# The British Simuliid Group Bulletin

Number 35 February 2011

NATURAL HISTORY MUSEUM

**THE BRITISH SIMULIID GROUP BULLETIN**

Number 35 February 2011

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*Cover Image: An infective larva ($L_3$) of Onchocerca volvulus visible as an S-shape under the labrum of a female Simulium damnosum s. l., (probably S. leonense) from the Bo area of Sierra Leone captured at time of biting. Photo: John B. Davies*

# FROM THE EDITOR

The Future of the *Bulletin*

In the last number of the *Bulletin* I indicated that it was unlikely that the Natural History Museum would continue to publish the Bulletin after the end of this current year. This now appears to be virtually certain. In response to my editorial quite a number of members wrote in to offer their ideas for alternative means of publication and distribution, and some even offered financial support. To those I express my thanks, and if I did not respond it was because I have been waiting to see how things might develop. The future of the *Bulletin* was also discussed at the recent 4th International Simuliidae Symposium (see report below).

All feedback has been supportive, and everyone wishes the *Bulletin* to continue in some form. Although no decision has been made, I think it is inevitable that we will have to distribute future *Bulletins* in electronic form. This will probably take the form of a downloadable file deposited on the *blackfly.org.uk* website and the *simuliidae* discussion forum. We will try to make this file as printer friendly as possible so that members may print their own *Bulletin* booklet. However, I am determined that some printed copies should still be distributed to the libraries and institutions on our mailing list, and most importantly to those members who do not have internet access, or who specifically request the printed version. This will also satisfy the

# IN MEMORIAM

## Björn Malmqvist
(1946-2010)

Peter H. Adler[1] & Roger S. Wotton[2]

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Björn Malmqvist, a professor in Ecology & Environmental Sciences at Umeå University, Sweden, passed away on 22 October 2010 after a courageous battle with cancer. He was born in 1946 and brought up in Helsingborg in southern Sweden. He studied at the University of Lund and later joined the Department of Animal Ecology to conduct research on lampreys. Björn became an integral part of the Rheo Group, a collaboration of postgraduate researchers in the department. The Rheo Group carried out a project on the distribution of lake-outlet black flies in 1975, and this was Björn's first research project on these insects. A long-time member of the international simuliid community, Björn published about 50 papers that dealt entirely or in part with the Simuliidae. He was a powerful force in freshwater ecology, and his command of natural history, modern ecological thought, and evolutionary theory led to novel insights into the Simuliidae. He will be remembered as a first-class scientist and a person who cared deeply for people. A more detailed paper about the life and contributions of Björn Malmqvist will appear in a later issue of the Bulletin.

## Paul Freeman
(1916-2010)

R. W. Crosskey

2 Willow End, Totteridge, London, N20 8EP, U.K.

It it sad to report to the membership of the B.S.G. the death of Paul Freeman on 31 July 2010. He was 94 and had enjoyed a long and very distinguished career as a research dipterist at the British Museum (Natural History) - now the Natural History Museum - in London. For the last thirteen years leading up to his retirement in 1981 he was Keeper (head) of Entomology, a Department at that time with a staff of 98 entomologists. From previous employment as entomology demonstrator at Imperial College he joined the Museum in 1947 and was assigned responsibility for the Nematocera (exclusive of mosquitoes) his research remit thereby covered the Simuliidae. Blackflies, however, were never a major interest. His special claim to fame, if it may be put that way, was the fine book he published in 1953 with Botha de Meillon (1902-2000) of the South African Institute for Medical Research, on simuliids of the Afrotropical (then Ethiopian) region. It was a godsend.

At last it was possible for the medical entomologists, especially those working in tropical Africa on the human onchocerciasis problem, to get a handle on the regional fauna and identify their material. It is aimed to provide a more detailed piece later on. Full obituaries can be found in the Daily Telegraph of 24 August 2010 and The Guardian of 25 August 2010.

### René LeBerre

1932 – 2010

Just as the *Bulletin* was going to press the sad news was received that René died on 6 December 2010 after a long illness. He was a dear friend of all those concerned with onchocerciasis and its control, and will be remembered as one of the prime movers of the Onchocerciasis Control Programme in West Africa. A fuller obituary will be published in the next issue.

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# MEETINGS

Forthcoming

### Ninth Annual Meeting of the North American Black Fly Association (NABFA)

The Georgia Center, The University of Georgia's Conference Center and Hotel Athens, GA 30602

The ninth annual North American Black Fly Association meeting will be held February 9-11, 2011 at the Georgia Center on the University of Georgia campus in Athens, GA 30602. The meeting will start at 1:00 pm on Wednesday, February 9th and end around lunch on Friday the 11th

For meeting registration and hotel information see the website below:

www.georgiacenter.uga.edu/cch/register/ninth-annual-meeting-north-american-black-fly-association

# Past

## 4th INTERNATIONAL SIMULIIDAE SYMPOSIUM 2010

The 4th International Simuliidae Symposium, including the 31st meeting of the British Simuliid Group, the 8th European Simuliidae Symposium and the EMCA Blackfly Working Group Meeting, was held in the conference room of the Hotel Sun Zenep at Belek near Antalya, Turkey, 12-15 October 2010.

As the hotel bookings included all board and free drinks, including locally made alcoholic beverages, the social scene began during the day preceding the start of formal proceedings as soon old friends renewed their acquaintances and new friends were made amongst the blackfly specialists. The setting was a coastal plain with the Taurus mountains in view, the hotel being one of many gigantic tourist facilities lining the beach beyond a curtain of Aleppo Pines *Pinus halepensis* and Turkish Pines *P. brugia*.

After registration on the 12th of October, 46 participants from 12 countries were welcomed by Professor Selim Sualp Caglar of the Ecology Section, Biology Department, Faculty of Science of Hacettepe University, Ankara. He and the indefatigable Kahraman Ipekdal were the main organisers and editors of the abstracts, representing the institutional organisers - the Hacettepe University Biodiversity Research and Application Center (HUBIOM). The abstracts will be published in *Acta Parasitologica Turcica*, the Turkish Journal of Parasitology. Two videos on Turkey followed, introducing the delegates to a variety of Turkish delights.

The scientific programme is added at the end of this section, a list in which the speaker is underlined when there were multiple authors. The double-underlining for talk number 5 is not a mistake: Doreen Werner and Aleksandra Ćupina did a double-act.

Extra-curricula activities included a very tasty set of snacks at the welcome reception, a gala dinner and a spectacular dance show when lightning in the distance threatened to out-compete the performance's own light show. *The Sultans of the Dance*, about 60 very fit dancers, treated us to Turkish folk dance routines with the "Fire of Anatolia" theme set to modern music. Whirling dervishes and belly dancers were interspersed

with sets that would have done the Irish River Dancers or the late Michael Jackson proud. The main excursion took us via the *Bacchus* shopping emporium to Demre (ancient Myra), where none other than Santa Claus hailed from. St Nicholas was born nearby and became the bishop at Demre and was buried in its St Nicholas Church. This tourist attraction boasted tombs (one claimed to be where St Nicholas was buried although my guide book doubted this), renovated cupolas and restored frescoes. Lunch was held at the seaside at Ucagiz before delegates and partners boarded a glass-bottomed boat for the short journey to see the spectacular ruins and remnant sarcophagi of Kale (formerly Simena) on Kekova Island. This sunken city dated from Lycian times and was left partially submerged by the downward shift of land following an earthquake in the 2nd century AD. The boat was anchored and several of the more adventurous went for a swim in a cove.

The scientific sessions began with Peter Adler's overview drawing attention to the fact that only 3 Simuliid specialists (Rubtsov, Takaoka and Coscaron) were responsible for describing one third of all known species. He also highlighted lacunae in our knowledge especially on (1) factors determining oviposition sites; (2) dispersal distances of both genders of blackflies; (3) endosymbiotes and (4) wild hosts of blood-feeding females. Endosymbiotes were discussed by John McCreadie who pointed out that the nature of their symbiosis may change from commensalism to parasitism. The subject of (4) was discussed by Poppy Lamberton so, hopefully, there will soon be an increase in the total of only 3 combined-system studies that Peter Adler could find that dealt with morphology, molecular and chromosomal aspects of blackflies concurrently. In his second talk on populations of blackflies (*S. annulus, S. johannseni, S. meridionale*) that may take 1.2 ml of blood in 5 minutes from endangered birds, he revealed that the insects are also attracted to cracks in eggs and material in broken egg-shells.

Rooschanak Foroutan Saravi showed us results from studies involving her novel artificial larval substrates in the shape of blank CDs. Two talks, one by Aleksandra Ćupina on *Simulium erythrocephalum* in the River Danube at Novi Sad, Serbia, the other by Abdullah Yılmaz on *S. lineatum* in the Kızılırmak River of Cappadocia, Turkey, dealt with control programmes bringing research and application techniques together to tackle serious problems.

A discussion on the future of the British Simuliid Group Bulletin was chaired by Rory Post. Although only 3 British delegates were present,

the Bulletin has a wide readership comprising 139 members, 65% of whom are not British. The current production by the Natural History Museum, London, will cease in March 2011. Options include providing (1) electronic copy only, in which no taxonomic publications with implications for the ICZN would be permitted; (2) electronic copies circulated to members but a few hard copies printed to satisfy ICZN rules for taxonomic publications; (3) combining with another institution; (4) ceasing production; (5) providing an international newsletter on the model of *Fly Times*; (6) becoming a special interest group of the Royal Entomological Society; and (7) becoming the rotating responsibility of each organizer of the international symposia. It was agreed that the bulletin would have a broader appeal if it was international with option 1 favoured, but further discussion is needed before a final decision, especially as people to do the necessary work need to be identified.

The meeting was very enjoyable and successful. As the final afternoon was sunny, many took the opportunity to relax by braving the powerful breaking waves and dip into the Mediterranean sea before the dance show. However, a dedicated group went off to hunt blackflies in a local river but they were rewarded by the finding of only one species. A big thank you (or *teşekkürler*) must go to the organizers for a well-run and successful meeting. Candidates for the next venue are Barcelona and Bratislava.

**Robert A. Cheke**

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# PROGRAM

## MONDAY, 11 OCTOBER 2010

*10.00-18.00* ***Registration***

## TUESDAY, 12 OCTOBER 2010

*10.00-14.30* ***Registration***

***2.00-14.00 Lunch***

***OPENING THE CONGRESS***

*14.15-15.00 Opening Ceremony*

*Welcome Address by Prof.* ***Selim Sualp Caglar***

***5.00-15.30 Coffee Break***

***KEY NOTE ADDRESS***

***CHAIR: Marija Zgomba (Serbia)***

*15.30-16.00* ***Peter Adler***
*"World Overview of the Simuliidae"*

*16.00-16.30* ***Norbert Becker***
*"The control of biting (flying) insects in Europe"*

*16.30-16.50* ***Aleksandra Ignjatović Ćupina***
*"On the EMCA Blackfly Working Group Activities"*

*16.50-17.10* ***Selim Sualp Caglar, Ismail Saglam***
*"Perspectives on the biodiversity of Turkey and Turkish Simuliids"*

***.30-21.00 Welcome Reception***

# WEDNESDAY, 13 OCTOBER 2010

***07.00-07.50 Breakfast***

***08.00-20.00***
***FULL DAY EXCURSION***

***20.00-21.30 Dinner***

# THURSDAY, 14 OCTOBER 2010

***07.00-09.30 Breakfast***

## SYMPOSIUM I

***CHAIRS: Peter Adler (USA) and Ümit Şirin (Turkey)***

*09.30* Genetic characterization of *Simulium degrangei* populations from Carpathians and Hellenides
***Ladislav Jedlička, Matúš Kúdela*** ***13***

*09.50* Species with adults and larvae similar. Are the gill filaments of pupae good character to distinguish Neotropical black flies?
***Mateus Pepinelli*** ***14***

*10.10* Blackflies Diptera: Simuliidae) of the Sayan Baikal Stanovoi highland
***Liudmila Petrozhitskaya*** ***16***

***10.30-11.00 Coffee Break***

## SYMPOSIUM II

***CHAIRS: Rory Post (UK) and Rasa Bernotienė (Lithuania)***

*11.00* The identity and genetic characterization of *Simulium reptans* and *S. galeratum* (Diptera: Simuliidae) from Central Europe

***Matúš Kúdela, Tatiana Brúderová, Ladislav Jedlička 17***

*11.20* An outbreak of black flies (Diptera, Simuliidae) in some parts of Serbia in 2010, with a first record of *Simulium erythrocephalum* (De Geer, 1776) in south-east Serbia

***Werner Doreen, Sabić Jelena, Ignjatović Ćupina Aleksandra, Petrić Dušan, Kampen Helge 18***

*11.40* Species composition of blackflies (Diptera: Simuliidae) in transboundary area of the Russian and Mongolian Altai Mts

***Liudmila Petrozhitskaya, Daniela Illéšová, Vera Rodkina & Jozef Halgoš 20***

***2.00-14.00 Lunch***

## SYMPOSIUM III

***CHAIRS: Doreen Werner (Germany) and Aleksandra Ignjatović Ćupina (Serbia)***

*14.00* Distribution, diversity and dynamics of black fly symbiotes

**John McCreadie** ***21***

*14.20* Paradise Lost? The response of black flies to climate change in northern Canada

***Douglas C. Currie 22***

*14.40* Interactions of Blood-feeding Black Flies and Endangered Wildlife

***Peter H. Adler, Richard King and Chris R. Bedwell 23***

***5.00-15.30 Coffee Break***

## SYMPOSIUM IV

***CHAIRS: John McCreadie (USA) and Rooschanak Foroutan Saravi (Germany)***

*15.30* Effects of land use on black-fly assemblages (Diptera, Simuliidae) in submontane rivers (West Carpathians, Slovakia)

***Daniela Illéšová, Pavel Beracko, Il'ja Krno & Jozef Halgoš24***

*15.50* Domination structure of Black flies in streams and terrestrial biotope of Middle Russian forest-steppe

***Irina Budaeva, Ludmila Khitsova*** ***25***

*16.10* "The future of the British Simuliid Group Bulletin"

***Rory Post***

*16.30* On the different aspects of the ecology of *Simulium lineatum* (Mg.) and *Simulium equinum* (L.)

***Rasa Bernotienė, Vilma Baužienė*** ***26***

***6.30-17.30 Poster Session***

***19.00-24.00 Gala Dinner***

# FRIDAY, 15 OCTOBER 2010

***07.00-09.30 Breakfast***

## SYMPOSIUM V

***CHAIRS: Douglas Currie (Canada) and Poppy Lamberton (UK)***

*10.00* Density-dependent host choice by Onchocerciasis vectors ***Lamberton PHL, Cheke RA, Osei-Atweneboana M, Tirados I, Wilson MD, Day J, Post RJ and Basáñez MG*** ***28***

*10.20* The phenology of Simuliidae in Southwest Germany and their control

***Foroutan Saravi R., Ignjatovic-Cupina A., Marinkovic D. and Becker N. 30***

***10.40-11.00 Coffee Break***

## SYMPOSIUM VI

***CHAIR: Daniela Illéšová (Slovakia)***

*11.00* Bioecology of *Simulium erythrocephalum* (De Geer, 1776) and control strategy in the region of Novi Sad (Vojvodina, Serbia)

***Ignjatović Ćupina A, Zgomba M, Marinković D, Petrić D 32***

*11.20* Onchocerciasis Transmission and Anthropogenic Change in Tanzania

***A Kalinga, O Yasar & RJ Post*** ***35***

***12.00-14.00 Lunch***

## SYMPOSIUM VII

***CHAIRS: Robert Cheke (UK) and Irina Budaeva (Russia)***

*14.00* Black Fly (Diptera: Simuliidae) Control with the Biological Larvacide *Bacillus thuringiensis* var. *israelensis* in the Middle Kızılırmak River of Cappadocia, Turkey

***Abdullah Yılmaz, Hakan Yeşilöz, Ahmet Demircioğlu 37***

*14.20* Commercial presentation (ENTOSAV)

***Serkan Alkan***

14.40 Video show ""APOC Defeating River Blindness"

***Rory Post***

***15.00-15.30 Coffee Break***

***15.30-16.00 CLOSING THE CONGRESS***

***CHAIR: Marija Zgomba (Serbia)***

***19.30-23.00 A cultural night of fabulous Turkish folk music and dances***

Performance of "Fire of Anatolia" at Aspendos by the Sultans of the Dance

# POSTER PRESENTATIONS

## THURSDAY, 14 OCTOBER 2010

**16.30-17.30**

The efficacy of VECTOBAC 12AS against black flies (Diptera: Simuliidae) in Poland

***Katarzyna Rydzanicz, Agata Piekarska, Robert Fusco and Norbert Becker 41***

Changes in the distribution of *Simulium maculatum* Mg

***Rasa Bernotiene 43***

An universal tool for the analysis of effectiveness of insecticides

***Daniel Rabczenko, Aleksandra Gliniewicz, Sławomir Piekarski 45***

An Outbreak of Black Fly (*Simulium (Wilhelmia) lineatum)* (Diptera: Simuliidae) inCentral Basin of Kızılırmak River

***Abdullah Yılmaz, Abdullah İnci, Aydın S. Tunçbilek, Hakan Yeşilöz, Oner Koçak, Ümit Şirin, Anıl Ica, Alparslan Yıldırım, Ahmet Demircioğlu, Onder Düzlü 46***

Chironomidae and Simuliidae of small water reservoirs (inlets, outlets and littorals) of west Slovakia

***Daniela Illéšová & Zuzana Pastuchová 47***

Cytogenetic features of six different black fly (Diptera, Simuliidae) species living in Eskişehir City and it's near around
***Ümit Şirin and Ayfer Tuzla***

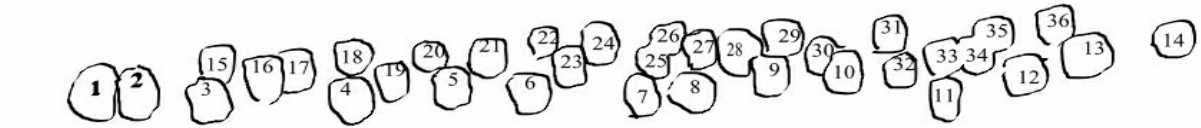
Genomics without genetics: the *Simulium* genome project
***Charles Brockhouse, Soochin Cho, Guishan (Gary) Xiao, Eric J. Haas, John K. Colbourne***

# Key to the Group Photograph.

1 - Çagasan Karacaoglu, 2 - Deniz Innal, 3 - Ahmet Demircioğlu, 4 - Marija Zgomba 5 -Doreen Werner, 6 - Abdullah Yilmaz, 7 - Rooschanak Foroutan Saravi, 8 - Aleksandra Ćupina, 9 - Robert Cheke, 10 - Rasa Bernotienė, 11 - Angela Martinez Gavin, 12 - Patricia Valle Trujillo, 13 - John McCreadie, 14 - Irina Budaeva, 15 - Serkan Alkan, 16 - Peter Adler, 17 - Jozef Halgoš, 18 - Rory Post, 19 - Arda Cem Kuyucu, 20 - Selim Sualp Çaglar, 21 - Rolf Meyer, 22 - Andreas Kruger, 23 - Doug Currie, 24 - Mateus Pepinelli, 25 - Poppy Lamberton, 26 - Ümit Sirin, 27 - Matůš Kúdela, 28 - Ismail Saglam, 29 - Kahraman Ipekdal, 30 - Daniela Illéšová, 31 - Antonio Torrell Sorio, 32 - Ludmilla Petrozhitskaya, 33 - Aysegül Batman, 34 - Vera Rodkina, 35, - Tugçe Güleryüz, 36 - Robert Fusco.

Missing from the photograph: Abdullah İnci, Aleksandra Gliniewicz, Heiko Kotter, Ismail Özdemir, Jean-Marc Ferez, Katarzyna Rydzanicz, Norbert Becker

# 4th INTERNATIONAL SIMULIIDAE SYMPOSIUM Antalia, Turkey, 12 to 15 October 2011



# WHO WAS…?

## Honorific names: some mini-biographies relating to French nationals

In No. 33 of the *Bulletin* (February 2010) I included a further batch of mini- biographies on the Who Was…? theme. The entries related to honorific names of *Simulium* species from the Afrotropical region, and concerned deceased persons with Belgian or British background. This time the mini-biographies all relate to French nationals. They are presented in the previously established style and have been prepared by Bernard Philippon and Roger Crosskey. My thanks go to them for contributing to this issue of the *Bulletin*. As before, references are limited to a single main source of information, typically an obituary; absence of a reference implies that no obituary or equivalently comprehensive publication has been seen and that the entry is therefore based on personal knowledge (BP and RWC). If anyone can provide missing information such as dates and references, we would be pleased to receive it. Note: The acronym ORSTOM used in the text stands for the Office de la Recherche Scientifique et Technique Outre-Mer.

**John B. Davies** (editor)

**bertrandi** Luna de Carvalho (1962), **colasbelcouri** Grenier & Ovazza (1951), **grenieri** Pilaka & Elouard (1999), **griveaudi** Ovazza & Ovazza (1970), **milloti** Grenier & Doucet (1949), **neireti** Roubaud (1905), **ovazzae** Grenier & Mouchet (1959) **pauliani** Grenier & Doucet (1949), **quilleverei** Pilaka & Elouard (1999), **rickenbachi** Germain, Grenier & Mouchet (1966), **roubaudi** Grenier & Rageau (1949).

**bertrandi** Luna de Carvaiho (1962) - *Simulium* (*unicornutum* syn., unavailable) (also) **bertrandi** Grenier & Dorier (1959) [European species]

Named (explicit) for Henri P. Bertrand (1892-1978) French entomologist. After graduating as licentiate in natural sciences from the University of Bordeaux in 1912, Bertrand continued his studies at the University of Paris, publishing (1928) his thesis on the larvae and pupae of aquatic Coleoptera. His life interest was the freshwater insect groups, on which he authored several monographs. Outstanding was his 804-page work of 1972 entitled *Larves et nymphes des Coleoptères aquatiques du globe*, in which he covered the morphology, biology and generic identification for all 25 beetle families with aquatic larvae. For a time in the 1930s he studied marine

Crustacea while at the maritime laboratory of the museum in Dinard. Bertrand's interest in aquatic insects involved him in the field collection of very extensive material not only from Europe but also from many parts of Africa and Madagascar. He died accidentally in the Pyrenees and was posthumously awarded the Prix Passet in recognition of his major contribution to aquatic entomology. **Reference**: *Bulletin de la Société Entomologique de France* 84: 286-287 (1979).

**colasbelcouri** Grenier & Ovazza (1951) - *Simulium*

Named (explicit) for Jacques Colas-Belcour (1894-1974), French entomologist and parasitologist. Much of Colas-Belcour's career was spent as Laboratory Chief at the Institut Pasteur in Paris, a position he first assumed in 1931. He was closely associated with the French Société de Pathologie exotique and for most of the 1930s acted as its meetings secretary. The breadth of his work in relation to medical entomology and parasitology is reflected in the wide range of arthropods named after him, which includes ticks of the genera *Ixodes* and *Hyalomma,* a *Phlebotomus,* a tabanid of the genus *Cydistomyia*, and *Tricyclea colasbelcouri* (a calliphorid described by Rickenbach et al.).

**grenieri** Pilaka & Elouard (1999) - *Simulium*

Named (explicit) for Paul Fernand Grenier (1911 - ?) French entomologist, Parisian born, bred and educated. He attended the Faculté des Sciences at Paris and in 1941 he was recruited as assistant to Émile Roubaud, Professor of Medical Entomology at the Institut Pasteur (IP, Paris) succeeding Roubaud as head of Medical Entomology and Protozoology at IP (1953) . There, until the early 1970s, Grenier trained many of the French and French-speaking medical entomologists of ORSTOM. His many contacts ensured that he received material of a diversity of medically important insects and he published on fleas, tabanids and mosquitoes as well as the Simuliidae. The last, however, were his primary research interest, and he was a taxonomic authority on the blackflies of France, tropical Africa and the French Pacific islands; he described or codescribed 27 new simuliid species, six from France and elsewhere in Europe, 14 from Africa and the others from Madagascar. His doctorate (1948) on larval physiology and functional morphology, published in *Physiologia Comparata et Oecologia* 1: 165-330 and titled 'Contribution à l'étude biologique des Simuliides de France' remains an outstanding work in the history of simuliidology. Besides *Simulium grenieri*, the blackfly genus *Greniera*, the *Simulium* subgenus *Grenieriella* and *Cnephia grenieri* were all named for Paul Grenier, as have been a dozen species of Afrotropical Diptera, half of them

mosquitoes. After long and distinguished service as IP Professor of Medical Entomology he retired in 1974, remaining in his native Paris.

**griveaudi** Ovazza & Ovazza (1970) - *Simulium*

Named (explicit) for Paul Alexis Jacques Griveaud (1907-1980), French soldier, businessman and entomologist, born in Nantes He held a doctorate in sciences from the University of Nancy. Much of his life was passed in Madagascar, starting when he volunteered for soldiering in the French colonial forces and continuing afterwards in the world of commerce — with which he was associated for over a quarter of a century. A sometime plantation manager, Griveaud was active as a businessman in the Chamber of Commerce at Tananarive (Antananarivo), the Madagascan capital. In 1956 he took a scientific position offered him at the Institut Scientifique de Madagascar, becoming head of this institute in the following year and retiring from there in 1976. As an entomologist he became an outstanding authority on the Lepidoptera of Madagascar, publishing major taxonomic works on several families, notably the hawk moths (Sphingidae). He passed his retirement at Pornichet on the Atlantic coast of France near St Nazaire and died there in October 1980. **Reference**: *Faune de Madagascar* 88: 667-668 (1998).

**milloti** Grenier & Doucet (1949) - *Simulium*

Named (explicit) for Jacques Millot (1897-1980), French scientist and naturalist, born in Beauvais. Described in his obituary as "l'un des derniers grand Naturalistes", Millot was a man of many interests. He qualified in medicine and for most of the First World War served as a medical volunteer. After 1922 he chose the path of Science, obtaining a science doctorate in 1926, thereafter for some time holding professorships of histology and comparative anatomy in Paris. His research interests included the decapod Crustacea and the pigments of fish. He was the describer of *Latimeria* the famous 'living fossil' coelacanth fish first dredged from the seas near Madagascar. From the age of 50 Millot became particularly associated with Malagasia, co-founding (in 1947, with Paulian, see *pauliani*) the Institut Scientifique de Madagascar (ORSTOM), of which he was appointed the first director. He founded the Institut's *Mémoires* and also the *Naturaliste Malgache*. Among his manifold interests was anthropology and he formed a collection of African objects of witchcraft and fetish. In 1960, on leaving Madagascar, he took the position of Professor of Ethnology at the Museum of Mankind in Paris, from which he retired in 1967. He passed his retirement years quietly in Paris. **Reference:** *Faune de Madagascar* 88: 674-676 (1998).

**neireti** Roubaud (1905) - *Simulium*

Named (implicit) for Charles Marie Gustave Neiret (1863-1906), French physician, born at Germigny (Cher). He trained in medicine at Lyon, enlisted in the military in 1888 and served as a French colonial medical officer in West Africa, New Caledonia, the Comoro Islands and the French Congo. In 1894 he was assigned to the Institut Pasteur in Paris, and in 1902 (at the age of 39) he was posted to Tananarive to be director of the Madagascan branch of this research institute. His occupation of this position was, however, cut short by his early death from illness when only 43. Nevertheless, Neiret was able in the three years or so that he was in Madagascar to publish quite widely on malaria and water-related hygiene concerns and to amass in Tananarive a fine mosquito collection. Neiret's contacts with Émile Roubaud in Paris, at the headquarters of the Institut Pasteur, stimulated his interest in entomology, and it seems certain that this would have been highly productive had it not been for his untimely death. It should be noted that it was he who collected the original, material of *Simulium neireti*, the "Mouka-Fouhi" scourge of Madagascar. **Reference**: Kitzmiller, *Anopheline Names*: 377 (1982).

**ovazzae** Grenier & Mouchet (1959) - *Simulium*

Named (explicit) for Max Ovazza (1920-1972), French national born to Sicilian immigrants, medical doctor and entomologist. Active in the resistance in the Second World War, he was captured and deported to concentration camps, an experience that for ever undermined his health. Still, Ovazza remained a man of exceptional energy and diverse interests (among these being big-game hunting and doing the Algiers-Cape Town motor rally - twice!). After joining ORSTOM in the early 1950s he went to West Africa, in association with hygiene and medical entomology organizations, and created a special Onchocerciasis Section. He was instrumental in raising government funding for French research on onchocerciasis vectors and participated in control campaigns against *Simulium damnosum* s. l., including those at Mayo Kebbi (Chad) and the Black Volta. He left Upper Volta (now Burkina Faso) in 1964 and was then stationed in Madagascar before returning to Paris shortly before his death. About a dozen Afrotropical Diptera species of bloodsucking groups have been named after him. He was a specialist in the Tabanidae and many of his publications are on this family.

**pauliani** Grenier & Doucet (1949) - *Simulium*

Named (implicit) for Renaud Paulian (1913-2003), French entomologist, biogeographer and university administrator, born in Neuilly (Seine). A student at the Sorbonne, he obtained doctorates in science and in the arts and over the years 1941-1947 was an assistant both at the Sorbonne and the Museum National d'Histoire Naturelle (Paris) From here he undertook many expeditions, mainly to North and West Africa. In 1947 he co-founded with Jacques Millot (see *milloti*) the Institut Scientifique de Madagascar, remaining a co-director until 1961. In that year, departing Madagascar, he became head of the branch of ORSTOM at Brazzaville in the French Congo, a position which he held until entering the world of university administration in 1966. He was successively the University Rector or Chancellor at Abidjan (Ivory Coast), Amiens and lastly Aquitaine. Paulian's Madagascar years are particularly noted for his founding of the *Faune de Madagascar* scientific journal: the publication of varied works on biogeography, and his training of local entomologists. Many of these became capable taxonomists and played a part in the naming of the several hundred species (including 30 or so Diptera in various families) that have been dedicated to Paulian. He was collector of the original material of *Simulium pauliani*. **Reference**: *l'Entomologiste* 59: 143-172 (2003)

**quillevere**i Pilaka & Elouard (1999) - *Simulium*

Named (explicit) for Daniel Quillévéré (1943-1992) French (Breton) entomologist, born in Morlaix (Finistère) A graduate of Rennes University, Quillévéré joined ORSTOM in the late 1960s as a medical entomologist, receiving two-year training at the ORSTOM Centre in Bondy near Paris and at the Institut Pasteur before being assigned to Bobo Dioulasso (Burkina Faso). Here he acquired special expertise in the cytotaxonomy of the *Simulium damnosum* complex whilst working under Dr René Le Berre (then head of the Section Onchocercose of Centre Muraz) on onchocerciasis and it was in the field of onchocerciasis vector studies that he received a doctorate from Rennes (1979). As the West African Onchocerciasis Control Programme (OCP) expanded, Quillévéré's working base was transferred from Bobo to Bouaké in the Ivory Coast, where he succeeded Bernard Philippon and remained until 1989. In that year he once again took over from Philippon, this time as head of the OCP Vector Control Unit based in Ouagadougou (Burkina Faso) - It was while holding this position that he died suddenly and unexpectedly in 1992, aged 49. Recognized for his expertise in varied aspects of onchocerciasis and its vector biology, Quillévéré had been appointed as one of the medical entomologists on the World Health Organization Expert Committee on Filariasis

**rickenbachi** Germain, Grenier & Mouchet (1966) – *Simulium*
Named (explicit) for André Rickenbach ( - ), French entomologist. Starting his career in the 1950s he was one of the earliest of the ORSTOM entomologists. After working overseas, initially in Bobo Dioulasso (Haute Volta = Burkina Faso), he moved to the French Cameroons. His experience led to him acquiring a broadly based interest in the taxonomy of medically important Diptera and he published not only on mosquitoes (co-describing several species from the Cameroons) but also widely on Calliphoridae and Sarcophagidae The species named after him include several culicine mosquitoes His research interests included tsetse-flies and arbovirus vectors. During his latter professional years, while with ORSTOM at Bondy near Paris, Rickenbach was responsible for the training of further young entomologists.

**roubaudi** Grenier & Rageau (1949) - *Simulium* (syn. of *johannae*)
Named (explicit) for Émile Roubaud (1882-1962), French entomologist born in Paris. A graduate in natural sciences from the University of Clermont-Ferrand, in 1905 he joined the Muséum d'Histoire Naturelle and later the Institut Pasteur (IP) in Paris, where he became the focus for identification of Diptera sent in from all parts of the world. For many years, until succeeded by Paul Grenier in 1953, he was Professor of Medical Entomology at IP, a time during which he made many expeditions to Africa. In 1909 he founded the Institut Pasteur field laboratory at Brazzaville. In the early years his research was largely devoted to the Simuliidae, and in 1906 he was the first person to divide the genus *Simulium*, creating the subgenera *Prosimulium* and *Eusimulium.* Roubaud's extensive research interests included ticks and fleas and many other arthropod groups but he remained primarily a dipterist, studying mosquitoes, phlebotomines and tsetse (together with trypanosomes). Behavioural studies he made on mosquitoes were ahead of their time in pinpointing experimentally what would later be called sibling species complexes. By the 1920s Roubaud had established himself as one of the outstanding figures in medical entomology, a fact recognized for example when he became the first recipient (1923) of the Chalmers Medal awarded by the Royal Society of Tropical Medicine and Hygiene in London. **Reference**: *Annales de l'Institut Pasteur* 106: 161-167 (1964).

**Names covered in Bulletin No. 33**
**alcocki** Pomeroy (1922), **arnoldi** Gibbins (1937), **blacklocki** De Meillon (1930), **bequaerti** Gibbins (1936) **berghei** Fain (1949), **duboisi** Fain (1950),

**dukei** Lewis, Disney & Crosskey (1969), **henrardi** Gibbins (1941), **loveridgei** Crosskey (1965), **mcmahoni** De Meillon (1940), **neavei** Roubaud (1915), **rodhaini** Fain (1950).

**Names covered in Bulletin No. 32**
**berneri** Freeman (1954), **buckleyi** De Meillon (1944), **hargreavesi** Gibbins (1934), **hessei** Gibbins (1941), **schwetzi** Wanson (1947) and **vargasi** Grenier & Rageau (1949).

**Names covered in Bulletin No. 31**
**noelleri** Friederichs (1920), **tomosvaryi** Enderlein (1921), **schoutedeni** Wanson, 1947, **woodi** De Meillon (1930).

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# SCIENTIFIC PAPERS

## The "Botlass / Batlas" Flies of Belize

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Throughout Belize, simuliids are commonly known as "botlass flies"; *botlass* is widely used in all parts of the country by both lay people and scientists. However, almost no one relates that name to Simuliidae and almost no one calls these flies "blackflies", although they are commonly described as "black flies" in a descriptive, non-taxonomic sense.

No one I've spoken or written to in Belize has been able to provide any historical perspective as to why the flies are called *botlass flies*. Here I explore a possible etymology.

The name *botlass* is quite old in Belize. Fowler (1879, p. 4) provides one of the earliest references:

I had often heard of the flies in this part of the world, and a portion being called the Mosquito Coast, I was prepared to meet considerable inconvenience from insects.

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1.Unfortunately, the term *botlass* has also led to much confusion with the human botfly, *Dermatobia hominis*, also common and widespread in Belize.
*2 Botlass* also turns up in old literature of Guatemala (e.g. Brigham 1887, p. 375); I do not know if the name is used now in Guatemala but it was not used by Dalmat (1955).

In the Cascade range of the Rocky Mountains I have. been driven off a glacier by mosquitos and horse flies, apparently improbable, but nevertheless a fact, but they will not compare with the effect the bottle flies produce here; or as the creoles call them — the bottlass. They are a small black fly, the shape of a bottle; their bite is most venomous, and leaves a black mark which is only obliterated when the poisoned skin peels off. During flood times they flourish most, and people living in their midst are obliged to shut themselves up in their houses, and stop every aperture to keep the flies out. The peculiarity about them is, they don't care for dark places, and after sun-down not one is to be seen. They punished us all very severely. This pest, with the other discomforts and exposure, caused everyone to become more or less sick during the journey, and even the dog I had to pack on the horse the last day, whilst I walked, to save his life.

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Morris (1883, p. 23) provides another early use:

> One pest which I have met nowhere else, is found during certain seasons of the year in low moist districts, which the natives call the 'botlass' fly. This is a small black fly, shaped somewhat like a bottle — hence its name — which is only found during the daytime, but whose bite on the hands and face is most troublesome, if not indeed venomous. Its sting leaves a black mark, surrounded by a small reddish-coloured area, which does not disappear until the skin is worn off. While in the upper lands on the Mullins River, rubber gathering, I made the acquaintance of these pests, which certainly, in persistence and severity, can be compared to nothing except the land-leaches of the East Indies, or the grass lice (ticks) of Brazil.

The name *botlass* or *batlas* turns up in both the professional and lay literature, as well as in discussion forums on the Internet. For example, Gann (1928, p. 114) writes:

> The *batlas-flies* troubled us a good deal at times, especially in a dead calm. These miserable little, short, squat, black flies come in clouds, and settle without much noise or fuss on all exposed parts. Their bite itches a good deal, and to some people causes a great deal of irritation and swelling. Every bite leaves behind a tiny round red spot, about the size of a very small pin-head. This shortly turns black, and when I left the ruins my hands and nose were peppered liberally over with these black spots.

and, contemporaneously, Grant (1927, pp. 571–572) wrote:

> The hardships of the British Honduras bush have been greatly overrated. Mosquitoes were much less in evidence than in swamp-ridden Belize. The chief attacker was the botlass fly, or *ouss*, as the Mayas termed them; but neither insect interrupted the evening bathe in the creek.

and, about the same time, Oliphant and Stevenson (1929, p. 131), wrote:

> While they [the horses] did splendidly on the trip, they felt themselves in a strange country and were a good deal worried by the botlass flies, which were troublesome during sunshine even at high altitudes.

Garnham and Lewis (1959, p. 29) stated:

> Man-biting Simuliidae are well known in British Honduras under the Creole name of *batlas* a word of uncertain origin which is also used, possibly for other flies, in parts of Jamaica.

*Botlass* continues to be used in modern literature, and sometimes the identity of the flies is given. Meerman *et al.* 2003 (p. 26) wrote:

> The most noticeable invertebrates in the Mayflower Bocawina National Park are the biting insects. Most notable are "botlass flies" (Simulidae) [sic], these small black flies reproduce in flowing water (Silk Grass Creek!), and are a real nuisance. Fortunately, they are not known to transmit any diseases (at least not in Belize).

The name even turns up in travel guides (e.g. Pariser 1998):

> A biting fly, the hardy but hunch-backed black or botlass fly, is small and incredibly annoying! It silently zooms in on you and will feast on your hands and whatever else it can land on.

and in online discussion groups related to Belize travel (where, for the most part, the true identity of the flies is *never* discussed). And Belize even has a "Botlass Creek" (17.5° N, 88.52° W, near Bermudian Landing).

*Botlass* and *batlas* were not discussed by Shelley *et al.* (2002), a publication that otherwise might have provided a definitive link between the vernacular and scientific names. And neither name occurs in the latest edition of the Oxford English Dictionary, the long association between Belize and the UK notwithstanding.

This historical perspective does yield hints about the etymology of the Belizean name for Simuliidae; the salient clues are the common reference to *bottle*, presumably referring to the immensely swollen abdomen of a blood-satiated female *Simulium*, and the frequent assertion that the term *botlass* is of Creole origin. The Creoles in Belize are descendants of slaves brought from Jamaica to work in the logging industry. This suggests that we might find evidence for the etymology in the old literature of Jamaica.

Sloane (1725, Volume 2, p 226) provides this tantalising discussion of and a derogatory but suggestive name for an insect that is probably a simuliid or a ceratopogonid:

*Culex niger minor*
A Bottle-Arse

> *Moustiques de Rochefort* which bite without Noise, and cause scratching and Ulcers.
>
> This Fly is very small, no larger than a Pin's Head, the Body is very black, the Wings grey, the other parts Scarce perceivable.
>
> It fixes on a Part and when you will scarce feel the Bite, if you look, for Instance, on your Hands, you'll find them full of bloody Spots.
>
> It is very common near River Bridge.

*Rochefort* is an old name for a port in Jamaica.

The term *bottle-arse* is interesting! It almost certainly refers to the swollen abdomen of a replete, blood-fed female *Simulium* or ceratopogonid.

Cassidy (2007, p. 292) quotes a portion of that text from Sloane (1725) and then continues:

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3 Jan Meerman (*in. litt.*,7 June 2010, wrote: "From what I have been told, the name *botlass* is a corruption of "bottle ass" referring to the bottle shaped swollen abdomen of the feeding insect."

4 John Davies (*in. litt.*, 10 May 2010) wrote: "There could be a problem of confusion where the locality is near a beach, as in the quote for *Culex niger minor*. This is an excellent description of the day-biting ceratopogonid *Leptoconops bequaerti*, which has a vicious bite, and is associated with coral sand beaches. The bite leaves a classic red inflamed spot with a drop of blood in the centre, just like a blackfly bite. It itches for days after. Unlike most ceratopogonids *L. bequaerti* has a jet black thorax, and yellow abdomen which when at rest or feeding is obscured by milky white wings". And, interestingly, on an Internet discussion group devoted to Belize matters, I have seen the term *batlas* used for sandflies in Jamaica.

5 "Sir Gilbert Blane states 'when the ships watered at Rochefort (Jamaica), they found that, if they anchored close to shore, so as to smell the land breeze, the health of the man was affected; but upon removing five cables' length, no inconvenience was perceived'." (Parkin 1873, p. 68). I cannot find this port in any online gazetteer.

> Another writer elaborated: "bottle-arses is a small Fly with a large Breech; they are chiefly in the Country; they will suck the Blood where they fasten till they are full." This name alone of the three survives today, though in an obscured form: its folk pronunciation is /batlas/ or /baklas/, but the composition of the word has been forgotten.

The "Another writer" is Dodd (1740).

So, if Cassidy (2007) is correct and *batlas* is a Creole corruption of "bottle-arses", then the Belizean name *botlass* is also, and perhaps a more credible, Creole corruption of "bottle-arse". I also hypothesise that the evolution of "bottle-arses" to *botlass* may have been facilitated by the Spanish *botellas* — "bottles".

The biology of the Simuliidae of Belize is poorly known and the fauna, based on the latest review (Shelley *et al.* 2002), seems somewhat depauperate, possibly reflecting inadequate surveys (for example, Shelley *et al.* report not a single record from Orange Walk District, the large, still mostly forested region in the northwest, where blackflies, based on my own experience, are abundant). Many Belizeans, intimately familiar with adult botlass flies, are unaware of where the larvae and pupae are to be found or why these flies take a bloodmeal. And nothing is known of the possible role that blackflies may play in disease transmission in Belize — among humans or birds, mammals, reptiles and amphibians.

Of the dozen or so species of *Simulium* in Belize, two (*S. quadrivittatum* and *S. metallicum s.l.*) are viciously anthropophilic and are widespread in the country. Jan Meerman (personal communication) confirmed my own Belizean experience that *botlass* is used generically for all species of *Simulium* that bite man.

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# The British Simuliid Group Bulletin

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The British Simuliid Group Bulletin is an informal publication intended to disseminate information about the Simuliidae. It is published twice each year and is distributed free to all members of the British Simuliid Group.

Content covers papers presented at the Group's Annual Meeting, which is usually held in September, short research notes, notices and accounts of meetings, and articles of anecdotal or general interest that would not normally be found in international journals. Geographical cover is world-wide, and is not restricted to the British Isles. Reports of research carried out by graduates, young scientists and newcomers to the subject are particularly encouraged. It is an ideal medium for offering new ideas and stimulating discussion because of the very short interval between acceptance and publication.

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## THE BRITISH SIMULIID GROUP

The British Simuliid Group (BSG) is an informal gathering of scientists of any discipline, from many countries, who have an interest in the Simuliidae. The group's members include entomologists, parasitologists, environmentalists, ecologists and medics, with interests in ecology, bionomics, taxonomy, cytotaxonomy, disease transmission, freshwater biology etc. Our aim is to assemble as diverse a group as possible in order to encourage a wide interchange of ideas and information.

At present the BSG has about 130 members in the UK, Europe, Africa, Australia, New Zealand and the Americas. Membership is FREE - if you are not already a member of the BSG all you have to do is give us your name and postal and e-mail addresses. Annual meetings have been held at different locations in the UK since 1978. Abstracts of papers presented are published in our Bulletin which is sent to all members of the group.

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