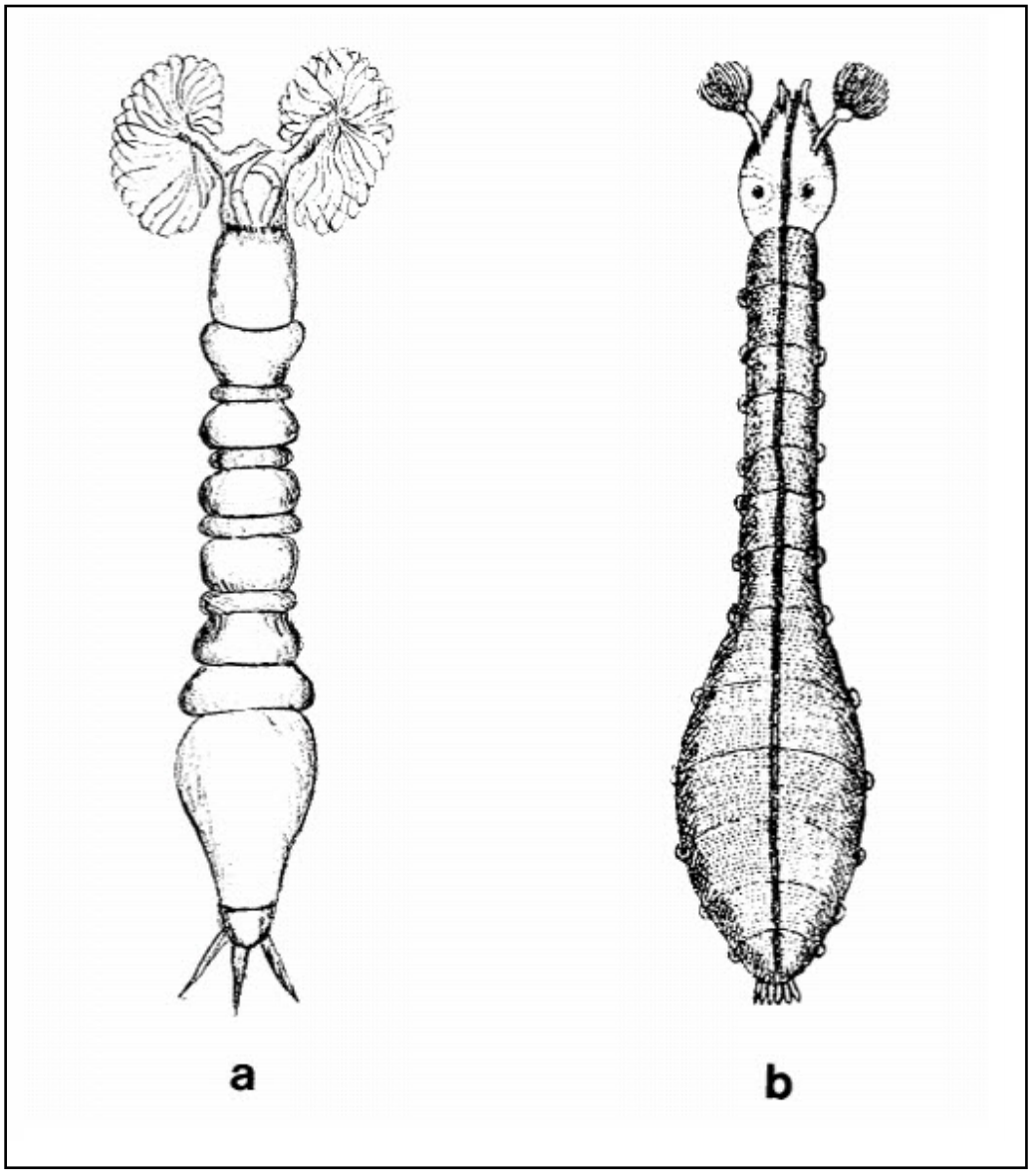
The British Simuliid Group Bulletin



NATURAL HISTORY MUSEUM

THE BRITISH SIMULIID GROUP BULLETIN

Number 30 July 2008

CONTENTS

The British Simuliid Group Bulletin

ISSN: 136 333 76
DSC Shelfmark 2424 100000n

Editor: John B. Davies
Liverpool School of Tropical Medicine, Pembroke Place,
Liverpool, L3 5QA, UK.
E-mail: *daviesjb@liverpool.ac.uk*

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.

Published and distributed by
The Department of Entomology
The Natural History Museum, Cromwell Rd, London SW7 5BD
www.nhm.ac.uk

The British Simuliid Group Bulletin is issued in simultaneously available identical copies for permanent scientific record and conforms to the requirements of the International Code of Zoological Nomenclature.
Layout and Design by John C. Day

FROM THE EDITOR

This thirtieth number of the *Bulletin* contains the provisional programme for the 3rd International Simuliidae Symposium to be held in Vilnius, Lithuania in September this year. This is an event which is growing in popularity as evidenced by the number and variety of papers being offered, and is a sure indication that "simuliidology" is not dead.

Sadly, there is an obituary for Hugo Jamnback who died earlier this year. Although Hugo was not a member of the British Simuliid Group, he was well known to many of our members, and had collaborated with quite a few, particularily in relation to the monitoring and control of *Simulium damnosum* in West Africa. Another great loss to science.

Members come and go, so it is with pleasure that we welcome two new members Peter Enyong and Alfons Renz, both well known and established experts on blackflies and onchocerciasis.

David Baldry has written from France saying how much he enjoyed seeing the photo montage of those who attended our last meeting in Oxford 2007 as it contained many old colleagues that he had not seen for years. He suggests that we should publish similar montages of members from time to time. As editor, I have no objection, but it is up to members to send me photos of themselves for inclusion. If you wish to have your photo published in the *Bulletin*, please send a copy to me, the Editor, as a picture file at e-mail address **daviesjb@liv.ac.uk**. When I have received enough I will compile and publish a montage.

John Davies

IN MEMORIUM

Hugo Andrew Jamnback 1926-2008

Hugo Jamnback (Plate 1.) died March 27, 2008 at Great Neck, New York following a courageous battle with Parkinson's disease. He was 81 years old.

Born on September 18th 1926, in Massachusetts, he was educated at Fitchburg High School. Following service in World War II in Germany he was educated on the GI Bill, obtaining a BA from Boston University (1949) and his PhD in medical entomology from the University of Massachusetts at Amherst (1953). He worked for over 20 years as a research scientist for the New York State Education Department and served as the Director of Science Service at the New York State Museum.

In his role as Director (1970-1981) he oversaw a staff of over fifty scientists and technicians, these concerned with research on medically important arthropods or with geological and archaeological surveys. Such responsibility made him more office bound than was ideally to his taste, for Hugo was a hands-on scientist happiest when he could escape to the field laboratory that he had set up at Cambridge, a few miles north of Albany, or on some overseas consultancy.

He retired from this New York State position at age 55 to move to West Africa to work on onchocerciasis control. During his career, he was a frequent consultant to the World Health Organization and the Blue Nile Group in Africa, the Middle East and Central America. Hugo published over 50 papers on biting flies and related arthropods of medical importance and was a well respected expert in the biology, ecology and control of blackflies.

Hugo was interested in blackflies from early on, as his M.Sc. and Ph.D. theses were both on the subject. He probably first came to prominence following the publication (with D.L.Collins) of “The Control of Blackflies in New York” in 1955. Work which gained him the gratitude of residents of the Adirondack Mountains where blackflies were a serious seasonal pest. The need for accurate identification drew Hugo into taxonomy and an important work (with Alan Stone, also in 1955) was “The Black Flies of New York State” issued as Bulletin 349 of the New York State Museum. He was one of the early proponents of aerial larviciding, and devised a neat method of regulating dosage by flying across the river so that the quantity of insecticide entering the water was governed by the river’s width. He also developed an extensive trough system, fed by river water, for use in testing insecticides. The system was used to screen formulae, dosages and duration of contact, as well as testing the effect of biological agents such as

mermithids, and microsporidia.

It was this aerial spraying experience and testing work that interested the fledgling WHO Onchocerciasis Control Programme in West Africa, promising the possibility of controlling *Simulium damnosum* over a large area from the air. He was invited to the USAID/OCCGE/WHO technical meeting on the feasibility of onchocerciasis control, Tunis, 1968, and undertook a number of consultantships, resulting in some important reports (for example, Jamnback, 1967, Jamnback et al. 1970), that influenced the eventual control strategy and culminated in a year spent in Lama Kara, Togo, West Africa, setting up a larvicide testing laboratory.

To the British Simuliid Group Jamnback's name is most associated with his part in field and laboratory research on blackflies but in reality Hugo was a classic all-rounder in medical entomology. As a consultant his expertise took him to varied places (including Mauritania, Senegal and Pakistan) where the impact of irrigation and hydropower schemes on vector-borne disease was in need of assessment. Nearer home was his work on non-simuliid noxious insects in New York State, particularly *Culicoides* - on which he produced a 150-page monograph in Bulletin 399 of the N.Y. State Museum.

Among the diverse matters he investigated were control of chironomids, sampling methods for salt-marsh tabanids and surveillance for arbovirus transmission by bloodsucking Diptera. This broad experience made Hugo an excellent catch to monitor other people's papers and for ten years he was Associate Editor of *Mosquito News*. Formal retirement from the New York State Science Service came in 1981, but Hugo's devotion to science remained intact - albeit considerably redirected. In 1985 he joined the apiary programme of the Division of Plant Industry in the New York Department of Agriculture. Here there was a new laboratory dealing with honey bee pathology. Of great concern was the spread of the varroa mite, a matter that involved Hugo in visiting beekeepers around the State - an activity he enjoyed because it got him back into the field. From 1985-1991 he prepared all the apiary Annual Reports for New York State.

Hugo was second generation American. His grandfather, John Jamnback, came through Ellis Island as an immigrant from Finland and, like many with a Finnish background, settled in the Fitchburg area of northern Massachusetts. Hugo and his wife Lois, also from the Finnish community, could speak the language, an ability that proved handy when they wanted to talk to each other whilst keeping a third party - a car salesman, say - in the dark! With Hugo, humour was nearly always to the fore, especially if he could take a swipe at some American snafu. In the '60s, when Cape Canaveral was having trouble with its rockets, it was (said Hugo) because they were civil servants - they don't work and you can't fire 'em. Good-humoured mockery was a Hugo speciality, especially when it came to the British. Spending a year in England (1966) doing the Diploma in Applied Parasitology and Entomology at the LSHTM Hugo became imbued with English

idioms which afterwards he would trot out, in an exaggerated way, when in the company of British colleagues. His favourites were 'get cracking' and 'must press on' and he was so enamoured of the latter expression that he adopted it as an Americanism.

When Hugo spent a year in London doing the DAPE he brought his family with him, wanting his children to have the experience of schooling in another country. In this and other ways his outlook was international, yet he was ambivalent about travel. He would undertake long-range overseas journeys, such as those to West Africa for WHO, and to Tehran (1968) for the international Congress of Malaria and Tropical Medicine, but saw no point in travelling within the USA unless obliged to for family or other reasons. Asked if he would not like to travel in the American West he answered - no, he'd once been to California and that was enough! His property at East Berne, N.Y., was where he most liked to be. Here, in 1961, within commuter range of his professional base at Albany, he bought a property of 127 acres with a semi-derelict farmstead 'thrown in'. Hugo had a talent for anything practical and, mainly by his own hands, the old farmstead became before long a habitable home. He erected outbuildings, excavated a lake for skating, fishing and swimming, established an enormous vegetable garden, shot deer on his estate (very necessary to protect his crops), and built a sauna in the Finnish style. With land to spare he tried growing Christmas trees but this venture was not very economically successful, rather a source of great fun for families coming to cut their own trees while enjoying Lois' Christmas cookies and today stands as a forest reminder of his conservationist ways. Hugo's day, before heading to his downtown office, typically began with inspection of how some project was doing, for example how his sweet corn and asparagus were coming along. The other end of the day called for consumption of what was Hugo's everlastingly favourite tipple, a Martini. To be treated to one of these made by Hugo himself, the master Martini-maker, the flavours subtly blended and the cocktail shaker expertly used, was an experience not to be missed - and one to be recalled with pleasure (as Hugo would wish) by those who had known him at his home in East Berne. Aside from science, Hugo was involved in the local community, serving on the Board of the local High School, including a term as President in 1976.

He was predeceased by his wife Lois in 1995 and on behalf of our members we wish to express condolences on Hugo's death to his 3 children (Lisa Jamnback, Tina Jamnback Walch and John Jamnback) and their families.

References

Jamnback, H. and Collins, D.L. (1955). The control of blackflies (Diptera: Similiidae) in New York. *New York State Museum Bulletin* 350: 1-113.

Jamnback, H. (1964). Description of a trough testing technique useful in evaluating the effectiveness of chemicals as black-fly larvicides. WHO

mimeograph documents WHO/Oncho/28.64 and WHO/VC/96.64. Geneva 4pp.
Jamnback, H. (1973). Recent developments in control of blackflies. *Ann. Rev. Ent.* 18: 281-304.
Jamnback, H., (1976). Simuliidae (Blackflies) and their control. WHO mimeograph document WHO/VBC/76.653. 61pp.
Jamnback, H., Duflo, T., and Marr, D. (1970). Areial application of larvicides for control of *Simulium damnosum* in Ghana: a preliminary trial. *Bull. Wld. Hlth. Org.* 34: 405-421.

J.B. Davies Editor – Compiled from information and text provided by R.W. Crosskey, D. Molloy and Tina Jamnback Walch.

Plate 1. Hugo Jamnback (Photograph by Tina Jamnback Walsh).

MEETINGS

The 3rd International Simuliidae Symposium

2008

Academy of Sciences, Vilnius, Lithuania

The 3rd International Simuliidae Symposium, including the 29th meeting of the British Simuliid Group and the 7th European Simuliidae Symposium will be held in Vilnius in 9-12 September, 2008.

The Symposium will be held at the Academy of Sciences, Gediminas Ave. 3, in the center of Vilnius, the capital of Lithuania. Lithuania has been a member of EU since 2004. The Symposium will embrace all areas of black fly research. The official language of the Symposium is English. Those proposing to attend are asked to register by completing the form available on the website or by contacting the Organising Committee.

For more general tourist information consult the web pages at *www.travel.lt* and *www.vilnius2009.lt* or for the latest symposium information, the meeting's site at: **www.entomologai.lt/simuliidae2008.**

Rasa Bernotiené

Organising Committee of the 2008 Simuliidae Symposium**.**
Institute of Ecology of Vilnius University, Akademijos 2, LT- 08412, Vilnius, Lithuania. E-mail: rasa.bernotiene@biopolis.lt

The 3rd International Simuliidae Symposium

Provisional Programme
(as of 20th June 2008)

Tuesday 9th of September

Arrival of the participants
19.00 – 21.00 - Registration. Welcome party.

Wednesday, 10th of September

9.00	**Opening of the 3rd International Simuliidae Symposium**	
9.30	M. Car (Austria)	The history of Symposiums (the film)
	J. Davies (UK)	On the British Simuliidae group activities
	N. Becker (Germany)	On EMCA activities
10 15	P. Adler (USA)	World Perspective on the Simuliidae
10.45	**Coffee**	

FAUNA AND DISTRIBUTION I

11.05	A. Renz (Germany)	Blackfly biology (the film)
11.20	M. Car, W. Lechthaler (Austria)	Blackfly (Diptera, Simuliidae) Communities of the Waldviertel (Austria) along the Czech border
11.40	D. Illéšová, J. Halgoš, I. Krno (Slovakia)	Preliminary title: Blackfly assemblages (Diptera, Simuliidae) of the Hron River tributaries
12.00	A. Ignjatovic Cupina, D. Petrić, M. Zgomba, M. Trbojevic, D. Marinkovic, A. Konjevic (Serbia)	Black flies of the Danube river in the region of Novi Sad (Vojvodina, Serbia)
12.20	V. Stloukalová (Slovakia)	Black flies of Canary Islands
12.40	B. Malmqvist (Sweden)	The Swedish blackfly fauna, most speciose in Europe
13.00	**Lunch**	

CONTROL AND ECONOMIC IMPACT I

14.00	D. Werner (Germany)	Mass occurence of black fly populations in Europe
14.20	E. Wegner (Poland)	Possible reasons of blackfly (Simuliidae) outbreaks observed during last decade
14.40	E. Issakaev (Kazakhstan)	Blackflies of river Irtysh middle stream and the experience of using the larvicide

		substance for its number regulation
15.10	W. Deschle (Germany)	Short information about our actual black fly control measurements in Germany
15.30	S. Traore, M. D. Wilson, A. Sima, T. Barro, A. Diallo, A. Ake, S. Coulibaly, R. A. Cheke, R. Meyer, J. Mass, P. J. McCall, L. Yameogo, M. Noma, R. J. Post., A. V. Seketeli, U. V. Amazigo	The elimination of the Bioko form of *Simulium yahense* from Bioko: the coup de grace
16.00	**Coffee**	

SYSTEMATICS

16.20	L. M Hernandez (UK)	On the classification of Neotropical Simuliidae
16.40	A. Yankovsky (Russia)	Revision of the type-material of the genus *Stegopterna Enderlein*, 1930 from the found collection of Zoological Institute, Russian Academy of Sciences
17.00	J. Ilmonen, P. Adler (Finland, USA)	Using multiple character sets in the assessment of the species status of blackflies (Diptera: Simuliidae): an example
17.20	**Poster sessions**	
18.00	**Excursion to Vilnius city**	

Thursday 11th of September

FAUNA AND DISTRIBUTION II

9.00	S. Dinakaran (India)	Assemblages of aquatic macroinvertebrates with special reference to Black fly populations of Western Ghats
9.20	Ch. Scheder, M. Pichler (Austria)	Contribution to the knowledge of the blackfly fauna of the Baltic States with special focus on the Estonian islands Saaremaa and Hiiumaa
9.40	J. E. Raastad, Z. V. Ussova, K. Kuusela (Norway, Ukraine)	The blackfly species of Fennoscandia and Denmark
10.00	M. Kúdela (Slovakia)	Black flies of the Balkanian peninsula
10.20	S. S. Caglar, K. Ipekdal (Turkia)	A Biogeographical assessment on Turkish Simuliid fauna
10.40	L. Petozhitskaja, V. Rodkina (Russia)	Estimation of associations with heterogeneous environment and distribution of blackflies in the Altai Mountain region
11.00	**Coffee**	

CONTROL AND ECONOMIC IMPACT II

11.20	Elmer W. Gray, Jay Overmyer, Ray Noblet and Bob Fusco (USA)	The effects of algae on B.t.i. efficacy in blackflies

11.40	R. A. Cheke, R. Meyer, J. Mas, B. Tele, A. Sima, S. Abaga, M. D. Wilson (UK)	The elimination of the Bioko form of *Simulium yahense* from Bioko: planning and insecticide trials + short film
12.00	K. Lehmann (Germany)	Biting strategies and activities by Blackflies (Diptera: Simuliidae)
12.20	A. Krueger (Germany)	The *Simulium damnosum* complex in South Tanzania – cytogenetics meets vector control
12.40	R. A. Fusco (USA)	Will submit at a later date
13.00	**Lunch**	

ECOLOGY AND PHYSIOLOGY

14.20	C. Brockhouse, J. Colbourne, R. Post (USA, UK)	The *Simulium* Genome Project
14.40	D. Petric, A. Ignjatovic-Cupina, M. Zgomba, Lj. Timko, A. Konjevic, D. Marinkovic (Serbia)	*Simulium ornatum* food intake at low temperatures
15.00	R. S. Wotton (UK)	What happens inside the gut of blackfly larvae?
15.20	V. Buda, V. Bauziene (Lithuania)	Importance of chemical stimuli in *Simulium lineatum* (Diptera: Simuliidae) pre-copatory behaviour
15.40	**Coffee**	

PREDATORS AND PARASITES

16.00	D. Werner, A. Pont (Germany, UK)	Dipterean predation on black fly populations in South Africa
16.20	A. Renz (Germany)	The Vectorial Capacity of *Simulium damnosum* s.l. - Parasitological data and mathematical approach
16.40	J. McCreadie, P. Adler (USA)	Landscape approach to black fly pathogens
17.00	**Business meeting**	
19.00	**Conference dinner**	

Friday 12th of September

Excursion to the Grutas Park.

ARTICLE

Double, double toil and trouble
Fire burn and cauldron bubble

Shakespeare, Macbeth IV

The first paper on the Simulium Control Scheme in Nigeria (Crosskey, RW 1958), describes how the larvicide was applied to the river water in an unusual manner: by dissolving heated technical DDT powder in diesel oil over fires on the river bank. Although I was myself involved in the scheme at a later time when the easily applied emulsifiable concentrates were in use, I had never fully appreciated what a tedious and potentially dangerous activity this had been until reading about it in Peggy Crosskey's recently published reminiscences (Crosskey, P. 2007), and I thought that our members might be interested in re-living some of what Frank Walsh has described as the "heroic period" of Simulium control (Walsh JF, 1990). Peggy Crosskey devotes two chapters of her book to describing "river blindness" and *Simulium* control in Nigeria between 1955 and 1959 and describes the method of larviciding that was initially used in the following extract. **JOHN DAVIES**

"It had been decided to apply DDT to the river water in quantities that would result in a concentration of 1 part per million or as close as practicable to that figure and to spread the application of the requisite quantity over a half hour period. In this way the blackfly larvae would be exposed to the larvicide as it passed downstream for a much longer time than if the specified total quantity was simply dumped en masse into the river. Calculation of the right quantity of DDT to use at each treatment, irrespective of which treatment point was involved, depended upon knowing the flow volume of the river immediately before the treatment was made; flow volumes could change quickly even in the dry season if rainstorms occurred and affected river levels. As there were no gauges on the rivers the calculation of flow was a do-it-yourself affair in which we first took five across-the-river depth readings (using the average), then took the width with a graduated rope and lastly, read the flow speed registered on a 'current meter' - our one piece of high-tech equipment. Battery-driven and provided with little buckets spun by the current, it should have simplified life but the device was temperamental and rarely behaved as it should. Another drawback was that the six cells of the battery had to be topped with distilled water from a small pipette (eye-dropper) immediately before use - and that was something 1 found hard to do in a jolting Land-Rover as we neared the treatment point! On smooth stretches of river a timed float was really just as good for assessing the speed. After the flow volume had been estimated and the quantity of DDT to be used had been measured out, the next step - to apply the larvicide to the river - was distinctly

low-tech. Three pairs of labourers were positioned in line across the river with each pair supporting a four-gallon dispensing tin containing the larvicide. Each tin was perforated with a bottom-hole of the appropriate size (made with a six inch nail) that, with plug removed, allowed the larvicide to run out into the river in fifteen minutes. To complete the application time of thirty minutes, a standby labourer refilled the tins for a second run through of larvicide. It was crude, but proved very effective in all the larval control work undertaken at Abuja and later in other places."

"On arriving at Diko we found that the insecticide supply for the first year's larviciding had, as promised by headquarters, been despatched from Kaduna while we were on leave and was now in store in Abuja. This was good news, relieving us of any anxiety about whether we would have the DDT in time to start the larviciding operations as planned at the beginning of March. It was a busy time as only three days elapsed between us moving into the Diko house and heading to Chauma to do the first larvicidal treatment of the programme. It was disappointing, when we took charge of the insecticide, to find that it was not in a liquid water-miscible formulation but was a dry powder. This proved to be insoluble in water and we had to find a way to get the powdered DDT into the rivers in a fluid form. The solution we found was first to mix the DDT powder with diesel oil and then introduce this concoction into the river water at the treatment point. We were fairly sure that this would work, as the diesel oil would flow downstream on the water surface and become intermixed with the river water as it passed over the larval habitat. However, mixing DDT and diesel oil was easier said than done and it was first essential to heat the DDT if the two were to be persuaded to mix (Plate 2.). The heating process could be pretty nasty as the DDT became converted from a pleasant white powder to a molasses-like substance which, over-heated, gave off choking fumes and, under-heated, was liable, when mixed with oil, to form lumps that clogged the holes in the dispensing tins. The procedure was to put the appropriate measured weight of DDT into a head-pan, dig a small pit, make a fire in the pit from bits of wood gathered from around the site, put the head-pan over the fire and keep the melting brew stirred until ready for adding to the diesel oil. (A head-pan is a heavy duty metal dish-like vessel for carrying stones and gravel universally used by the Nigerian road gangs.) Today's health and safety officer would probably have a fit at this seemingly hazardous activity but we used the procedure without mishap at every river treatment in the original larviciding programme of 1956 (a total of 48 treatments) and in the follow-up programme of 1957 (a total of 84 treatments). We would have preferred to use a water-miscible DDT emulsion in 1957 but the Medical Department was then shedding old stock of the powder formulation and we were obliged to use it again. However, for a third annual larviciding programme, in 1958, we were at last supplied with a DDT emulsion and this made the dosing task enormously easier.

1

2

3

Plate 2. Preparing the DDT/Diesel oil mixture 1. Cook over a slow fire. 2 Stir gently. 3. Serve... *Photographs by R.W. and M.E.Crosskey.*

References

Crosskey, Peggy [=M.E.]. 2007. "Knotted Round my Heart. Recollections of life in Nigeria, 1952-1959." Barny Books, Hough on the Hill, Lincolnshire, UK 136pp.

Crosskey, R.W, 1958. First results in the control of *Simulium damnosum* Theobald (Diptera, Simuliidae) in Northern Nigeria. *Bull. entom. Res*. 49 (4): 715-735

Walsh, JF, 1990. Review of vector control prior to the OCP. *Acta Leidensia* 59 (1 & 2): 61-78.

NEWS, VIEWS AND CORRESPONDENCE

The World Inventory of the Simuliidae

The newest edition of the world inventory of the Simuliidae is now available on-line:

> Adler, P. H. & R. W. Crosskey 2008. World Blackflies (Diptera: Simuliidae): A Fully Revised Edition of the Taxonomic and Geographical Inventory. http://entweb.clemson.edu/biomia/pdfs/blackflyinventory.pdf

The inventory covers information known to the authors to have been published before 1 January 2008, and includes more than 2,000 formally named species listed as valid, plus all synonyms and vernacular names, as well as incorrect spellings and misidentifications known to the authors, along with the countries (and often finer scales) of distribution.

Individuals who have authored taxonomic changes or have information about corrections or additions are encouraged to notify Peter H. Adler (padler@clemson.edu).

Blackflies of the Danube

Ladislav Jedlička wishes to advise that the text of the talk he gave to the Novi San Symposium in 2006 has now been published. Anyone wanting a copy may find it at the following reference, or by contacting the author at: Department of Zoology, Comenius University, Mlynska dolina B-1, SK 842 15 Bratislava, Slovenia. (E-mail: jedlicka@FNS.UNIBA.SK).

> Jedlička, L. & Seitz, G. (2008) Black Flies of the River Danube (Diptera: Simuliidae). *Lauterbornia* 62: 93-119.

A New Key to the Italian Fauna

Readers might like to know of a recently published new key to the simuliids of Italy. The reference is as follows:

Rivosecchi, L., Addonisio, M. & Maiolini, B. (2007). I Ditteri Simulidi: nuove chiavi dicotomiche per l'identificazione delle specie italiane con brevi note bio-tassonomiche. *Quaderni del Museo Tridentino di Scienze Naturali* **2**, 148pp. Trento [ISBN 978-88-531-0009-2]

The new key supersedes Rivosecchi's key of 1978 (Fauna d'Italia 13, 533pp, Calderini, Bologna). It is fully illustrated and of help for identification in southern Europe and the Mediterranean area generally as well as Italy and the Italian Islands. No e-mail contact is provided but the given address for Rivosecchi is Corso Trieste 211, 00198, Roma.

MEMBERSHIP NOTICES

Changed address

James Brooks
8 Church Path
Stanford in the Vale
Faringdon
Oxfordshire, SN7 8LS
jandebrooks@tiscali.co.uk

New Members

Dr. Peter Enyong
P.O.Box 618
Kumba
Cameroon

Dr. Alfons Renz
Zoology AG Parasitology
University of Tübingen
Friedhofstr. 73
72074 Tübingen
Germany

CORRECTIONS

While in the printing process, three typographical errors were found. Unfortunately it was too late to make changes to the text, but it has been possible to add a “Stop Press” .

The changes to be made are:

Page 3, line 8.	‘1967’ should be ‘1976’
Page 4, 1st Reference	‘Simillidae’ should be ‘Simuliidae’
Page 5, last Reference	‘Areial should be ‘Aerial’

Please accept the Editor’s apologies.

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.

The Group also runs an electronic news list with the name "Simuliidae" which is now on JISCmail. To join "Simuliidae" send the following command as one line of text in an e-mail message without subject heading- join Simuliidae your-firstname lastname to: jiscmail@jiscmail.ac.uk. Membership of "Simuliidae" does not automatically make you a member of the BSG. You have to join each separately. The Simuliidae list owners are the Hon. Secretary and the Editor of the Bulletin. Recent back numbers of the Bulletin can be viewed on the World Wide Web at URL:

http://www.blackfly.org.uk.

Inquiries about the Group and its activities should be made to John Davies: address inside front cover and e-mail daviesjb@liverpool.ac.uk

Notes for Contributors

To avoid copy-typing, the editor (address above) would prefer to receive contributions on disc or by e-mail, or typewritten. Details as follows:-

1. Via conventional mail on CDRom or IBM PC formatted 720Kb or 1.4Mb 3.5 inch diskettes, as unmodified word processor files (most common DOS or Windows word processor formats are acceptable) or as RTF, PDF, ASCII or DOS text files (We usually have to change pagination and heading format, anyway). Mark the disc with the format, word processor name and file name(s). Complicated tables and figures can be accepted as separate graphics files (not OLE embedded, please!) but we may ask for a hard copy as a check that all detail has been retained. Remember that figures should have legends and small detail drawn large enough to be visible when reduced to 100mm by 70mm. Diskettes will be returned on request.
2. By electronic mail via the Internet. Send your file in MSWord .DOC or in .RTF or .PDF format or as an ASCII file (also known as DOS or txt File), and e-mail it either as part of the message or preferably as an attachment to: daviesjb@liverpool.ac.uk.

If neither of the above methods are available, then post to me printed copy on A4 paper (210x297 mm), single spaced, ready for scanning. Heading styles as in the Bulletin. Format for References is flexible. Please refer to the Bulletin for the form appropriate to your article. Scientific Communications should quote the full title and journal name, but Notes and Abstracts may optionally omit titles and show only the abbreviated journal name.