Contributions to chironomid research in memory of Dr. Friedrich Reiss. – SPIXIANA 23(2).

PETER S. CRANSTON: *Austrobrillia* Freeman: immature stages, and new species from the Neotropics

PATRICK ASHE: *Reissmesa*, nom. nov., a replacement name for *Reissia* Brundin

EUGENYI A. MAKARCHENKO: *Cricotopus (Cricotopus) reissi*, spec. nov. from Chukchi Peninsula, northeastern Russia

SEBASTIÃO J. DE OLIVEIRA : A new, non-marine species of the genus *Thalassomya* Schiner, 1856

CLAUS ORENDT: Chironomids of small Alpine water bodies (springs, spring brooks, pools, small lakes) of the northern Calcareous Alps

RICHARD E. JACOBSEN & SUE A. PERRY: A review of *Beardius* Reiss & Sublette, with description of a new species from Everglades National Park, Florida

JAMES E. SUBLETTE & MIR S. MULLA: *Chironomus strenzkei* Fittkau, a new Pan-American distribution, with a review of recent similar additions to the Nearctic midges

WOLFGANG F. WÜLKER & JON MARTIN: Northernmost *Chironomus* karyotypes

KALMAN BIRÓ: Chironomidae from Hungary 2. New records of *Lipiniella moderata* Kalugina, 1970

MARIA C. MESSIAS: *Oukuriella reissi*, a new species of the genus *Oukuriella* Epler, 1986

BROUGHTON A. CALDWELL: First Nearctic record of *Neostempellina* Reiss, with description of a new species

SUSANA TRIVINHO-STRIXINO & GIOVANNI STRIXINO: A new species of *Caladomyia* Säwedal, 1981, with description of the female and immature stages

NICOLA REIFF: Review of the mainly Neotropical genus *Caladomyia* Säwedal, 1981, with descriptions of seven new species

PETER H. LANGTON & XAVIER-FRANÇOIS GARCIA: A review of *Cladotanytarsus conversus* (Johannsen) with first records from Europe

ANGELA M. SANSEVERINO & SOFIA WIEDENBRUG: Description of the pupa of *Tanytarsus cuieirensis* Fittkau & Reiss

MALCOLM G. BUTLER: *Tanytarsus aquavolans*, spec. nov. and *Tanytarsus nearcticus*, spec. nov., two surface-swarming midges from arctic tundra ponds

ELISABETH STUR & TORBJØRN EKREM: *Tanytarsus usambarae*, spec. nov. from West Usambara Mts., Tanzania, East Africa

Papers to follow in SPIXIANA 23(3), November 2000:

ASHE, P., J. P. O'CONNOR & D. A. MURRAY: Larvae of *Eurycnemus crassipes* (Panzer) (Diptera, Chironomidae) ectoparasitic on prepupae/pupae of *Hydropsyche siltalai* Döhler (Trichoptera, Hydropsychidae), with a summary of known chironomid/trichopteran associations

KYEREMATEN, R. A. K., T. ANDERSEN & O. A. SÆTHER: A review of Oriental *Rheotanytarsus* Thienemann & Bause, with descriptions of some new species

PAGGI, A. C. & D. AÑON SUAREZ: A new species of *Ablabesmyia* from Rio Negro province, Argentina, with descriptions of the adult female and preimaginal stages

PAPUSHEVA, E., V. PROVIZ, A. BLINOV & B. GODDEERIS: Phylogeny of the endemic Baikalian *Sergentia*

If you are interested in ordering, please note that approximately 50% of issue 3 will consist of papers not involving chironomids.

The two issues are available only from the publishers of SPIXIANA (they are doing all of us a favor by handling distribution!): Verlag Dr. Friedrich Pfeil, Wolfratshauser Str. 27, D-81379 München, Germany E-mail:100417.1722@compuserve.com; Fax: +49 89 - 72 42 772 Tel.: +49 89 - 74 28 270

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Martin Spies
Munich, Germany

TO IYA KIKNADZE AT 70

On February 9th, 2000, we celebrated the 70th anniversary of Doctor of Biological Sciences, Professor of the Nowosibirsk State University, Honoured Scientist of the Russian Federation and founder of both the Siberian school of cytogenetics and the laboratory of Cell Biology, Institute of Catology and Genetics, Nowosibirsk, Russia, Iya Iwanowa Kiknadze.

Iya Kiknadze was one of the first scientists to come to Nowosibirsk in January 1958. She was personally invited by Aleksandra Prokofeva-Belgovskaya, the instigator of Soviet cytogenetics, who participated actively in the organisation of the Institute of Cytology and Genetcs. By that time, Iya Kiknadze was already a mature researcher. Having graduated from the biological Department of Leningrad University and getting her Ph. Degree in 1955, she was thoroughly trained in cytology, working in the Laboratory of Cell Physiology, organised by Dimitry Nikolaevich Nasonov, with the Zoological Institute of the Soviet Academy of Sciences, under the guidance of the oldest Russian cytologist Ivan Ivanovich Sokolow.

When she settled in Novosibirsk, Iya Kiknadze became actively involved in the direction of cytological research within the Institute of Cytology and Gemetics. She proposed a long-term program on investigating interphase chromosomes, chromomeres and nucleolus, whose actual existence were peremptorily rejected during those years when Lysenko's pseudoscientific theory was still governing. This direction is still efficiently developed at the Institute. When the Laboratory of General Cytology was combined with the Institute of Cytology and Genetics, Iya Kiknadze became its head and held that position for over 30 years. These years brought to life and put into orbit a constellation of her numerous apprentices and followers. The works of the Laboratory of General Cytology have attracted the attention of domestic and foreign researchers since the beginning of the 60s. Young scientists not only from the entire soviet Union, but also from Poland, Bulgaria, Czechoslovakia, Germany and India came to learn from Iya Kiknadze. Students of hers became candidates and doctors of science, leading researchers and heads of laboratories, and can be met in many countries of the world.

The prime scientific love of Kiknadze, which she never deserted, is the polytene cromosome of Chironomidae. She has studied the polytene chromosomes from different standpoints. First, she was interested to find out how the polytene chromosome was organised and how it functioned, and pioneered together with the laboratory staff in solving this problem. The work performed resulted in a concept of discrete location of genes in the chromosome. It was demonstrated that the gene activities changed at different stages of cell life and that puffs – loose, swollen regions of polytene chromosomes – were actively working genes. This allowed Kiknadze to formulate the concept of the polytene chromosome as a model of the interphase chromosome. The next stage of her work was focused on investigation of the products of gene function. Study of the tissue-specific genes of Balbiani rings - the most actively working regions of the polytene chromosomes – required development of new research methods, some of them still remaining unique. Most important issue of this work was the insight into molecular cytological organisatiion of the tissue-specific Balbiani ring Bra; isolation of the tissue-specific protein encoded by it, and isolation, cloning and molecular analysis of the corresponding DNA region. The results obtained were presented in detail at the Iternational Symposium on Organisation and Expression of tissue-specific Genes (Novosibirsk, Akademgorodok, 1982), organised under her leadership. This symposium underlay biennial International Worrkshops on Balbiani rings held in different parts of the world.

Studies on the system of Balbiani rings in polytene chromosomes of different chironomid species required comparison of their chromosome sets. This investigation gave Iya Kiknadze the understanding of the course of chromosome evolution within the Chironomidae and the role of chromosome rearrangements during specification. Iya Kiknadze and her colleagues have so far thoroughly studied the karyotype of over 150 chironomid species. Two monographs on the extensive data obtained became table books for both Russian and foreign researchers-chironomidologists.

Iya Kiknadze worked at the Chair of Cytology and Genetics with the Novosibirsk University from its very beginning. Her first students still remember her exciting and inspirational lectures on general cytology. She was their author as at that time no other university in this country gave such a course.

Typical of Kiknadze is a phenomenal capacity for work, which is still envied by young people. Everything she ever wrote is well set, fundamental, accurate and reliable. Many of her works have become classics. Iya Kiknadze is known and loved all over the world and many well-known scientists from Australia, Austria, Belgium, Bulgaria, Germany, the Netherlands and USA count working in her team as an honour.

No age can make her young spirit older or diminish her plans and designs. Iya Kiknadze is still queeen not only in scientific activities; she can do everything - organise a celebration, go on a walking tour, to a theatre, museum of concert hall – she is always the leader, and everybody follows her. We all wish her good health, inexhaustible energy and constant interest in Life and Science. Dear Iya Ivanovna, we wish you many more interesting years full with new designs and successes.

Staff of the Laboratory of Cell Biology, Institute of Cytology and Genetics, Siberian Branch of the Russian Academy of Sciences.

A POINT OF VIEW ON CHIRONOMID DEFORMITIES INVESTIGATION

By Larisa Nazarova
Kasan State University, Kazan, Russia

Since 1995, investigations connected with different aspects of chironomid ecology were started in Kazan State University, focusing in particular on influence of different pollutants on chironomid morphology in natural waterbodies as well as in laboratory conditions. Although chironomid deformities have been investigated for a long time already practically everywhere else in the world, Russia has not been much involved in this specific and very interesting study. There are only a very few Russian references briefly reporting the occurrence of chironomid deformities and I am sure they are absolutely unknown to foreign specialists (e.g. SKALSKAYA 1994; ZINTCHENKO et al. 1997).

But the time is really past for the mere description of a new (even very lovely) deformity. This is the time to seek out and try to understand the internal mechanisms involved; relationships between biochemistry and physiology of organisms are very important now. How do the pesticides, trace metals (acknowledged teratogens) and other chemicals, which are supposed to be teratogens „work". What are their targets in metabolic processes, which of them exert an influence at the genetic level and is this influence reversible or not?... and so on. These are the kind of question available for specialists fascinated by this area of chironomid study. It is not possible to forget the valuable contribution of Dr. Warwick, who formulated basic approaches and methods of investigation in this area (WARWICK 1985, 1989, 1990, 1991 etc). Also well known are brilliant investigations of Canadian, Belgian and other specialists (VAN DE GUCHTE & VAN URK 1989; JANSSENS DE BISTHOVEN et al. 1992; MADDEN et al. 1992; VERMEULEN, JANSSENS DE BISTHOVEN et al. 1994; VERMEULEN 1995 etc.) - and we hope to be admitted to this society.

Our first steps were made traditionally: a study of deformities in natural water bodies (NAZAROVA 1997, ZINTCHENKO, NAZAROVA 1997). As a next step the influence of Cu and polluted sediments on chironomid larvae in laboratory conditions were investigated (NAZAROVA, LATYPOVA, TUHVATULLINA 1999). Cu was chosen as it is one of the most important pollutants in all waterbodies in our region. Currently we are concentrating on analyses of teratogenic influences of some biochemical compounds (the newly created class of cholinesterase inhibitors) in combination with their harmful influence on kariotype of laboratory chironomids in chronic experiments over a few generations. Our experiments have revealed that in the second generation there appeared even more morphological abnormalities than in the first one, in spite of the fact that the second generation was growing up in clean water. Changes in normal chromosome structure were found in both generations. So at present we believe that cholinesterase inhibitors (compounds which are expected to be used in pharmacology and perhaps as a base for some pesticides) with their influence on a chironomid's metabolic processes can cause morphological and chromosomal abnormalities which persist into the next generation. Of course this study is just in its early stages, but we hope that its development will help us to understand better the diversity of relationships between living and nonliving nature and the role of anthropogenic factors in it.

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POLYTENE CHROMOSOMES OF DIFFERENT SUBFAMILIES OF FAMILY CHIRONOMIDAE, DIPTERA.

By P. Michailova

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The Chironomidae has still not been fully studied from the systematic aspect. The conventional morphometric method does not always provide an opportunity for determining separate forms which should, on the basis of a number of biological characteristics be considered "well differentiated species". The morphometric method can "work" for some species of chironomids only at one stage of ontogenesis, while for others it may not "work" at all. There are no clearly distinct differences in the larval stage of many related species and many of them are thus known merely as groups of species or larval forms. The polytene chromosomes appeared to be particularly promising for taxonomic diagnosis of chironomid species combined with the morphological characteristics of the separate developmental stages.

The diagnostic value of karyotype characteristics like the number and morphology of the polytene chromosomes, marker zones, number and localization of "weak points", Balbiani rings and nucleoli is great. The giant size and constant specific band structure of polytene chromosomes allows for its wide application as a stable diagnostic character in the systematics of the Chironomidae. Every band represents a complex of identical chromomeres adjacent to each other of solid spiralized DNP regions (BEERMANN 1952). The reasons of the pairing of homologues in polytene chromosomes is not known yet. It may be that the physical joining between sister chromosomes in homologous sections plays an important role. The protein interaction between sister chromomeres can not be excluded either (ANANIEV, BARSKY

1985). In most species of Chironomidae the homologues are paired, with some exception in genera: *Chironomus* (KEYL 1962) and *Glyptotendipes* (MICHAILOVA 1989a). An asynapsis in the polytene chromosomes reveals differences in the chromomere and chromonema organization of the homologues and their cyclic state (PROKOFIEVA-BELGOVSKAJA 1986). The asynapsis in polytene chromosomes can also be favoured by heterozygous inversions or gene differences in homologues. These peculiarities are easily seen in inter-species hybrids. Each chromosome in the karyotype of every species has its unique band pattern. Sometimes under the influence of various factors (e.g. infection, salinity, different environments) the banding pattern changes: becoming diffused or super contracted or shortened. The shortening of the chromosomes is caused by the fusion of groups of neighbouring bands into chromatin blocks. In these cases the inactivation of transcription processes leads to DNA condensation in earlier active regions accompanied by association of separate bands, resulting in shortened chromosomes. However, there is no alteration to the basic banding markers of the chromosome.

Sequences of band pattern can be changed through different chromosome rearrangements: inversions, translocations (homozygous reciprocal translocations and fusions). In most cases heterozygous inversions ensure plasticity of the species. When the aberration has a high selective value, it is further stabilized by selective forces and spread in the population, so becoming a constant characteristic of the species. Such chromosome differences are directly linked to isolating mechanisms (disturbances occurring in the meiosis of hybrids, unbalanced gametes formed). Among species of the successful genus *Chironomus* a great similarity of chromosome band patterns has beed found. The genetic material has been redistributed through different chromosome aberrations. On the basis of homozygous reciprocal translocations species of this genus may have the chromosome arm combination: AB, CD, EF, G or AE, BF, CD, G etc.. Species having the same chromosome arm combination may be united into complexes (KEYL 1962). So, the karyotype based on polytene chromosomes plays an integrating role in the systematics of the Chironomidae. In these complexes species are differentiated on the basis of homozygous inversions (KEYL 1962). Homozygous inversions are responsible for divergence of sibling species and in the microevolution differentiation of the species (MICHAILOVA 1989, a,b), (KIKNADZE et al. 1991). In the most primitive subfamilies (Diamesinae, Orthocladiinae) different types of rearrangements have been incorporated during the karyotype evolution, so that only a few sections of the polytene chromosomes of related species have common band patterns or distinguishable by homozygous inversions (MICHAILOVA 1989 a).

The special appearance of some polytene chromosome sections, the so called "weak points" can be used as a species characteristic. There are constructions of chromosomes which are underreplicated during polytenization. Also, there are differences in the band structure organisation of chromosomes of related species. These can be revealed by "C" and "Q" banding methods. Common banding patterns have been found in arms of different species belonging to other genera. These common banding patterns are considered as "basic" or "plesiomorphic", existing in a hypothetical stem species before separation (WÜLKER 1980). Such basic patterns have been established in genera *Glyptotendipes*, *Chironomus*, *Endochironomus*, *Micropsectra*, *Brillia*, *Orthocladius*, *Cricotopus*, *Prodiamesa* (MICHAILOVA 1989 a).

The number and position of Balbiani rings and nucleoli are a significant taxonomic character for the family. Within the larval salivary glands of chironomids a functional differentiation of distinct glandular regions has been established in some species (*Acricotopus lucidus*, *Axarus* sp.). This is reflected in the level of the polyteny of the chromosomes and in the expression of cell specific Balbiani rings. More primitive subfamilies (Orthocladiinae, Diamesinae) have great functional activity, realized by Balbiani rings. They can be localized in one and the same chromosome (Diamesinae) or distributed in different chromosomes (Orthocladiinae). In these subfamilies the position of nucleolus is not fixed. In the subfamily Chironominae very often (with few exceptions only) the nucleolus and a Balbiani ring are situated in the short chromosome.

An important taxonomic character is the manifestation of the centromere region in polytene chromosomes. In most species of the genera *Chironomus*, *Endochironomus*, *Micropsectra*, *Dicrotendipes*, *Acricotopus* the centromere region is represented by a dark band. In species of genera *Cricotopus*, *Orthocladius*, *Glyptotendipes* the centromere region is a large dark block. The chromosomes of some species of the genera *Cricotopus*, *Parachironomus*, *Orthocladius* (MICHAILOVA 1989 a) and *Lipinella* (KERKIS et al. 1985) have been combined in a chromocentre. It has been formed as a result of a number of ectopic contacts arising between the separate replicates in the precentromere regions of the chromosomes. The inference to be drawn is that the evolution of chromosomes of these groups has proceeded much more rapidly than the evolution of external morphological characters. This phenomenon of a high karyotypic diversity among closely related species manifests the so called "chromosome tachytely" evolution (MARKS 1983).

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CHIRONOMID MIDGE SWARMS ASSOCIATED WITH SLOW SAND FILTRATION WORKS

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The mass emergence of chironomid midges frequently causes problems to people living next to freshwater habitats. A local water company, Bournemouth and West Hampshire Water (BWHW), operate slow sand filters for drinking water treatment beside the River Abon at Mill Road, Christchurch and at Francis Avenue, Bournemouth. In recent years, there have been increased incidences of swarms of midges occurring at such densities as to cause problems to local residents, particularly those occupying new housing developments near the slow sand filters.

The emergence of large numbers of midges results in swarms which are carried or are attracted to, nearby housing. It has not been possible to predict the occurrence of these swarms due to a lack of basic ecological data linked to operational procedures and timing. The project is funded by BWHW and is attempting to determine the chironomid faunal composition and the identity of nuisance species at the two locations, initially over a period of one year. We are also investigating the life-history of the dominant species and trapping adults to determine emergence time and the distribution of adults around the sites. These data will be linked to information on filter bed operation and local weather conditions.

In general terms, the filter beds represent temporary water bodies. The beds are vertical-sided rectangular ponds which have a base of porous concrete overlain with gravel and then by a thick layer of sand which is smoothed and levelled to produce a flat homogeneous bottom. The depth of water is also uniform at about 1 m, depending on operational practice. The continuous supply of water carrying particulate matter, which is trapped at the sand surface, provides a rich source of food for organisms resulting in the build up of large populations of oligochaetes (worms), nematodes, protozoans and chironomid midge larvae. Periodically the beds are emptied (about every 12 weeks at Christchurch and over 20 weeks at Bournemouth) and the filtering medium cleaned, thus only organisms which can complete their development within the period the beds are run can maintain populations. Chironomid midges are well adapted to survive in such environments.

Of the twenty-three taxa recorded from the filter beds only seven were common *Ablabesmyia monilis*, *Macropelopia nebulosa*, *Cricotopus (Isocladius)* sp.? *tricinctus*, *Psectrocladius barbimanus*, *Orthocladius glabripennis*, *Micropsectra lindrothi*, and *Tanytarsus gregarius/inaequalis*. Of these only the Tanytarsini and *Orthocladius glabripennis* occurred in large enough numbers to cause a nuisance.

The filter beds at both Christchurch and Bournemouth are characterised by their long periods of operation. At Bournemouth the mean bed run for the filters which were sampled, was approximately 150 days and at Christchurch the period was shorter (105 days - based on previous run times). These periods are up to three times longer than at the Thames Water Works at Ashford Common where the longest run observed during our 1990 study was 74 days and the mean 29 days (WOTTON et al 1992). The implications of this are that complex communities can develop in the beds with many overlapping generations. In the summer periods chironomid species can complete their development in as little as 17 days. In beds which are run for periods of less than 30 days only one generation of these species would be able to complete their life cycle. In addition, longer bed runs allow colonisation by a wide range of species and the Bournemouth and Christchurch beds supported a pond-like fauna. These characteristics have made it difficult to estimate the development time of individual taxa as one generation overlaps the other and there is continual recruitment from egglaying females. At the same time the relative complexity of the community has prevented dominance by one generation which can lead to mass emergence. However post-winter conditions (increase in light and temperature) result in maturation of the community as a whole and it is at these times that mass emergence, resulting in large swarms, has occurred in recent years. The perception of these swarms as nuisance is determined largely by the wind speed and direction which control movement off site towards residential areas.

This study will continue through the summer and end in October. In the meantime I would be interested to hear of any other similar investigations in other parts of the world. Slow sand filters provide an environment to examine both basic ecological aspects (competition, resource use, adaptation, distribution, behaviour of adults and larvae) and applied problems (filtration rates, water quality, nuisance problems etc.) and can provide a rich source of information on chironomid ecology and behaviour (WOTTON & ARMITAGE 1994).

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NEWS FROM THE RUSSIAN FAR EAST

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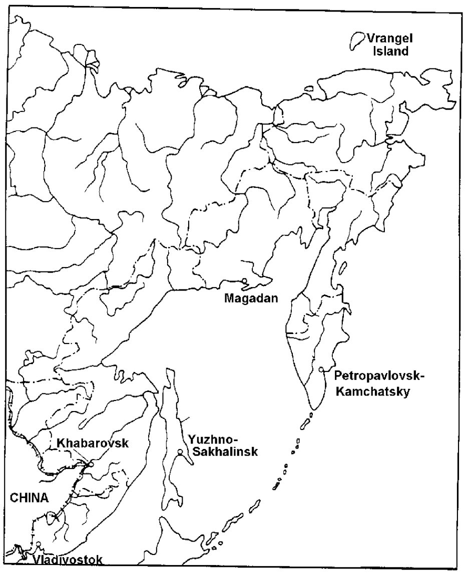
Last year I introduced my working group, which consists of **Marina A. Makarchenko** (Orthocladiinae), **Oksana V. Zorina** (Chironominae) and **Eugenyi A. Makarchenko** (Podonominae, Diamesinae, Prodiamesinae and Orthocladiinae). The main purpose of our investigation is to prepare a Key for Chironomidae (males, pupae and larvae) of the Russian Far East.

During the second part of 1999 and in 2000 we have studied the taxonomy of the Orthocladiinae from Vrangel Island, Chukchi Peninsula and Primorye (territory from Vladivostok to Khabarovsk), and Chironominae (tribe Chironomini) from the south part of the Russian Far East (Primorye Territory, Khabarovsk Region, Sakhalin and Kurile Islands) (Fig. 1).

Fig.1. The map of the Russian Far East



From Vrangel Island we identified for the first time 27 species of Orthocladiinae: *Bryophaenocladius nitidicolis* (GOETGH.), *Chaetocladius festivus* (HOLMGR.), *Chaetocladius* sp. n. 1, *Chaetocladius* sp.n. 2, *Chaetocladius* sp.n. 3, *Corynoneura arctica* KIEFF., *Cricotopus (C.) tibialis* (MG.), *Hydrobaenus fusistylus* (GOETGH.), *Limnophyes brachytomus* (KIEFF.), *L. pumilio* (HOLMGR.), *Limnophyes* sp.n. 1, *Limnophyes* sp.n. 2, *Metriocnemus eurynotus* (HOLMGR.), *M. intergerivus* SÆTHER, *M. ursinus* (HOLMGR.), *Orthocladius (Eudactylocladius) gelidus* KIEFF., *O.* (s.str.) *hazenensis* SOPONIS, *O. (Pogonocladius) consobrinus* (HOLMGR.), *Pseudosmittia recta* (EDW.), P. *nanseni* (KIEFF.), *Rheocricotopus* (s.str.) *reduncus* SÆTHER et SCHNELL, *Smittia extrema* (HOLMGR.), *S. joganbrevicosta* SASA et OKAZAWA, *Tokunagaia kibunensis* (TOK.), *T. rectangularis* (GOETGH.).

Sixty five species of Orthocladiinae genera *Antillocladius*, *Bryophenocladius*, *Camptocladius*, *Corynoneura*, *Cricotopus* (s.str.), *C. (Pseudocricotopus)*, *C. (Nostococladius)*, C. *(Isocladius)*, *Eukiefferiella*, *Gymnometriocnemus*, *Heterotrissocladius*, *Hydrobaenus*, *Krenosmittia*, *Limnophyes*, *Metriocnemus*, *Mesosmittia*, *Nanocladius*, *Orthocladius* (s.str.), *O. (Euorthocladius)*, *Pseudorthocladius*, *Parametriocnemus*, *Paratrichocladius*, *Pseudosmittia*, *Smittia*, *Stilocladius*, *Thienemanniella*, *Tsudoyusurika*, *Tvetenia* from Primorye Territory were found, from which seven species of *Bryophaenocladius*, *C. (Pseudocricotopus)*, *Limnophyes*, *Pseudorthocladius*, *Smittia*, *Stilocladius* and *Tsudayusurika*, appear to be new for science. One species, *Hydrobaenus calvescens* SÆTHER, is recorded for the Palaearctic region for the first time.

One hundred ninety two species of Chironomini from the south part of the Russian Far East were identified, of which about 20 species of the genera *Cryptochironomus*, *Cryptotendipes*, *Dicrotendipes*, *Microtendipes*, *Paratendipes*, *Polypedilum*, *Stenochironomus* and *Stictochironomus* appear to be new to science; 9 species, *Harnischia incidata* TOWNES, *Kloosia dorsenna* (SÆTHER), *Phaenopsectra ? profusa* (TOWNES), *P. ? dyari* (TOWNES), *Polypedilum exilicaudatus* SÆTHER et SUNDAL, *P. albinodus* TOWNES, *Stictochironomus ? lutosus* (TOWNES), *S. ? naevus* (MITCHELL), are recorded for Palaearctic region for the first time. Twenty species were known previously only from Japan.

More detailed information can be found on the Russian Chironomid Home Page, which was opened in Vladivostok in March 14, 2000. Address of this site is:

http:// www.tendipes.febras.ru

CHIRONOMID FAUNA OF THE RIVER ANGARA

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Introduction

The Angara is the main river of Eastern Siberia. It flows out of the oligotrophic Lake Baikal and after 1779 km joins the river Yenissey. The water of the Angara remains baikalian for a significant distance. Even at the mouth of the river 45% of the total water is baikalian. According to R. A. GOLYSHKINA (1970) the substratum is composed mainly of stones, due to relief and geological structure. The Angara previously was a mountain river with a high current velocity of 7 km h-1 in depositing areas and 12 - 15 km h-1 in eroding areas.

Different authors have studied the chironomid fauna of the Angara. 144 species and forms of Chironomids (Tanypodinae - 10, Diamesinae - 10, Prodiamesinae - 2, Orthocladiinae - 63, Chironominae - 59) have been found in it. 5 species (*Diamesa baicalensis* CHERN., "*Orthocladius compactus* LINEVICH", *O. gregarius* LINEVICH, *O. setosus* LINEVICH, *Neozavrelia minuta* LINEVICH) are endemics of Baikal; *Cricotopus angarensis* LINEVICH is an endemic of the Angara.

Chironomid fauna before the dams

A. A. LINEVICH (1953, 1957, 1981) studied the chironomid fauna over the region from its outflow from Lake Baikal to the city of Bratsk (670 km) from material collected during the 1940-s. Later, in the middle of 1960-s N. V. VERSHININ (1967) studied the chironomids from the city of Svirsk to Bratsk (470 km). The chironomid fauna of the lower part of the Angara from the settlement Motygino to its mouth (123 km) was studied by I. I. GREZE (1953) in the 1950- s.

The Angara from the Lake Baikal outflow to Bratsk is divisible into three parts: 1) from outflow to Irkutsk, 2) from Irkutsk to the inflow of the river Kitoy, 3) from the mouth of Kitoy to Bratsk.

According to A. A. LINEVICH (1953, 1957, 1981) over the first part representatives of the subfamilies Diamesinae and Orthocladiinae dominated (listed in order of abundance): *Diamesa baicalensis* CHERN. , "*Par-orthocladius tridentifer* LINEVICH", "*Orthocladius compactus* LINEVICH", *O. frigidus* (ZETT.), *O. trigonolabis* ED W., *Eukiefferiella coerulescens* KIEFF., *E. clypeata* KIEFF., "*E. longicalcar* KIEFF. ", *E. similis* GOETGH., *Diplocladius cultriger* KIEFF., *Pagastia lanceolata* (TOK.), *Potthastia longimana* (KIEFF.), *Pseudodiamesa nivosa* (GOETGH.), *Lauterbornia* sp., *Polypedilum* sp. (Chironomina genuina N3 LIPINA), "*Stictochironomus psammophilus* CHERN.", i. e. mainly lithorheophillic species.

The second part was dominated by the following species: *D. baicalensis, O. trigonolabis, O. frigidus, O. compactus, Polypedilum convictum* (WALK.), *Pagastia lanceolata, Potthastia gaedii* (MEIG.,) *Pseudodiamesa nivosa, E. coerulescens, O. consobrinus* (HOLMG.), *C. angarensis, Eukiefferiella sp., Pagastia orientalis* (CHERN.). So, over the second part most species of the genus *Eukiefferiella* are absent, but lithorheophilic species (subfamilies Diamesinae and Orthocladiinae) continue to dominate.

Over the third part the following species are mentioned: *Pagastia lanceolata, Potthastia gaedii, Eukiefferiella coerulescens, O. triginolabis, O. compactus, O. frigidus, Polypedilum convictum, Pseudodiamesa nivosa, Monodiamesa bathyphila* (KIEFF.), *Stictochironomus psammophilus, Polypedilum bicrenatum* KIEFF., *O. consobrinus, Cryptochironomus* gr. *defectus* (KIEFF.) *Harnischia curtilamellata* (MALLOCH), *Paracladopelma camptolabis* (KIEFF.), *Paratendipes* "*connectens*" N 3 LIPINA, *Tanytarsus exiguus* JO N., *Parorthocladius nudipennis* (KIEFF.), *D. baicalensis* and *Brillia bifida* (KIEFF.) In terms of numbers *P. lanceolata* and *P. gaedii* are first; in terms of the number of species, the subfamily Chironominae dominates.

Unfortunately, I.I. GREZE (1953) does not give a full list of the species of the lower part of the river, but only the dominant ones. The dominant species inhabiting vegetation are the larvae of T*anytarsus exiguus, Polypedilum nubeculosum* MEIG., and *O. thienemanni* KIEFF. Vegetation on pebbles is inhabited by *T. exiguus*, *Micropendipes pedellus, Polypedilum scalaenum* (SCHRANK) and *Glyptotendipes gripenkoveni* KIEFF.. Sand is dominated by *Chernovskiia orbicus* TOWNES (*Chernovskia ra* ULOMSKY), *Robackia demeijerei* (KRUS.) and *Beckidia zabolotzkyi* (GOETGH.), species not found in the upper parts of the river. There are pelorheophilic and psammorheophilic forms dwelling in silted sand: the most common among them are *Polypedilum bicrenatum* KIEFF., *P. scalaenum* (SCHRANK), *Cladotanytarsus* gr. *mancus* (WALK.), *Chironomus* gr. *thummi* (KIEFF.), and *Ch.* pr. *plumosus-reductus* LIPINA. Silt is inhabited by *Chironomus* gr. *thummi*. General features of the chironomid fauna of the lower part seem to be quite different from those of the upper parts. A rheophilic complex, including baikalian species and mainly composed of species belonging to the Diamesinae and Orthocladiinae, inhabits the typical stony biotopes of the upper parts of the river; this is replaced in the lower parts by a common complex of river forms belonging mainly to the Chironominae. In sandy biotopes the psammorheophils *C. ra, R. demeijerei*, and *Bekidia zabolotzkyi* are found.

Present state of the chironomid fauna after erecting the complex of dams

The river Angara is unaffected initially (about 7 km), from Irkutsk to settlement Telma (about 80 km) and below the dam of the Ust-Ilim hydropower station to its mouth (962 km). Close to its outflow from Lake Baikal the same species that dwelled here before the regulation remain; the 5 baikalian endemic species mentioned above are still to be found. Lithorheophilic forms found in the 40-s dominate. After the regulation in the middle 70-s we have investigated the river near Angarsk (at 10 km). Comparison of the chironomids before and after the regulation has shown some changes in composition (TOMILOV & al. 1977). O. *frigidus, P. lanceolata, P. gaedi, O. consobrinus* and *S. psammophilus* which were here before regulation are no longer to be found. *O.* gr. *olivaceus* and *P. tridentifer* dominate and *D. baicalensis* occurs in stony substrata. In the bottom vegetation *O. saxicola* and *C. angarensis* prevail. *Polypedilum* sp. (Chironominae sp. N3 LIPINA) and *Monodiamesa bathyphila* (KIEFF.) dominate in silted sand. During 1973-1975 the chironomid fauna near the future Ust-Ilim reservoir over the 302 km from Bratsk to Ust-Ilimsk was investigated. 91 species were found, 42 species belonging to the subfamily Chironominae: *D. baicalensis* and *O. olivaceus* dominate in stony sediments; *Prodiamesa olivacea* and *Chironomus obtusidens* on small pebbles and silted sand; *Cricotopus sylvestris, C. biformis, O. frigidus* and *Diplocladius cultriger* on stones covered with algae; *Chironomus cingulatus* MEIG., *Paratendipes albimanus* (MEIG.), "*Paratrichocladius inaequalis* KIEFF." and *Tanytarsus* gr. *gregarius* KIEFF. in silted sediments.

At the end of the 80-s to the beginning of the 90-s we studied the chironomids of the Angara below the dam of the Ust-Ilim power station (KOZHOVA & al. 1993) from the city of Ust-Ilimsk to the mouth of the river Kata (about 90 km). Here there are lot of eroding currents with high velocity: 51 species of Chironomidae were found, about 50 % representatives of the subfamily Orthocladiinae. *D. baicalensis, P. lanceolata* and *Pagastia orientalis* dominate on stony sediments; *Cricotopus sylvestris, C. biformis* and *O. saxicola* dominate on stones covered with *Ulothrix*; *P. nivosa, P. olivacea, O. olivaceus, Diamesa insignipes* KIEFF., *Eukiefferiella coerulescens, P. inaequalis* and *Micropsectra junci* (MEIG.) in silted sand and pebbles; *Paratendipes albimanus* in silt. *O. frigidus, O. consobrinus, O. compactus, O. gregarius, C. angarensis, P. inaequalis, Cr. gr. defectus, Cladopelma viridula* (L.), *Parachironomus pararostratus, Polypedilum bicrenatum, E. albipennis, Microtendipes pedellus* (DE GEER) and *Cladotanytarsus* gr. *mancus* (WALK.) found in upper parts are not found here.

Conclusion

In the river Angara from its outflow from Lake Baikal to its junction with the River Yenissey hydrologic conditions change: decrease of current velocity, increase of water temperature, decrease of transparency, and increase in deposition of sand and silt, i.e. the transformation of a mountain river into the usual Siberian river, and consequent changes in the chironomid fauna take place. In the upper parts of the river lithorheophils of the subfamilies Diamesinae and Orthocladiinae prevail, whereas in the lower part, pelorheophils of the subfamily Chironominae dominate. The main characteristic feature of the river Angara - the influence of Lake Baikal on the fauna (the presence of baikalian endemics) - occurs mainly in the upper part of the river.

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CHIRONOMID TYPES AT MUSÉUM NATIONAL D'HISTOIRE NATURELLE, PARIS (Meigen collection not included)

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The chironomid type collection in Paris is, except for the Meigen collection, not very well known. The list presented here was generated during my visit to the Muséum National d'Histoire Naturelle as part of the European Union's PARASYST program in June/July 2000. Notes on the current taxonomic status of the species are included. These notes are, when not available on the labels, collected from the catalogues of Neotropical, Palaearctic, Oriental and Afrotropical Chironomidae (SUBLETTE & SUBLETTE1973; FREEMAN & CRANSTON 1980; ASHE & CRANSTON 1990; SPIES & REISS 1996). A list of the chironomid specimens in the Meigen collection, which is currently under revision by Martin Spies (pers. comm.), has previously been published by FITTKAU and REISS (1976).

The specimens of Goetghebuer and Kieffer all bear identical "cotype" labels. These are probably not original, and have been placed on their respective pins by another scientist. Freeman and Macquart types are located in separate boxes. The other type specimens form part of the general chironomid collection.

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I would like to thank Dr. Cristophe Daugeron at Muséum National d'Histoire Naturelle for his hospitality during my stay and Prof. Daniel F. Goujet and Dr. François Bouvier for answering my many questions and organizing my visit. Thanks also to Martin Spies for all helpful information and to Trond Andersen for comments on the manuscript.

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Table 1. Types in the general chironomid collection in Muséum National d'Histoire Naturelle, Paris

Number	Species	Author	Type status	Synonyms/present genus	Locality
21	"*nitidus*"	"MACQ" *	"Type", good*	"*Paratendipes albimanus*, GTGH."	Not given
3683	*Belgica albipes*	(SÉGUY, 1965)	Allotype male det. Serra-Tosio (1982) on slide		Crozet: Baie du Navirre Rochers, 25.III.1972, Ph. Dreux
	Chaetocladius angustus	FREEMAN, 1961	Holotype, male, good	*Bryophaenocladius angustus* FREEMAN, 1961	Madagascar Centre, Pic Boby 2400m, Andringitra, Ambalavao, 11-14.I.1958, B. Stuckenberg
	Chaetocladius angustus	FREEMAN, 1961	Paratype, male, good		As holotype
	Chironomus bequaerti	GOETGHEBUER, 1921	Cotype, male, good	*Einfeldia longipes* STAEGER, 1839	Destelbergen, 11.V.1915, M. Goetghebuer
	Chironomus brayi	GOETGHEBUER, 1921	Cotype, female, good	*Nilothauma brayi*	Virton, 2.IX.1920, M. Goetghebuer
	Chironomus (*Cryptochironomus*) *nigrofascia*	FREEMAN, 1961	Holotype, male, good	*Parachironomus nigrofasciatus* FREEMAN, 1961	Madagascar Centre, Pic Boby 2400m, Andringitra, Ambalavao, 11-14.I.1958, B. Stuckenberg
	Chironomus (*Endochironomus*) *pruinosa*	FREEMAN, 1961	Holotype, male, good	*Endochironomus pruinosus* FREEMAN ,1961	Madagascar Nord, Montagne Ambre 1000m, det. Diego Suarez, 23.XI-4.XII.1958, B. Stuckenberg
	Chironomus latidens	GOETGHEBUER, 1921	Cotype, male, good	*Einfeldia pagana* MEIGEN, 1838	Destelbergen, 1.VI.1920, M. Goetghebuer
	Chironomus latidens	GOETGHEBUER, 1921	5 specimens as cotype but without cotype label		

	Chironomus mucronatus	Goetghebuer, 1919	Cotype, male, good	*Parachironomus parilis* Walker, 1856	Destelbergen, 11.V.1915, M. Goetghebuer
	Chironomus obtusidens	Goetghebuer,1921	Cotype, male, good		Destelbergen, 23.IX.1916, M. Goetghebuer
	Chironomus varus	Goetghebuer, 1921	Cotype, male, good	*Parachironomus varus*	Destelbergen, 18.V.1920, M. Goetghebuer
	Cricotopus carnosus	Kieffer, 1912	Cotype, male, fair	*Cricotopus* (*Isocladius*) *ornatus* (Meig., 1818)	Tainan, Formosa, XI.1909, H. Sauter
	Cricotopus carnosus	Kieffer, 1912	1 male and 2 females in same series but without cotype label		Tainan, Fornosa, XI.1909, H.Sauter
	Glyptotendipes sigillatus	Kieffer, 1922	Lectotype, female, design. Contreras-Lichtenberg, good		Aisne, Saint Gobert, July 1912, J. Surcouf
	Glyptotendipes sigillatus	Kieffer, 1922	1 male Cotes du Nord, Lamballe, VIII.1910, J. Surcouf		
	Metriocnemus cunepennis	Freeman, 1961	Holotype, male, good	*Paraphaenocladius cuneipennis* Freeman 1961	Madagascar Centre, Moramanga 1000m, 18.-24.XI.1957, B. Stuckenberg
	Metriocnemus cunepennis	Freeman, 1961	Paratype, male, poor		As holotype
	Microtendipes bicoloripennis	Freeman, 1961	Holotype, female, good		Madagascar, Sambirano, Lokobe Nossibé 6m, 9.-23.XI.1957, B. Stuckenberg
	Orthocladius stuckenbergi	Freeman, 1961	Holotype, male, good		Madagascar Centre, Moramanga, Route d'Anosibe, 18.-24.XII.1957, B. Stuckenberg
	Orthocaldius stuckenbergi	Freeman, 1961	Paratype, male, good		As holotype
3681	*Parochlus crozetensis*	Serra-Tosio, 1986	Holotype, male on slide		Iles Crozet: Pointe Basse, 12.XI.1979, D, Vernon
3682	*Parochlus crozetensis*	Serra-Tosio, 1986	Paratype male on slide		As holotype
	Polypedilum airense	Freeman, 1956	Holotype, male, fair	*Polypedilum aegyptium* Kieffer, 1925	Irabellaben, Mts Baguezans, 1200-1300m, 26.-31.VIII.1947, L. Chopard, A. Villiers
	Polypedilum bicoloratum	Freeman ,1961	Holotype, male, good		Madagascar Nord, Montagne Ambre 1000m, deeeet. Diego Suarez, 23.XI-4.XII.1958, B. Stuckenberg
	Polypedillum pallidiventris	Freeman, 1961	Holotype, male, good	*Polypedilum pallidiventre* Freeman, 1961	Madagascar Centre, Vakoana 1520m, Andringitra

					Ambalavao, 21.-24.I.1958, B. Stuckenberg
	Polypedilum pelostolum	KIEFFER, 1912	Cotype, female, fair	*Polypedilum nubifer* SKUSE ,1889	Tainan, Formosa, X.1908, H. Sauter
	Polypedilum pelostolum	KIEFFER, 1912	2 males and 2 females in same series but without cotype label		
	Polypedilum stuckenbergi	FREEMAN, 1961	Holotype, male, good		Madagascar Centre, Pic Boby 2400m, Andringitra, Ambalavao, 11-14.I.1958, B. Stuckenberg
	Polypedilum stuckenbergi	FREEMAN, 1961	Paratype, male, good		As holotype
	Procladius formosanus	KIEFFER, 1912	Cotype, male, fair	*Tanypus formosanus*	Tainan, Formosa, II.1909, H. Sauter
3741	*Smittia celtica*	ROSSARO & DELETTRE, 1992	Paratype male on slide		Paimpont, Brittany, NL 13.XII.1988
3740	*Smittia celtica*	ROSSARO & DELETTRE, 1992	Paratype male on slide		Paimpont, Brittany, PA4 13.XII.1988
3742	*Smittia celtica*	ROSSARO & DELETTRE, 1992	Paratype larva on slide		Paimpont, Brittany, NPA 13.XII.1988
3739	*Smittia celtica*	ROSSARO & DELETTRE, 1992	Holotype male on slide		Paimpont, Brittany, NL 13.XII.1988
	Stenochironomus unicalar	FREEMAN, 1961	Holotype, female, good		Madagascar Nord, Montagne Ambre 1000m, det. Diego Suarez, 23.XI-4.XII.1958, B. Stuckenberg
	Tanytarsus formosanus	KIEFFER, 1912	Cotype, female, fair		Tainan, Formosa, II.1909, H. Sauter
	Tanytarsus formosanus	KIEFFER, 1912	2 males and 2 females in same series but without cotype label		Tainan, Formosa, II.1909 and X.1908, H. Sauter
	Tendipes tainanus	KIEFFER, 1912	Cotype, male, good	*Nilodorum tainanus*	Tainan, Formosa, II.1909, H. Sauter
	Tendipes tainanus	KIEFFER, 1912	1 male and 2 females in same series but without cotype label		Tainan, Formosa, XI.1909 and II.1909, H. Sauter

Table 2. Chironomid types in the Macquart collection

Number	Species	Author	Type status	Synonyms/present genus	Locality
1229	*Chironomus maculatus*	MACQUART, 1826	1 specimen missing hypopygium	*Chironomus maculosus* Macq. 1834 nom. dub.	North France
1230	*Chironomus trimaculatus*	MACQUART, 1838	1 specimen missing hypopygium	nom. dub.	Brazil

1231	*Chironomus ferrugineus*	MACQUART, 1838	1 female	nom. dub.	Brazil
1232	*Chironomus maculipennis*	BLANCHARD, 1852	3 males	*Chironomus maculosipennis* Kieffer 1906 replacement name. Unplaced in Chironiminae	Chile
1233	*Chironomus pallidulus*	BLANCHARD, 1852	3 males	Jun. hom. of *C. pallidulus* Meigen. Unplaced in Chironominae	Chile
1234	*Chironomus obscurellus*	BLANCHARD, 1852	1 specimen missing hypopygium	Unplaced in Chironominae	Chile
1235	*Chironomus tessellatus*	BLANCHARD, 1852	1 male	Unplaced in Chironominae	Chile
1236	*Chironomus articuliferus*	BLANCHARD, 1852	3 males	Unplaced in Chironomidae	Chile

SHORT COMMUNICATIONS

WHAT'S THE POINT

By Peter H. Langton

........or, for that matter, the spine, spinule, tooth, tubercle or granule? These are terms I coined (LANGTON 1984, 1991) for different kinds of projections on the pupal cuticle of Chironomidae; to me a spinule is a very different structure to a point. Basically a point is the sharp end of a cuticular ridge, which when flattened vertically is v-shaped, resembling the point of a nail, whereas a spine is an elongate, more or less cylindrical structure, resembling the spine of a hedghog (*Erinaceus*); a spinule is a small spine. Towards the posterior margin of the tergites in *Kloosia pusilla* there is a sudden gradation from the general covering of points through spinous points (where the cuticular ridge has a projecting spinous tip) to spines: usually there is no difficulty in ascribing a structure to one or the other category. The importance of distinguishing these in descriptions can be apreciated when comparing the exuviae of *Micropsectra atrofasciata, M. bidentata* and *M. lindrothi*; on tergite IV the lateral longitudinal bands on *atrofasciata* are of spines, on *bidentata* of spinules and on *lindrothi* of points. Not to make the distinction between spinule and point is to lose a useful descriptor. These terms are necessarily relative: a spine on a *Virgatanytarsus* would be no more than a spinule when superimposed on a *Dicrotendipes*. However, this is not a problem as the different sized exuviae are observed under different magnifications.

The tooth is a large conical or flattened more or less v-shaped projection, as in the posterior transverse tergite bands on *Diamesa* and *Cryptochironomus*. Tubercles and granules are blunt protrusions, the tubercle taller than broad at base, the granule broader than high. Shagreen is composed of minute spinules or points, usually arranged in short transverse rows which frequently form a reticulate pattern.

References:

LANGTON, P.H. 1984. A key to pupal exuviae of British Chironomidae. 334 pp. Privately published.

LANGTON, P.H. 1991. A key to pupal exuviae of West Palaearctic Chironomidae. 386 pp. Privately published.

KARYOSYSTEMATICS OF SPECIES OF PLUMOSUS GROUP (CHIRONOMIDAE, DIPTERA) FROM SOME MACEDONIAN LAKES

By P. Michailova[1] and Smilkov, S.[2]

[1]Institute of Zoology, Bulgarian Academy of Sciences, Sofia 1000.
[2]Prirodno-Matemat.Fac.Biocoski Institut, Skopje, Macedonia.

The polytene karyotypes of two chironomid species from Ochrid and Doiran lakes are being studied. Both species (*Chironomus* sp.1 from Ochrid and *Chironomus* sp. 2 from Doiran) belong to the *thummi* complex, with chromosome set 8 and arm combination AB,CD,EF and G. The chromosomes AB,CD are metacentric, EF submetacentric and G telocentric. They have well expressed centromeric heterochromatin bands. A high frequency of heterozygous inversion in arm A of both species is established. Both species have a similar banding pattern to some species of the *plumosus* group. *Chironomus* sp. 1: arms A,B,E,F,G are identical with those of *C. plumosus*; arm C is identical with that of *C. entis*; arm D is similar to that of *C. entis* but a small group of bands are in an inverted position. *Chironomus* sp. 2: arm A is identical with that of *C. agilis*; arms B,C,D,E,F,G are as those of *C. plumosus*. However, arm B of this species has well formed BR, arm G has one BR only. Both species are closely related to those of the *plumosus* group. After detail analysis of all stages of metamorphosis we will consider the taxonomic position of these species.

PROFESSOR SÆTHER'S VISIT TO CHINA
Invited by Nankai University, Tianjin, China, and supported by the National Science Foundation of China (NSFC) and the Norwegian Research Council (NFR),

By Xinhua Wang

Professor Ole A. Sæther (Bergen, Norway) visited China from March 2 to 28 this year.

Due to his long-term support and great contributions to Chinese chironomid studies, on March 15, Prof. Sæther was awarded the title of honoured Professor of Nankai University. The president of Nankai Univ. bestowed the certificate in the ceremony.

During his month-long visit, Prof. Sæther delivered 6 guest lectures for the staff and students of Nankai University.

1. The canalized evolutionary potential.
2. The myth of objectivity and the electronic Ouija board, Different views on similarity.
3. Phylogeny of the Culicomorpha (Diptera).
4. Phylogeny of the subfamilies of Chironomidae (Diptera).
5. Zoogeographical patterns in Chironomidae (Diptera).
6. Morphological adaptations of tropical chironomids (Diptera).

At the same time, Prof. Sæther worked on a joint project initiated by Dr. Wang titled "Biosystematic studies on Chinese Chironomidae, with emphasis on immature stages" completing 3 joint papers:

1. The larvae of *Propsilocerus sinicus* WANG et SÆTHER and *P. paradoxus* (LUNDSTRÖM) (Diptera: Chironomidae).
2. First record of the genus *Paratrissocladius* ZAVREL from the Oriental region (Diptera: Chironomidae).
3. Two new species from China of the orientalis group of *Rheocricotopus (Psilocricotopus)* (Diptera: Chironomidae).

From March 18-25 Prof. Sæther together with Dr. Wang visited Shanghai and Hainan Island (Southern China) and had a field trip in Bawangling National Natural Conservation. A field trip to The New Territories in Hong Kong was arranged by Dr. David Dudgeon. Prof. Sæther left from Hong Kong on February 28.

THE FIRST MEETING AND SYMPOSIUM OF THE AQUATIC ENTOMOLOGIST'S SOCIETIES IN EAST ASIA (AESEA MEETING)

By Xinhua WANG

Dept. of Biology, Nankai University, China

The first meeting and symposium of the Aquatic Entomologist's Societies in East Asia (AESEA Meeting) was held in Chiaksan, Korea, from May 17-20, 2000. Sixty-three aquatic entomologists from Korea, China, Japan, Mongolia, Thailand Vietnam, Russia (Far East) and USA attended the meeting. The theme of the meeting was "The 21st Century and Aquatic Entomology in East Asia". More than 40 papers on systematics, ecology, behavior, zoogeography and environmental biology were given in oral presentations and posters. During the meeting a field trip was taken to Chiaksan National Park, about 100 Km southeast of Seoul.

According to the resolution of the meeting, AESEA meeting will convene every second year. The next meeting will take place in Japan in 2002 and the third in China in 2004.

The papers and abstracts on chironomid research presented at the meeting include:

CHON, T. S. & al.: Water quality monitoring by community dynamics of benthic macroinvertebrates in Youngjae stream, Han River, Korea.

KUO, C. H.: The succession of a chironomid community in an urban stream.

MAKARCHENKO, E. V. & al.: Review of the Chironomidae (Diptera) of the Russian Far East.

SERGEEVA, I. V. and Makarchenko, E. V.: Morphokaryological investigations of the subfamily Tanypodinae (Diptera, Chironomidae) of the Russian Far East.

WANG, X. H.: Zoogeography of Chironomidae from China.

YOUN, B. J.: Faunistic study of the larval chironomids (Diptera) in the stream of Kyong-sang Providence, South Korea.

ZORINA, O. V.: Fauna and systematics of the Tribe Chironomini (Diptera, Chironomidae) of the Russian Far East (Primo rye, Khabarovsk and Sahalin Territories).

NOTICE BOARD

NEW CHIRONOMID KEYS

The larval volume of Chironomidae of the Holarctic region (WIEDERHOLM,T. ed. 1983) is sold out and now longer available from the publisher.However, a new key to genera published in Hungary by Science Herald is just out:

SÆTHER, O. A., ASHE, P. & MURRAY, D. E. 2000. Family Chironomidae. Pp. 113-334 in: PAPP, L. and DARVAS, B. (eds): Contributions to a Manual of Palaearctic Diptera (with special reference to the flies of economic importance). Vol. **4**. A.6.- Science Herald, Budapest. Volume 4 also includes keys to 15 other families of Diptera including Culicidae and Blepharoceridae.

Volume 4 is obtainable from E. W. Classey Ltd., Oxford House, Marlborough Street, Farringdon, Oxfordshire SW7 /JP, UK at a price of GBP 150, Order code 16272. The e-mail is: Peter@Classey.demon.co.uk.

The key mostly follows WIEDERHOLM (ed.) 1983, 1986, 1989, but especially the pupal keys to the orthoclads is improved. The keys also lists the names of species and their geographical distributions in revised genera with less than about 30 species. New or revised genera and subgenera appearing since the last volume of the Holarctic key are incorporated. There are several new synonyms and combinations. Japanese species are included as far as possible without revision of all species. The reference list is updated as far as possible, but some recent publications appearing after the first submission of the manuscript may be missing. The keys should be useful also for chironomid workers from North America as there are very few genera which are exclusively Nearctic.

Ole A. Sæther

NEW PUBLICATION

MASCHWITZ, DAVID E. and Edwin F. COOK. 2000. Revision of the Nearctic species of the genus *Polypedilum* KIEFFER (Diptera: Chironomidae) in the subgenus *P. (Polypedilum)* KIEFFER and *P. (Uresipedilum)* OYEWO and SÆTHER . Ohio Biological Survey Bulletin New Series Volume 12 Number 3. vii + 135 p.
This publication is available through the Ohio Biological Survey, 1315 Kinnear Road, Columbus, Ohio 43212-1192, U.S.A

KEY TO PUPAL EXUVIAE OF WEST PALAEARCTIC CHIRONOMIDAE UPDATE ON THE GENUS CHIRONOMUS 1995 (PAN-PALAEARCTIC VERSION)

Peter H. Langton

This update is no longer available and is under extensive revision. So far 77 taxa from the Palaearctic Region are included. I am extremely grateful to all those colleagues who have sent me associated pupal exuviae, particularly of karyotypically identified stock. Material of new species recently published or soon to appear would be much appreciated. Also, I have material of only a few eastern Palaearctic species and would be grateful for any positively named exuviae from that region.

LEN FERRINGTON NEW ADDRESS:

Beginning on 5 July 2000 Len Ferringrton will have a new mailing address, telephone number and e-mail address.
The mailing address is: Leonard C. Ferrington Jr., Department of Entomology
Hodson Hall, 1980 Folwell Avenue, University of Minnesota, St. Paul, MN 55108
The new telephone number is: 612-624-3265
The new e-mail address is: ferri016@umn.edu" (Please note that the last three digits before @ are zero {not o}, one and six) (See also List of Regional Representatives)

PETER CRANSTON NEW ADDRESS

CRANSTON, Peter S., Department of Entomology, University of California, One Shields Avenue, Davis, CA 95616, US Email: pscranston@ucdavis.edu

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A REQUEST FOR ASSISTANCE

Art Borkent has undertaken a project to interpret the immatures (eggs, larvae, pupae) of Ceratopogonidae at a generic level (remember, they used to be a subfamily of the Chironomidae!). At the present time, there are generic keys available only for some European larvae and none for pupae. Such an undertaking requires associated material and if you have any reared specimens (or pupae with pharate adults) he would be very grateful for any loans. If you have such specimens, please contact Art at the following address:

Dr. A. Borkent 1171 Mallory Road, R1-S20-C43, Enderby, British Columbia,, V0E 1V0, Canada E-mail: aborkent@jetstream.net, Ph (250) 833-0931, FAX (250) 832-2146

ANOTHER REQUEST FOR ASSISTANCE

Any specimens (larvae, pupae and especially adults-males and females of westpalaearctic *Glyptotendipes* s.str. - species: *Glyptotendipes mancunianus*, *Glyptotendipes foliicola, Glyptotendipes scirpi*, *Glyptotendipes imbecillis*, *Glyptotendipes varipes*, *Glyptotendipes viridis*, *Glyptotendipes caulicola*, *Glyptotendipes aequalis* and *Trichotendipes signatus* will be wellcome for the second part of my Revision of the westpalaearctic *Glyptotendipes.*

Please contact: **R.Contreras-Lichtenberg**, NaturhistorischesMuseum Wien 2.Zoologische Abteilung
Burgring 7 P.O.Box 417 A-1014 VIENNA- AUSTRIA

THE INTERNATIONAL CONFERENCE „SMALL RIVERS:MODERN ECOLOGICAL STATE: ACTUAL PROBLEMS.

APRIL 25 – 28, 2001, TOGLIATTI, RUSSIA

Dear colleagues,

Russian Academy of Science
Samara Scientific Centre of RAS
Institute of Ecology of Volga Basin of RAS
Hydrobiological Society of RAS
Moscow State University

invites you to attend the International Conference "Small rivers: Modern ecological State, actual problems". It is a pleasure to inform you that the Conference will be a part of the activities of the Institute of Ecology of the Volga Basin of the Russian Academy of Science.

At the conference the following questions are to be discussed:

1. Biodiversity, as an index of river system state. Bioindication and monitoring.
2. Influence of anthropogenic factors on structural – functional organisation of river ecosystem. Objective laws of organization and function.
3. Criteria and methods of anthropogenic load level and water quality estimation.
4. Balanced approach to river ecosystem investigation.
5. Methodological aspects of landscape zonation of rivers.
6. Hydroecological safety of small rivers.

There will be a special session for Chironomidae where all kind of investigations connected with this group of invertebrates are welcome. There will be sessions at the Conference for oral presentation and posters.

Instruction for authors:

TITLE (14, bold, capitals)

Names of authors (12, bold)

Organisation, City (12, italic)

Abstracts must not exceed 1 printing page, typed in single-line spacing in Times New Roman, 12 pt, with following margin width: upper and lower - 1,5 cm, left - 2,5 cm, right - 2 cm and should be sent to:

Organising Committee in two copies.

Electronic form: Files should be sent in Word 6 for Windows 95

in 3 1/2-inch diskette or via e-mail.

Registration form and abstracts should be sent to:

420008 Russia

Kazan, Kremliovskaya str., 18

Kazan State University, Ecological Faculty

Dr. Nazarova Larisa

e-mail: larisa.nazarova@ksu.ru

The invitation and the Conference program will be sent in the 2-nd Information letter in February of 2001.

List of Regional Representatives 2000

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DEADLINE FOR CHIRONOMUS 14
1st of July 2001

Current Bibliography: 1 Jan. 1998 - 31 Dec. 1999
by Odwin Hoffrichter

Supplement to 1998 Current Bibliography: additions & corrections (earlier parts only to be found on the Chironomid home page of the Internet).

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