LIVERPOOL SCHOOL *of* TROPICAL MEDICINE

ANNUAL REPORT
2004-2005

Mission Statement

As a centre of excellence, the Liverpool School of Tropical Medicine, through the creation of effective links with governments, organisations and institutions and by responding to the health needs of communities, aims to promote improved health, particularly for people of the less developed countries in the tropics and sub-tropics by:

- providing and promoting high quality education and training;
- conducting first class research and disseminating the results of that research;
- developing systems and technologies for health care and assisting in their transfer and management;
- providing appropriate consultancy services;

In fulfilling this mission the School also provides a clinical service of acknowledged excellence.

LIVERPOOL
SCHOOL OF
TROPICAL
MEDICINE

Affiliated to the University of Liverpool

Contents

Printed by Printfine Limited Liverpool - 0151 242 0000

Chairman s Foreword

This has been a year of strong progress across the whole School, capped by the recent news that the funding for the urgently needed new building has been agreed. Additionally, €17.5 million has been awarded by the European Union to develop new anti-malarial drugs, and the Bill and Melinda Gates Foundation is making an award of $51 million over five years to develop new malaria and dengue control tools.

The year under review has seen the research base of the School continue to develop very strongly, with research projects covering a wide variety of diseases being funded from different sources — all of which bodes well for the stability and health of the School, and builds on its pre-eminent reputation in combating tropical diseases.

Other spheres of work have also flourished this year. Liverpool Associates in Tropical Health (LATH) is the wholly-owned subsidiary of the School and is its consultancy arm. From its new bigger premises LATH has enhanced its reputation, built up over eighteen years, as implementer of research findings and modern thinking in health development in a great number of countries. Its success has been to provide the professional help needed to put into practice schemes and services with local partners, and also to contribute an unprecedented level of financial covenant to the School. It is indeed a vital and highly respected part of the School Group . Our thanks go to the growing team — as well as all the regular School staff, clinical and non clinical, whom it borrows - and in particular to the LATH Director John McCullough, and to the LATH Chairman Nick Earlam for their astute business guidance of the expanding company.

Clinical services continue to be a highly valued and well used part of the School, both locally and regionally. The famous travel clinic is full to overflowing, and despite recent upgrading, needs more space. The School s clinicians carry out regular ward rounds and clinics on the Tropical and Infectious Diseases wards of the Royal Liverpool and Broadgreen University Hospital where they deal with HIV/AIDs, TB, malaria and other diseases that require their special expertise. A similar service is provided to babies and children at Alder Hey Hospital, and we are proud of our joint working relationship with the NHS, in a world where infections cross all borders and countries.

The £1 million upgrading of the teaching laboratories and lecture theatres, has provided staff and students alike with state-of-the-art multi-media facilities, plus more comfortable working environments. The Nuffield Lecture Theatre, in particular, now has facilities for wheelchair bound persons in keeping with the School s plan to improve access to, and for, disabled persons. Coincident with the new facilities, the School has introduced new courses on humanitarian assistance, and the pioneering one-year Diploma in UK Medicine course, to equip refugee doctors to be able to practise here, has successfully completed its second batch of training. Regrettably, student numbers on some courses have declined, and despite scholarships, it is clear that students from poorer countries are finding it harder to afford to come to Liverpool to study and learn. Over its history the School has trained an enormous number of professionals from all over the developing world, some of whom have risen to positions of great responsibility, many at Government level in their own countries. The reputation of the School has, in large part, been built on this continuous flow of students, and the development of long-term relationships. The management is now undertaking a review of how to continue these relationships in the most effective way, so that we maintain our teaching base in a new climate.

Nevertheless, research is clearly becoming much the largest part of the School s business. We are proud of this much enlarged role the School will play in finding a way to combat the causes of so much ill-health and misery in the developing world, but we also remain committed to our other strands in work: in teaching, technical assistance and clinical services, and we value highly the staff working in these areas, and want to maintain a balance across all spheres of work.

This great expansion is what the Director promised when she started four years ago, and the Trustees applaud her single-minded determination and energetic leadership in bringing it about. She has inspired her team and the staff and we look forward to a vastly better housed and yet more globally famous and useful Liverpool School of Tropical Medicine.

Thanks are due also to the Bursar for much improved clearer systems, financial reporting and management. Trustees, Rob Macfarlane, Chairman of Finance Committee, Simon Sherrard, Vice-Chairman of the Board and Chairman of the Audit Committee have played very important parts in guiding and overseeing these vital aspects of the School s governance; as has William Fulton, Chairman of the Nominations and Governance Committee, in helping to implement the new and streamlined Board of Trustees, following the thorough review this time last year by Lawrence Holden. Modern systems of recruiting new Trustees to the Board, and Vice-Presidents to the School, have been introduced. We are immensely grateful to all who served on the old Council that came to an end at the AGM last December, and to the new Board of Trustees which was inaugurated at the same time. Throughout the changes and all the other exciting new and bigger ventures we are grateful for the very experienced and wise guidance and help from our President, Sir Mark Moody-Stuart, and the Vice-Presidents.

Finally, as the School is the sum of its students and staff, I should like to thank and pay tribute to all of them for their commitment to the great traditions of the School, but also for enthusiastically embracing the great changes and opportunities we now have - to do more and better. The arcticles in this Annual Report give you the chance to learn about a very successful year just gone, and something of the challenges to come.

Rosemary Hawley

Director s Report

This year has been an exciting one for the School. We have continued to develop our research, teaching and technical activities, and we are well on track to achieving our goal of doubling in size over the five year planning period.

The graph below shows our financial growth over the last 10 years (adjusted by the retail price index). This growth has been achieved despite the loss of one of our major DFID contracts, an event which five years ago would have been catastrophic for the School. There have, however, been major successes with DFID, including the renewal of the Effective Health Care Alliance Programme and the Lymphatic Filariasis Elimination Programme alongside substantial DFID contract work generated by LATH.

The next phase of the School s growth has now been secured, with the announcement in late October 2005 of the Bill and Melinda Gates Foundation award of US$51 million to the School for the Innovative Vector Control Consortium. This award, which involves four other academic partners and close collaboration with industry, is spread over five years. It will allow us to develop better public health insecticides and formulations for malaria and dengue control. We will also design and implement a decision support system for malaria and dengue control and produce high throughput systems to monitor essential characteristics of mosquito populations, such as insecticide resistance infection status, that impact on disease control. We are in the late stages of negotiating a 17.5 million European Union award around drug development for malaria prophylaxis and treatment, which will ensure that the School s research portfolio remains balanced.

These two awards, along with the continued buoyancy of research grants from other sources, will allow the School to enter the next major phase of its development with confidence.

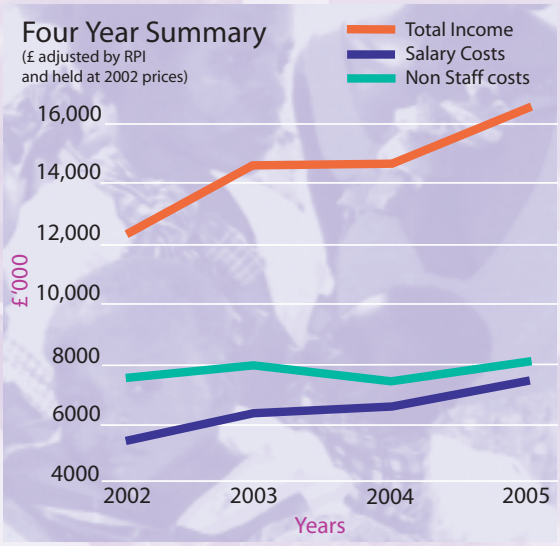
In December the construction of our new building, the Centre for Tropical and Infectious Diseases (CTID), will start. This has been made possible by two major awards from the European Union (ERDF) and North West Development Agency (NWDA), alongside contributions from the University of Liverpool, Liverpool City Council and many private benefactors. The new building will transform the School, allowing it to expand into modern purpose-built premises that reflect its status as one of the premier Schools of Tropical Medicine. We extend our sincere thanks to all those who have contributed to this major undertaking, and look forward to welcoming you to the opening of the new building in mid-2007.

We have seen some staff changes during the year, with a number of longstanding staff retiring. Professor David Theakston has retired as head of the Venom Unit after 40 years in the School and Professor Harold Townson, our senior entomologist, has retired after 42 years. Both will retain active links with the School in their retirement. We have also said goodbye to Dr. Brian Coulter and Professor Marcel Hommel.

New staff joining the School include Dr. Brian Faragher, a Senior Lecturer in medical statistics; Dr. Stephen Gordon, a Senior Clinical Lecturer in respiratory medicine and Dr. Yan Wang, a Lecturer in Community Health.

The coming year is obviously going to be a challenging one for the School. We will strive to get our new major programmes up and running to ensure that they allow us to continue to translate our vibrant research programmes into practical interventions that make a real difference to the control of disease throughout the tropics. I am sure that our staff, stakeholders and supporters will rise to this challenge.

Janet Hemingway



Treasurer s Report

The School has again succeeded in achieving a significant surplus for the year, consolidating its position of the last two years, thus providing an established platform to support the substantial growth expected in the years to come. The surplus, net current assets, and general reserves for the last 4 years' accounts have been incorporated into the figure. All amounts have been adjusted to 2002 prices per the retail price index and show how the financial controls and good practices that were established in recent years have had an effect on the figures.

The current success is predominantly due to the achievements of the School s subsidiary company, LATH. With progressive growth, LATH has been highly efficient in identifying needs and creating effective services that adapt to the ever changing market forces. This is evidenced with the establishment of offices in Africa and the USA. LATH s business projections continue to indicate increasing growth over the next few years.

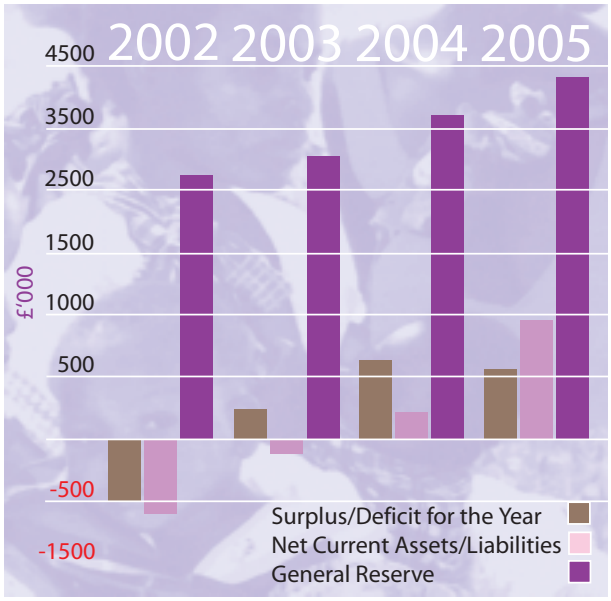
Other factors have also been highly important in the School s performance, with rigorous financial management ensuring that the School is achieving growing surpluses from a tighter market. The loss of some DFID awards has hit margins, since other grants provide lower contributions towards overheads. However, this has been compensated by the additional volume of other research work. The effect of the introduction of Full Economic Costing is also being reflected in Research contracts.

The School has probably achieved the limit of activities from its current location and, although the new research facility should be available in two years time, the School will need to obtain overflow accommodation to sustain its growth during that time.

It is reassuring to report that negotiations with the University regarding the renewal of the lease on the current buildings have been concluded, and the agreement is now subject to legal contract.

The introduction of the new single spine pay structure has had a financial impact during the year and the full effect will be felt in the future, with additional assimilation costs attributed to the new grades costing a further 5% in addition to the annual pay awards and incremental increases. This has had two adverse effects on the School, since the Government sought Higher Education Funding body to fund the extra salary costs from additional undergraduate fees. With no undergraduates the School has had to dig deep to find these additional costs. Similarly the Honorary Consultant Clinicians salaries have also undergone a major transition, with significant increases agreed.
Although parts of the increase are to be funded by the NHS, a substantial amount has to be paid by the School.

Added value is being delivered to financial management with the creation of a Purchasing Unit and a new financial software package to be installed in January 2006. This will allow scientists to concentrate on their work, rather than involving them unnecessarily in bureaucratic systems.

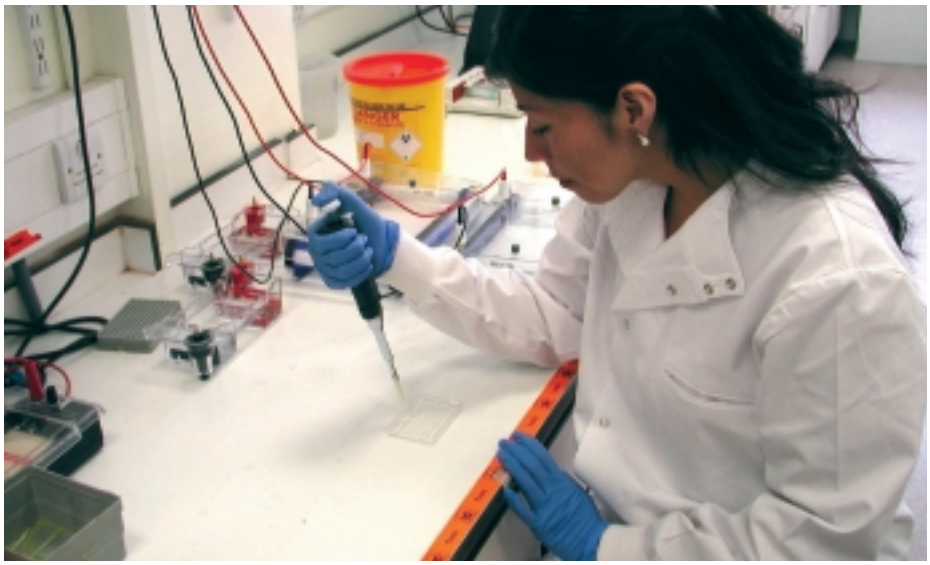


These changes will provide information that may create further savings in years to come, and with the implementation of Full Economic Costing, will be essential for future success.

The year has been dominated by two projects, the imminent capital build to be undertaken on the adjoining plot of land on Pembroke Place and an application for a US$51 million research project with the Bill and Melinda Gates Foundation, which has recently been confirmed.

Rob Macfarlane

Fundraising



The Fundraising Office has continued to successfully obtain donations and grants from a wide array of sources. From the Ministry of Defence to legacies from longstanding supporters, £903,331 was received during 2004/2005.

The School is continuing to maintain contact with its Alumni, with more and more former students becoming supporters and advisors in their specialties.

An appeal for donations of foreign currency is also underway, with a considerable response from staff, students and supporters. This is a permanent appeal and the funds raised will be used to allow the School to react to priorities as they arise.

Specific Projects

Centre for Tropical and Infectious Diseases (CTID)

Having secured the necessary public sector funding the realisation of building the CTID has now been secured. Over £20m is already in place with £730,451 in private donations during 2004/2005. Fundraising continues to support the fitting-out of vital laboratory spaces.

The School would like to thank the P.H. Holt Charitable Trust (£50,000), The Granada Foundation (£10,000) and the Bryan Guinness Charitable Trust (£10,000) for supporting the new building appeal, as well as donors who wanted to contribute to the appeal by leaving the School a legacy: the late Mary Louisa Nutt (£339,991), and the late Mr William Thomas (£36,771).

Student Funding

Securing funds for student course fees and living expenses has been successful, with income for scholarships and funds available for students experiencing hardship doubling since 2003/2004. Thanks to a legacy donation of £60,000 a new scholarship: The Evans Memorial Scholarship, will be established in late 2005.

The Diploma in Medical Practice for the UK, a course that inspires both participants and supporters alike, is continuing to go from strength to strength thanks to support from The Royal Medical Benevolent Fund; The Mercer s Company Charity, and donations from a number of individuals.

A £14,000 grant from The Oglesby Charitable Trust funded three students studying for the Diploma in Reproductive Health in Developing Countries.

Hardship funding has been made available to students thanks to grants from The Gunter Charitable Trust; The World Friendship Trust; The Methodist Church, and some anonymous funders.

Strongyloides Hyperinfection

Dr Geoff Gill s medical research continues to advance thanks to the support from the Ministry of Defence Veterans Unit and The Rufford Maurice Laing Foundation during 2004/2005.

It is with great sadness that the School says farewell to ex-FEPOW Major Brett Collier, who died in March 2005 at his home in Lincolnshire. His active support of Dr Gill s research was very much appreciated by all at the School.

Refurbishment

A grant from The Wolfson Foundation of £300,000 has contributed to the refurbishment work that is on-going at the School. Further funding is being sought to continue with further refurbishment work in the main building.

Donald Mason Library

Thanks to a grant from an anonymous charitable trust the library now has a portable lap-top service available, expanding computer access availability to students. A grant from the Granada Foundation will allow a new Archives Room to be established in the Centre for Tropical and Infectious Diseases.

Legacies

During 2004/2005 the School has received several legacies. This is an increasingly common method of charitable giving and more information on this can be found by contacting the fundraising office see the details below.

A full list of donors during this period can be found in the School s Financial Statements publication.

If you would like more information on how to support the School please contact: The Fundraising Office, LSTM, Pembroke Place, Liverpool, L3 5QA. Or alternatively you can email: william.dean@liverpool.ac.uk or phone 0151 705 3272

Thank you to all of our donors, your support is deeply appreciated.

Above - PhD student Claudia Paredes-Esquivel is investigating molecular population genetics of malaria vectors, thanks to a grant from the Gunter Charitable Trust.

How DNA techniques taken from forensic medicine are helping us to identify the guilty mosquitoes

Diseases carried by mosquitoes are responsible for over a million deaths each year and some of those infected are left with permanent disabilities. The most important of these diseases is malaria and its impact on development in the tropics is immense. We know that effective malaria control can bring not only better health but also help kick-start economic growth, as seen by the major regional development programme in areas of Mozambique and South Africa once ignored by investors.

Control of the mosquito vectors has played a crucial role in these programmes, yet in some parts of the world technical problems may impede control. Vietnam has developed a highly effective programme, but in some areas of the country, lack of knowledge of the biology of the mosquitoes has hindered the targeting of control. Similar problems occur in Indonesia where, as in Vietnam, several species of mosquitoes may carry the disease. A team at the School has pioneered methods of differentiating these species, enabling control measures to be targeted more effectively against those species of importance.

During the evolution of mosquitoes, nature seems to have followed a conservative design, hence the layman s frequent comment they all look alike to me . Sometimes the similarities between different species pose identification problems even for the expert. The answer to these problems is a technique that has revolutionised forensic medicine, enabling an individual person to be identified from very few cells from their blood, hair or semen. The technique, called the Polymerase Chain Reaction (PCR), is the common tool for these problems. PCR enables minute amounts of the genetic material DNA to be copied to produce many millions of identical copies within a short period of time. All living organisms contain unique sequences of the building blocks of DNA and by exploiting those that are unique for a given species of malaria-carrying mosquito, we have a tool for unequivocally differentiating one species from another. Using this approach it is possible to identify the species using as little as a fragment of a mosquito s leg and in some cases we are able to identify dead mosquitoes that have sat on an entomological pin in a museum for over one hundred years.

In recent years postgraduate researchers from the School, led by Professor Harold Townson, have developed and applied these methods to malaria vectors from countries in the Middle East, the Indian sub-continent and South East Asia. It is pointless having these tools if they cannot be used in laboratories in the malarious regions and the training of our collaborators has been a major objective, with the result that the tools are now in routine use in centres from southern Iran, through India and Sri Lanka, to central Vietnam.

The PCR technique, followed by sequencing of the DNA, not only allows differentiation of species of organisms but also can be used to amplify (copy) DNA sequences that differ between individuals within species (as in forensic medicine). These molecular fingerprinting tools have become indispensable in the study of infectious and parasitic diseases as well as in mosquitoes. Skills acquired with one group of organisms can relatively easily be transferred to another. Using these methods it is possible to look at the relationships between different strains or species of pathogens or mosquitoes, expressed as tree-like diagrams that reflect the evolutionary relationships between strains. These techniques are now standard for diagnosis and studying the evolution of many microorganisms and viruses, including bacteria causing meningitis, HIV - the AIDS virus, hepatitis viruses, and those causing influenza and SARS.

Our team has had a close working relationship with Vietnam for over six years, receiving funding from the Department for International Development channelled through the British Council, the Leverhulme Trust and the UNICEF-UNDP-World Bank-WHO Special Programme for Research and Training in Tropical Diseases. An annual training course organized with colleagues in the University of Science, Hanoi has brought these tools and other modern

Opposite - Representatives of China and South East Asian countries participating in the laboratory training course in Quy Nhon, Vietnam.

Right - Dr. Huang Kim Phuc. His work in Liverpool and in the field in Vietnam led to the development of an assay that identifies malaria-carrying mosquitoes in Vietnam

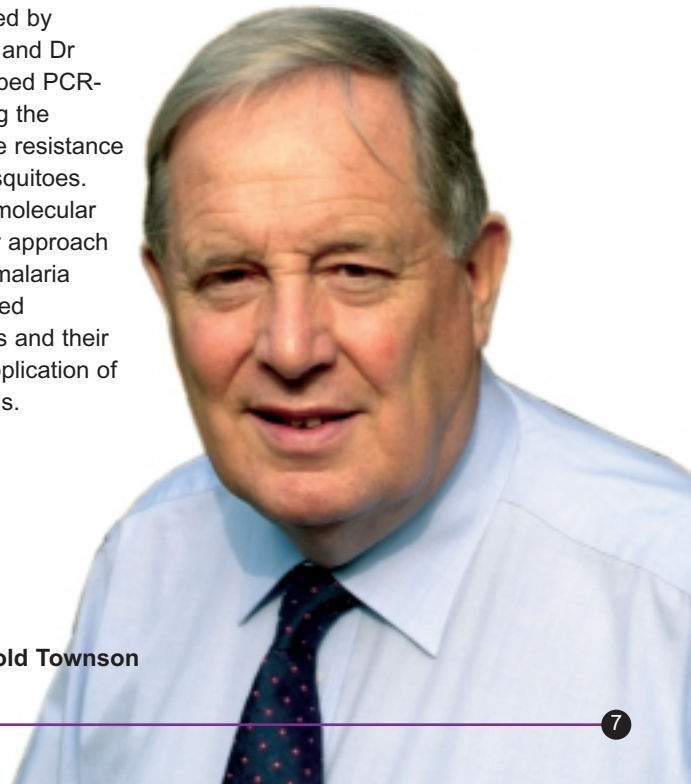
molecular methods into the laboratory in Vietnam. Attendance at these courses has far exceeded expectations. Planning for 40 people attending lectures and 20 taking part in the linked laboratory practical, we have seen lecture rooms packed with over 100 and laboratory sessions with over 40 sharing in the laboratory practical work and subsequent computer-based statistical analysis. Those trained ranged from researchers in malaria and infectious microbial diseases, to those working in food technology. The course in Hanoi in 2003 coincided with the outbreak of SARS in Vietnam, when the precise nature of this virus was unknown and this heightened local interest in the potential applications of these techniques. Subsequently an international group of researchers used broadly similar methods of sequencing and evolutionary trees to show that the virus was a coronavirus, very similar to one isolated from the masked palm civet, suggesting that human infection resulted from an animal virus that became adapted to grow in humans. Now bats have been shown to be natural hosts for this virus. This example vividly demonstrates how essential such techniques are to detective work in infectious diseases.

In March 2005, Harold Townson and Dr Martin Donnelly held a highly successful course in the Malaria Institute in the central Vietnam city of Quy Nhon. This represented a new venture, for not only was it held in a provincial centre but the students on this course came from several countries in the region, including China, Vietnam, Cambodia and Thailand, and included senior staff members from major research institutes in these countries.

Returning to mosquitoes, you may ask what differences have these techniques made to control? The work of Dr Huang Kim Phuc in Liverpool and Vietnam led to the development of an assay that allowed various malaria-carrying mosquitoes species to be identified. Previously, mosquito control units in Vietnam had directed their attentions in areas where malaria-carrying mosquitoes were thought to occur. Phuc s studies showed that some of these efforts were wasted, since they were directed against species that do not carry malaria, and thereby allowed control efforts to be more focused. The work in the School of Dr Manonmani from a research unit in south India, similarly allowed researchers to determine the extent to which mosquitoes that normally fed on cattle would also feed on humans, and hence allowed malaria control teams to redirect their control measures. Our recent research on malaria vectors in Indonesia has shown that even skilled malaria entomologists sometimes confuse mosquito species, making it difficult to determine the most appropriate malaria control measures.

> “A team at the School has pioneered methods enabling malaria control measures to be targeted more effectively, from southern Iran, through India and Sri Lanka, to central Vietnam”

Other teams in the School, led by Professor Janet Hemingway and Dr Hilary Ransom, have developed PCR-based methods for identifying the different genes for insecticide resistance in natural populations of mosquitoes. In just over ten years these molecular tools have revolutionised our approach to the complex problems of malaria control. The new Gates-funded initiatives in mosquito vectors and their control are set to take the application of DNA technology to new levels.



Harold Townson

Flies on everything: new applications for old insecticides

Although the control of vector-borne diseases is not always dependent on them, there is no doubt that insecticides have reduced the numbers of cases of malaria, onchocerciasis, leishmaniasis and other diseases worldwide over the past 50 years. For the foreseeable future, insecticides are likely to continue to be the mainstay of vector control. Appropriate use of any insecticide is essential for many reasons: to avoid inadvertent poisoning of humans or livestock, to avoid contamination of the environment, to target only pest insects, to avoid the killing of other, potentially beneficial, insects, of course, to slow the chances of resistance developing in the target insect as much as possible. The search for new insecticides continues, but here at the School Philip McCall and colleagues are looking at new ways of deploying existing ones.

The successful use of insecticide-treated bednets (ITNs) for the prevention of malaria has demonstrated how simple such strategies can be. Here, a basic mosquito net is treated with insecticide to turn it from a simple barrier into a deadly trap that kills any mosquito that lands on it, and tries to bite the sleeper through it. This method is now used widely across Africa to prevent malaria being transmitted to millions of people, and has been shown to also kill mosquitoes that carry filariasis, the other insects that carry leishmaniasis and Chagas disease, cockroaches, bedbugs and other household pests. But could it be effective against other vectors?

Relapsing fever is an often fatal infection transmitted by the soft ticks that live in the floors of houses in much of east, central and southern Africa. In some infested areas, sleepers can be bitten dozens of times per night and the risk of infection is very high. With William Kisinza and Alison Talbert in Tanzania, we have been investigating whether or not ITNs might prevent biting, eliminate household infestations of ticks and prevent transmission of relapsing fever. The study finished earlier this year and results are encouraging, indicating that ticks are highly susceptible to interventions of this kind. We hope to complete and publish our conclusions in early 2006.

So far, all of the successful applications to date have been against night-biting creatures, most of which are active within the home. What about other pests, like the diurnally active *Aedes aegypti*? These mosquitoes transmit dengue and the more serious dengue haemorrhagic fever, dengue shock syndrome — a rapidly spreading virus, common in Asia and now spreading in South America — and yellow fever, and are active by day, biting people both inside the house and in the areas around the house. How might insecticide-treated materials be used to attack this mosquito? With Elci Villegas in Venezuela and Manuel Ochoa in Mexico, Audrey Lenhart, Axel Kroeger and I have been looking at how insecticide-treated window curtains and covers for water containers can affect populations of *Aedes* and reduce dengue transmission. Results of these trials have indicated that these interventions, either separately or in combination, will prove very effective in reducing numbers of

Above - An insecticide-treated bednet protects both the sleeper within, as well as other members of the community outside, from biting by the vectors of malaria, lymphatic filariasis and other diseases. Finding ways to improve the efficiency and prolong the lifespan of this simple and effective intervention is a major challenge for researchers in tropical medicine today.

Above - A corner of a traditional house at Mvumi, in central Tanzania, where huge numbers of soft ticks can reside. Could insecticide-treated bednets prevent ticks from biting the sleepers within the house?

Aedes in the household and may even exert an effect beyond the treated household itself. Which of the two methods will prove best is likely to vary from place to place, depending on the biting and egg-laying behaviour of the mosquito in each area. We intend to pursue these studies further, with new trials beginning in early 2006 in Venezuela and Thailand.

Finally, a number of students have been looking in detail at how ITNs affect the behaviour of mosquitoes as they try to locate their human hosts. In particular, Amy Lynd has been working, both in the insectary in Liverpool and in the field in Kenya, to shed light on how malaria mosquitoes approach a sleeping person inside a treated net. Her early results look very promising and indicate certain consistencies in mosquito behaviour. Using as bait a succession of volunteer colleagues who must sleep inside a bednet for hours at a time, Amy has been trying to characterise mosquito behaviour at the net interface. We hope this work will yield some interesting insight in 2006.

Although we have a number of insecticides available for the prevention of vector-borne disease, they all have a limited lifespan. With little chance of new insecticides replacing the existing few in the next ten years, our research aims to

> “In the some infested areas, sleepers can be bitten dozens of times per night and the risk of infection is very high”

Above - A *Tapatanque* (or tank-top !) in northern Venezuela. This insecticide-treated material prevents dengue mosquitoes from laying their eggs in the water within, while the mesh centre allows rainwater to continue to fill the container. This intervention was popular with local householders, who valued the *tapatanques* and welcomed the intervention.

extend the life of such insecticides by finding new roles for them. We hope this research will yield new ideas that will be put into practice within 5 years.

Phil McCall

African Sleeping sickness — a neglected killer

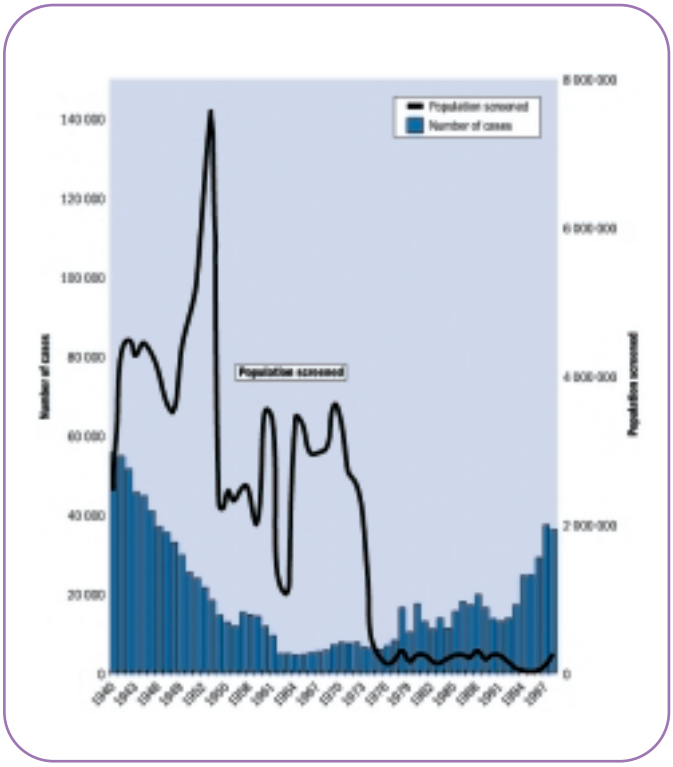
Tsetse flies are the vectors of the trypanosomes which cause African sleeping sickness in humans and the disease nagana in African domesticated animals. Human African trypanosomiasis (HAT) is endemic in 37 sub-Saharan African countries covering 9M km^2 (a third of Africa's total land area) with 60 million of the 400 million people inhabiting these areas at risk of the disease. After a devastating outbreak of the disease at the beginning of the twentieth century sleeping sickness virtually disappeared from Africa in the 1960's and scientific and donor interest waned. But this was a complacent view. Sleeping sickness rebounded and Africa is now in the middle of another HAT epidemic. Although not reflected in the officially reported cases it is estimated that in 2004 there were approximately 500,000 cases with 48,000 deaths and an impact of 1.53M DALYs (disability adjusted life years). The breakdown of surveillance, allied to displacement of populations by war and natural disaster, are contributory factors to this new epidemic and present a continuing challenge.

Two different parasites cause HAT. *Trypanosoma brucei gambiense* is found in foci through large areas of Central and West Africa. *Trypanosoma brucei rhodesiense* has a much more limited distribution with foci in East and South East Africa. *T. b. gambiense* causes a chronic illness which may only become obvious after months or years of infection, and when it does become obvious the disease is already in an advanced state. *T. b. rhodesiense* causes an acute infection, appearing a few weeks after transmission. In the case of both parasites the later stages of the disease occur when trypanosomes invade the central nervous system and the classic signs of the disease appear, confusion, sensory disturbances and poor co-ordination with the classic symptom, disturbance of the sleep pattern becoming obvious. Unless treated, the disease is inevitably fatal and treatment after the appearance of neurological symptoms is difficult. A recovered patient is still likely to have long term damage to the CNS.

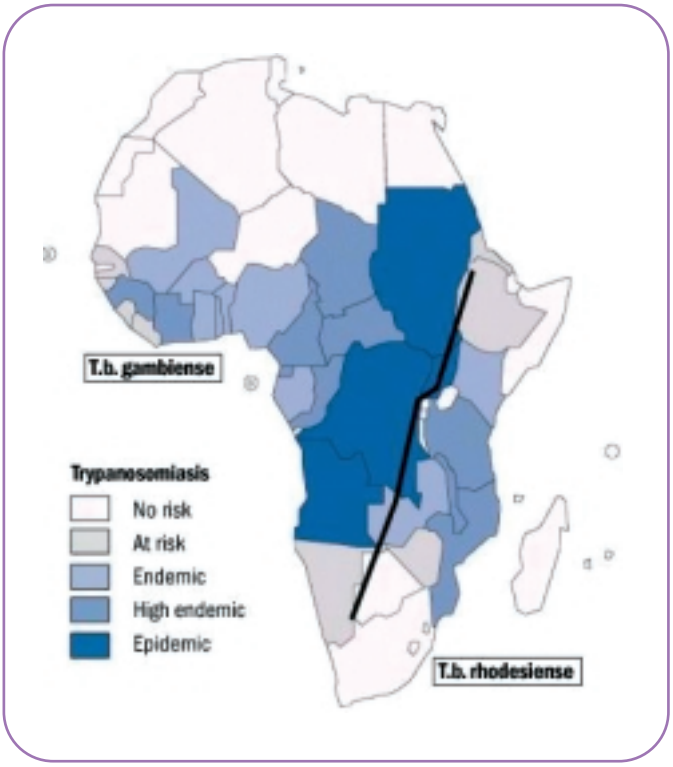
Antigenic variation in the trypanosome makes it unlikely that an effective vaccine will be produced in the short to medium term at least. In consequence, control of HAT currently relies on active case detection (gambiense-form) followed by drug treatment of infected individuals, control of the reservoir in domesticated animals (rhodesiense-form) and vector control. Vector control is becoming increasingly important because drug treatment of HAT is in a parlous state. Melarsoprol, an arsenical drug, has been used as first-line treatment for late-stage HAT for several decades. The drug is dangerous in its own right producing a commonly fatal reactive encephalopathy in 2-12% of patients. In addition, the trypanosomes are becoming resistant to the drug with 20% of patients not responding to Melarsoprol in this epidemic. There have been concerns over the continuing manufacture of other drugs such as eflornithine which caused an international outcry. It is unlikely that any new drug will be registered this decade although, thankfully, Gates Foundation funding has placed new drugs in the pipeline.

Vector control, based on insecticides, targets and traps will remain a major and essential element of African trypanosomiasis control, particularly in the veterinary field, for the foreseeable future. The crucial importance of vector control means it is essential that it is supported by a strong scientific base but unfortunately the number of laboratories working on tsetse flies has drastically declined since the 1960 s with probably

Above - Typical target to help protect animal populations from nagana.



The number of reported cases and the number of the population screened 1940-1998. W.H.O.



The distribution of the two forms of sleeping sickness in Africa in 1999. W.H.O.

less than a dozen laboratories worldwide actively engaged in the field. In collaboration with Serap Aksoy in the USA and with start up funding from W.H.O., the Wellcome Trust and NIH we have initiated an International Glossina Genomics Initiative (IGGI). We believe that a fully sequenced genome will make a very significant contribution to current and future vector control efforts and in the regeneration of a supporting scientific base. Along with the Wellcome Trust Sanger Institute in Cambridge we have made significant progress with this work with approximately 80,000 expressed sequence tags (EST) now available in the databases and more in the pipeline. We have now made bacterical artificial chromosome (BAC) libraries which will form the foundation of the genome initiative and are hopeful that in the foreseeable future a full genome will be available to attract new investigators back to this important area of research.

Mike Lehane

> “The number of laboratories working on tsetse flies has drastically declined, with probably less than a dozen worldwide actively engaged in the field”

Irrigation and malaria . Historical overview .

> An unintended impact of agriculture was that whilst it provided increased food security, it provided numerous habitats in which the malaria vectors could breed

It is a widely held belief that the agricultural revolution in sub-Saharan Africa (approximately 10,000 years before the present) facilitated the spread of malaria and resulted in its continent wide distribution. The logic behind this idea is that it is unlikely that pre-Neolithic human populations were large enough to drive the evolution of a mosquito with a predilection for human blood. However, once such a voracious predator had emerged, named *Anopheles gambiae*, transmission of the malaria causing *Plasmodium* parasite was greatly facilitated, resulting in high levels of transmission.

A second unintended impact of agriculture was that whilst it provided human populations with increased food security and allowed them to flourish, it provided numerous suitable habitats in which the *Anopheles* malaria vectors could breed. This situation was only worsened when man devised ways to overcome his reliance on unreliable rain-fed agriculture and began to irrigate crops. At present sub-Saharan Africa is experiencing rapid population growth and irrigated agriculture is being promoted as a means of increasing yields. This development could, if improperly regulated, further increase the burden of malaria on the most vulnerable groups in sub-Saharan Africa. Public health concerns connected to agricultural developmental projects are often a low priority amongst foreign governments, international donor organizations, the agricultural sector and indeed end-users. Neglecting these concerns can result in a failure to obtain the full benefits of the development.

A classic example comes from Egypt where the building of the Aswan Dam in 1968 created a reservoir, the second largest man-made lake in the world at 480 kilometres long and 5200 square kilometres in area, that facilitated the development of extensive irrigated areas. This irrigated land provided an ideal breeding site for mosquitoes and when large numbers of people moved in from areas endemic for malaria, an epidemic of malaria and of the mosquito-borne Rift Valley Fever ensued. The irrigation of rice in particular, is closely associated with malaria vector breeding as the rice plants are commonly grown, at least partially submerged in water. However, although rice irrigation often leads to increased breeding of vectors, epidemiological studies have shown that this does not necessarily lead to an increased malaria incidence. This counter intuitive finding, known commonly as paddies paradox , is thought to be due in part to the greater wealth of communities living around irrigation schemes who are able to spend more on malaria prevention and treatment.

Within the Vector Research Group there are a number of researchers who assess the likely risks to human health posed by irrigated agriculture, and develop ways to ameliorate any impact. The majority of this work has been conducted in association with the International Water Management Institute. IWMI (www.iwmi.cgiar.org) is a non-profit scientific organization funded by the Consultative Group on International Agricultural Research (CGIAR). The Institute concentrates on water and related land management challenges faced by poor developing world communities. Through our collaboration

Above - Farmer transplanting rice. During this early growing period, rice paddies are ideal breeding places for malaria mosquitoes.

Above - Heavily salinised land in the Punjab, Pakistan resulting from irrigation using poor quality groundwater

with IWMI we are able to target our research findings to a large range of actors including the scientific community, policy makers, project implementers and individual farmers. This partnership is the key to the success of this work as it facilitates dialogue between communities in endemic countries and researchers from the agricultural and health sectors.

This work has been ongoing since 1995 when studies were conducted in Pakistan to determine the impact of elevated water tables, resulting from extensive irrigation, on malaria prevalence. Eveline Klinkenberg, a joint LSTM/IWMI researcher, has been investigating historical changes in malaria presence and mosquito species composition in the Pakistani Punjab. A shift in the predominant species occurred during the 1980s when *Anopheles stephensi* increased in prevalence and became more common than *A. culicifacies*. This change was probably due to the large-scale ecological changes that took place in the Punjab, where irrigation-induced waterlogging of soil and related salinization created an environment favourable for the more salt-tolerant *A. stephensi*. Some biotypes of *A. stephensi* are suspected of being less efficient vectors and, therefore, the shift in species dominance may have played a role in the reduced transmission in the Punjab, although further research is needed. What this work suggests is that the links between irrigation and malaria are anything but simple.

Work now focuses on irrigation in urban areas of Africa where populations are growing at a rate of 3.5%, more than three times that of the rural population, and it is estimated that, by 2025 50.7% of the African population will be urban. Irrigated urban agriculture is being promoted as a means of increasing food security, improving nutrition and alleviating poverty, but may also create breeding habitats that could increase malaria transmission in cities. The first step in the process of quantifying the impact of irrigated agriculture is to identify those communities that are at risk of malaria, and determine the factors that predispose them to infection and illness.

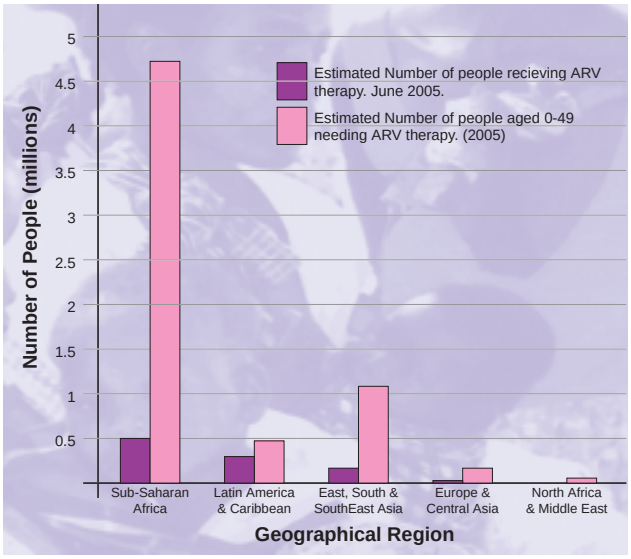
Martin Donnelly

Understanding the Social Context of HIV and AIDS for a better response

Above - To test or not to test is not the question anymore

The WHO's 3 by 5 initiative is struggling to meet its target of 3 million people on ARV treatment by 2005. In Africa only 11% of those needing treatment are currently enrolled in anti-retroviral therapy (ART). Latin America is doing much better. There is much to be learned about how we can scale up treatment and care services quickly and effectively without compromising service quality. Nor must we lose sight of the continuing importance of prevention. We can only assist countries to make a better response by understanding the social and cultural factors that embed HIV vulnerability contextualising the utilisation of relevant services

The HIV programme has assisted the Global Fund to identify effective strategies for this task and to specify the key indicators and measures for monitoring progress.
The leading international position that the School has developed in training and quality assurance for Voluntary Counselling and Testing is reflected by the number of requests from organisations in Sub-Saharan Africa for tailor-made programmes to suit particular needs. For example, in July we worked with Youth Profiles a leading network of NGOs providing services to youth in Port Harcourt, on adapting the Liverpool VCT programme of VCT training for their partners. As a loose network of NGOs they saw the need to have a set of core quality standards with additional standards and indicators available to different providers reflecting the specific characteristics and size of population they served. This kind of operational research - in training, standards implementation, and quality of service delivery - feeds the KP with ideas about where the gaps are in our knowledge about best practice in the implementation of interventions.
These ideas may well be critical for the next round of bids to DFID for continued funding on HIV research for the period 2006 to 2011.
Our work with partners in Ghana, Nigeria, Malawi and South Africa has been particularly productive of ideas for new themes in our continued struggle to assist the global fight against HIV. One strand in this new research will be to consider how the huge sums of money now going into ART services impact upon the sustainability and effectiveness of other health care services for the poor, particularly in the Primary Health Care sector. Many countries are reporting the difficulties of retaining staff in the traditional areas of Maternal & Child health, and primary care of small scale outbreaks of cholera, childhood illnesses, etc. when staff are daily confronted by the temptation to join Secondary Level Programmes for TB and HIV or are attracted to the private NGO sector by increasing salaries and recognition.
Consultancy work with LATH forms another source of practical experience for KP staff about what works and what doesn t work. Consultancy also provides opportunities for studying the process of policy formation — what are the internal and external levers that shape a country s health priorities and how it spends money to address them. Professor Alan Whiteside s participation in the KP gives us a significant international profile in this area through his contributions to the Commission on HIV/AIDS and Governance, World Bank, WHO and other international agencies who are increasingly shaping the landscape of the world s response to HIV. With the recent re-emphasis of the MDGs at the G8 meeting in Scotland we hope that we will have a key role to play in the strategic thinking on how HIV services contribute to Poverty Reduction.



> "We can only assist countries to make a better response by understanding the social and cultural factors that embed HIV vulnerability contextualising the utilisation of relevant services"

Decade of field-based research draws to a close with important messages for policy makers

This year has seen the culmination of ten years of Department for International Development (DFID) malaria funding to two School programmes: the Malaria Work Programme (1994-1999) and the Malaria Knowledge Programme (1999-2005). For both programmes the emphasis has been on operational research, i.e. field-based research, collaborating with colleagues in malaria endemic countries with emphasis on benefits for vulnerable people.

During this, our final year, we have concentrated our efforts on disseminating our accumulated knowledge to policy makers. In general, academic institutional staff rely on the publication of scientific papers for the dissemination of their research results. However, it is generally recognised that policy makers, particularly in developing countries, may not access this information effectively. As a consequence, much useful and practical knowledge is not translated into policy and practice where it would be most useful. To overcome this problem, the Malaria Knowledge Programme enlisted the assistance of HealthLink Worldwide (an NGO that specialises in communications) to synthesize research publications and outputs from the MKP and develop policy briefs for dissemination to policy makers.

A folder containing 12 policy briefs, covering aspects from improved diagnosis of malaria to gender, equity and vulnerability issues, was produced for snail mail dissemination, whilst at the same time the documents were posted on numerous internet web pages. In the first 5 months that our own web page was in operation, there were more than 1,200 hits, with individual policy briefs being accessed more than 5,200 times.

The importance of collaboration cannot be over-emphasised and the MKP, in collaboration with the International Water Management Institute (IWMI) and the Systemwide Initiative on Malaria and Agriculture (SIMA), organised and ran a Technical Consultation on the Strategy for the Assessment and Control of Urban Malaria in Pretoria, South Africa. More than 40 international delegates discussed and debated this newly emerging important aspect of malaria in the urban context. The major output from the meeting was The Pretoria Statement on Urban Malaria , a document that highlights the basic aspects and needs for addressing this increasingly important public health problem. This document was published in the Malaria Journal, an electronic journal that is freely available to anyone with access to the world-wide web (the internet), so global dissemination was assured.

Some of our most recent work has concentrated on demonstrating the degree of over-diagnosis of malaria that takes place in health facilities worldwide. It has long been apparent that in malaria endemic countries, where malaria is diagnosed clinically, some of the patients did not have malaria, but another febrile illness. More and more countries have changed their first-line antimalarial drug to the artemisinin-based combination therapies (ACTs), which are relatively expensive, and so should only be given to those people who do have malaria. Thus, the importance of accurately diagnosing malaria is paramount. We have found that the average rate of over-diagnosis is approximately 60%, meaning that the majority of people who are prescribed antimalarials do not need them. It is therefore important that this message is received and acted upon by policy makers, and that methods for improving the diagnosis of malaria are put in place sooner rather than later. As part of highlighting the problem of malaria diagnosis, we have raised the broader issue of the need to improve the quality of work in, and resources required for, hospital-based laboratories in sub-Saharan Africa.

We have tried, wherever possible, to build local ownership into research projects and capacity strengthening in order that research addresses local issues, and that positive outcomes remain the property of the local co-workers, thus ensuring sustainability.

There remains so much to be done in addressing the issues of gender equality, pregnancy, improved diagnosis, drug delivery systems, alleviation of poverty, and ensuring that good health is provided for those who are most vulnerable to the ravages of malaria. The MKP has enabled us to scratch the surface and has provided the impetus for a range of malaria-related projects that will outlive the MKP and contribute to better knowledge about improved malaria control.

“Some of our most recent work has concentrated on demonstrating the degree of over-diagnosis of malaria that takes place... approximately 60%, meaning that the majority of people who are prescribed antimalarials do not need them”

The Cochrane team develop more overseas collaborations and new approaches to communicate evidence

Evidence-informed health care remains the cornerstone of this programme, through preparing Cochrane reviews, mainly in malaria combination drug therapy, tuberculosis drug therapy and prevention and control of diarrhoea. During the year new reviews for the treatment of cholera, typhoid, and malaria were completed. These reviews are having increasing impact internationally. The Cochrane Infectious Diseases Group based in Liverpool, is helping the Cochrane Collaboration improve the quality of their reviews, as well as working with our partners in developing countries to prepare high quality reviews.

Authors of Cochrane reviews from Uganda, Costa Rica, Rwanda, Brazil, Iran and Pakistan participated in the Fellowship Programme. Training in review methods moves to South Africa in the Reviewers for Africa training programme; funding was obtained through the Nuffield Foundation in collaboration with colleagues in Cape Town.

Julia Critchley and Imelda Bates completed a review of the haemoglobin colour scale for the diagnosis of anaemia for the World Health Organization. This has particular relevance to resource-poor settings as it can be used in places where there are no laboratories. Also of relevance is the need to improve drug adherence practices when the drug regimen is complex. One way to achieve this is to improve the packaging of drugs, but Lois Orton and Guy Barnish found little evidence that improved packaging of antimalarial drugs reduced treatment failure. The influential insecticide-treated mosquito net (ITN) review was updated, and this included a large trial in Africa showing that ITNs reduced child mortality by 18 percent.

Lauren Stockman, who works on SARS with the Centers for Disease Control in Atlanta, and Richard Bellamy, a public health physician from Newcastle, started work on a systematic review of treatments for SARS. This work originated as a request from the WHO.

The Cochrane review of using albendazole for the control of filariasis found no evidence of an effect on the parasites. This review has been used by specialists in India to counter the global recommendation, coming from the WHO, that the drug should be part of the eradication programme.

We continue to develop, with partners, approaches to inform policy and practice. In response to the tsunami, Paula Waugh and Helen Smith formed a collaboration with colleagues at the Australasian Cochrane Centre to increase the production of review summaries, called *Evidence Update*, to help with evidence-based decision making. Katharine Jones, David Taylor-Robinson and Paul Garner have made contributions to the WHO Technical Guidelines Group for the treatment of malaria, by summarising evidence around treatments for uncomplicated malaria. Collaborators in Nigeria published their evidence-informed guidelines on malaria, head injury and typhoid treatment at state level, and the National Committee of State Health Commissioners endorsed them.

Two new field trials have been carried out in China. In Shanghai, a trial of a work-place intervention providing reproductive health education in a telephone factory was completed — not so straightforward, as the company closed the branch where the intervention had been carried out! In Chongqing, a field study to examine the implementation of directly observed therapy for TB was carried out with collaborators from Chongqing University, the Ministry Disease Control Centre and specialists from Shanghai.

Above - Dr Helen Smith (far left), Research Associate with the Effective Health Care RPC, presenting a seminar on qualitative data analysis at Fudan University School of Public Health. This was part of a visit to work on a collaborative project examining the implementation of directly observed therapy for TB, with specialists from Fudan and Chongqing universities.

Last, but not least, DFID renewed our funding from April 2005 for a further three years.

> “The influential insecticide-treated mosquito net (ITN) review was updated, and this included a large mortality trial in Africa showing that ITNs reduced child mortality by 18%”

Challenging barriers to health care

The intention and goal of the EQUI-TB Knowledge Programme is to provide new knowledge through research that improves access to quality TB services for the poor. Some achievements are:

- EQUI-TB staff participate in the work of policy making bodies at international, regional, and national levels
- EQUI-TB staff have contributed to, and are authors on, the development of international policy documents, for example the WHO document ***'Addressing Poverty in TB control: Options for National TB Control Programmes'***.
- Literature generated by the Programme has been prominent in policy debate at international and national levels. The best example is the central place of the Systematic Analysis of TB & Poverty as a vehicle for policy debate with a wide variety of stakeholders and the STOP-TB Partnership. The first product of this has been seed-funded by the STOP-TB Partnership and the foundation of the Global Network for Action on TB & Poverty. Longer term, more substantial funding of the Network will be the ultimate goal.

This year, EQUI-TB partners have focused on communicating the findings of their research using a variety of different methods. The overall programme communication strategy concentrates on involving a wide range of stakeholders throughout the life of the projects and therefore policy makers have access to ongoing information. This is going well and the partners have seen that their relationship with policy makers and other stakeholders has strengthened over the life of the programme.

The STOP-TB partnership has funded our Partner in Malawi, the REACH (Research for Equity And Community Health) Trust, to run a Secretariat on TB and Poverty. This Secretariat works at **international** and **regional** levels to promote the need for pro-poor approaches to increase case detection and case holding. Through our Knowledge Programme, we have also disseminated our work internationally and regionally through participation in different conferences and meetings. We have made good strides in communicating our findings to **policy makers** at **national** and **district** levels through ongoing work with the different structures for National TB Programme management, e.g. presenting work at the annual National TB Programme conference and ongoing engagement through management groups in the Ministry of Health in Malawi. Changing health system structures have brought new challenges and new opportunities and we are strengthening relationships with district level health officials and working with them to develop ownership over, and skills in, pro-poor approaches in our partner countries: Malawi, China and Zambia. The **community** level is central to our communication strategy and we have worked with different community groups and structures through our different projects. The launch of the Storekeepers project in a peri urban district in Malawi is a good illustrative example of the ways in which we work hand in hand with community members. This involved partnering with youth and drama groups to explain the importance of early referral for people with symptoms indicative of TB. The concept of involving informal health providers has been developed further with the partnership of a community-based home-based care group, aimed to provide quick and accurate referral to TB services.

Our teams in Liverpool and China have been involved in the DFID sponsored technical assistance project in five provinces in China. In order to explore access to TB health services, this Social Assessment project used qualitative and quantitative research methods to look at the main barriers that stop people from accessing TB services, and made practical recommendations for policy makers about how these barriers could be overcome. The project found that the poor and vulnerable had less access to information about TB, to quality TB services and experienced a higher financial burden for accessing these services. It was also found that despite a national policy of free treatment for TB patients, many people were dissuaded from accessing TB treatment as they perceived TB services to be very expensive. Social assessment techniques were found to be an effective way of identifying the constraints on TB detection.

"The project found that the poor and vulnerable had less access to information about TB and to quality TB services and experienced a higher financial burden for accessing these services"

Above - Community members taking a break from focus group discussions in rural Malawi

A further five years support

The School and the Centre were delighted when, following a successful Department for International Development (DFID) external review, the Centre was awarded a further five year £2.5m contract from DFID and £500,000 from GlaxoSmithKline to support its activities as a member of the Global Alliance to Eliminate Lymphatic Filariasis (GAELF). Included in the funds provided by DFID was £1.3m to support activities in-country, which will, on DFID's recommendation, focus on Bangladesh, Burkina Faso, Ghana and Tanzania and some operational activities including evaluation and monitoring as many of the programmes reach their fifth mass drug administration.

Evaluation and monitoring is essential in gauging the progress of the Global Programme and the elimination of LF. In those regions where treatment has been administered annually for five years, testing will be undertaken to ascertain that microfilaria (worms) levels have decreased. Early signs are excellent with rates down to less than 1%, the level at which it is considered that transmission will no longer occur.

Proof that the elimination programme works also provides the Global Alliance (an international group of partners working together to eliminate LF) with an excellent advocacy tool for promoting the Programme in-country and globally. Internationally, the Global Programme addresses many of the aims of the Millennium Development Goals and is also in line with the Commission for Africa s recommendations regarding poverty alleviation. Another additional benefit is that at each annual treatment in Africa, the drugs used to treat LF have significant collateral benefits on hookworm, roundworm, whipworm, lice, and scabies, which are present in some combination in nearly all LF endemic regions.

Professor Molyneux s involvement in advocating the integration of LF with other disease control programmes, and his advocacy to raise the profile of LF as a neglected disease has intensified. He has recently published papers in the BMJ, Lancet and Trends in Parasitology highlighting both of these issues and he is currently finalising a paper for the prestigious global journal, Public Library of Science Medicine. On the same issues he was also the keynote speaker at the Berlin Intensified Control of Neglected Diseases Workshop; was invited by WHO to address the General Programme of Work team, the body which plans WHO activities on a ten-year horizon, and at the request of the US Global Health Council addressed a Congressional briefing. The School is the designated Secretariat of the Global Alliance with its base in the Centre. Its role is to support the Executive Group and its work. Also following the Centre s successful organization of the 3rd GAELF meeting in Cairo the Secretariat is working with the Local Organizing Committee to prepare for the 4th meeting to be held in Fiji in March 2006.

Overall it has been a rewarding year for the Centre with the acknowledgement, by the external review, of its success over the past five years and DFID and GSK s commitment to support activities for a further five years. The Centre looks forward to its continuing and expanding activities, especially working with its country partners who make the Global Programme such a success.

> "...the drugs used to treat LF have significant collateral benefits on hookworm, roundworm, whipworm, lice and scabies"

Above - Discussion with patient in Burkina Faso with Dr. Dominique Kyelem, LF Programme Manager on improvement in health through regular hygiene of the limb. Following regular limb hygiene this patient is able to walk twice her previous distance

Left - Elephantiasis of the leg showing mossy foot associated with filarial infection in Burkina Faso

Ethics Committee

> The committee remains one of only three in the UK that specifically undertake the ethical review of work taking place in the tropics

In early 1996, Bertie Squire was invited by School management to consider the need for a designated Research Ethics Committee. The request came as a response to the increasing and rapidly evolving interest in international research ethics, and the realisation that a specialist committee might be necessary to deal with the unusual and sometimes complex demands of ethical review for research in the tropics. After extensive consultation within the School and with the already-established NHS Ethics Committees in Liverpool, the LSTM Research Ethics Committee (REC) was formed in May 1996 with considerable support from Rosemary Hawley, who had just been elected onto the LSTM Council. The committee remains one of only three in the UK that specifically undertakes the ethical review of work taking place in the tropics. The committee was initially chaired by Dr Squire from 1996 to 1999 with Rosemary Hawley acting as vice-chair. Dr Mark Taylor took over the chair in late 1999. Dr David Lalloo has been chair of the committee since 2001, being joined by Dr Tom Blanchard as co-chair in late 2004, but the majority of the considerable body of work related to the committee has been performed by Sharda Mistry, latterly helped by Maureen Malloy.

The committee aims to review all research involving human participants that is proposed by staff, students or those associated with the School and has the dual role of protecting participants from harm or danger and preserving their rights and also demonstrating to their communities and external bodies that this is being done. The committee essentially follows guiding principles that emerged from the Declaration of Helsinki, but also pays close attention to guidance from the increasing number of international organisations, such as WHO and the Nuffield Council on Bioethics, that are interested in ethical review of research in resource poor settings. The committee has established terms of reference that are reviewed annually, and these have evolved over the years to underpin the current review process.

The committee comprises a combination of lay members and designated posts occupied by members of the School staff, including clinicians, laboratory scientists and social scientists and statisticians. There are two members for each of those posts to ensure that attendance is adequate at each meeting. A quorum of five members (with a minimum of two lay members) is necessary for the committee to meet. Lay members usually have no biomedical or health interests and are not connected with the School: their role is critical to the function of the committee. The committee has a close relationship with ethics committees in developing countries, and we require that an appropriate committee in the country where the work is to be done should also review protocols. The School s REC has been involved in helping some committees in such countries to develop their own methods of ethical review. We also often review research undertaken by School staff in the UK, although all work carried out within the NHS is submitted to the appropriate NHS committee. The School is increasingly undertaking collaborative research in partnership with other institutions, often on multiple sites. To simplify the process for such applications, bilateral agreements have been developed with other institutions such as the NIH and CDC. This means that investigators do not have to submit their proposals to two Western committees, thus avoiding duplication of effort.

Applicants to the committee fill out a form that has evolved over the years to allow efficient review of both the science and the ethical aspects of the research: the committee has always taken the view that it is unethical to approve poor quality science on humans. The committee meets monthly and reviews over 60 proposals a year. At least two members, including one lay member, are assigned to read a protocol in depth, and they then

present the proposal to the committee, highlighting concerns about ethical issues. Although some proposals are clearly quite technical, the committees reliance upon the opinion of lay members means that the summary of the work in an easily comprehensible form and the applicant s assessment of the major ethical issues involved in their proposal are critical for proper review to take place.

Once presented, the committee will decide to approve a proposal, approve subject to clarifications and amendments by the investigator or occasionally, reject a proposal or request a resubmission. Once approval is granted, the committee is kept aware of the progress of the study by an annual update. The chairman can normally deal with modifications to protocols, which are then ratified at the next meeting. There is a fee for submission of proposals to the committee: £200 fee for applications related to grants that exceed £10,000, and £50 for smaller research grants: student applications are exempt from this.

One of the most important consequences of the setting up of the committee has been the development of ethics teaching for LSTM students, arising from the need to explain how best to fill out the forms and for students to understand the ethical impact of research that they undertake for both taught and research degrees. Initiated by Bertie Squire with MCommH students, students constitute themselves into a mock Research Ethics Committee. They receive initial instruction on the way the committee functions and background reading and instruction on ethics principles and current international guidelines. Student proposals from the previous courses are reviewed and they compare the issues they detect with those raised by the full LSTM REC as part of the learning process. Our aim is to ensure that students receive education in a critical and increasingly important area of work in the tropics.

Expansion of LATH s global role brings new team members and exciting challenges

2004-05 was another year of strong growth for LATH in terms of level of business, new staff and scope of work. We continue to support the School in achieving its mission through contributing to both the health systems reform process and developing capacity of service providers to address the diseases of poverty.

Linked to the high profile of Maternal and Neonatal Health (MNH) within the Millennium Development Goals (MDGs) there has been a re-focusing by governments and donors on improving MNH. LATH has moved to strengthen its capacity in this regard with the shared appointment of Dr Nynke van den Broek, an Obstetrician/Gynaecologist and senior LSTM lecturer, and the full appointment of Angela Brown, a former LSTM lecturer and midwife with a masters degree and experience in health systems.

A Memorandum of Understanding was signed between LATH-LSTM and the Royal College of Obstetricians and Gynaecologists (RCOG) that will establish a RCOG International Office with and within LSTM/LATH. Nynke and Angela will play a major role in this new initiative which strengthens existing links e.g. the Diploma in Reproductive Health in Developing Countries, offered jointly by LSTM and RCOG, and creates opportunities to bring together the resources, expertise and networks of all partners to develop programmes and research that will contribute to the achievement of the MDGs.

LATH continues to promote improvement of the supply-side of MNH services in the DFID-funded Partnership for Transforming Health Systems (PATHS) programme in Nigeria. This year we assisted the Federal Ministry of Health to develop Life Saving Skills Manuals for doctors and nurse-midwives training to upgrade their knowledge and skills and supported planning and delivery of MNH services in Jigawa State.

LATH has been invited by The Health Foundation, to help pioneer its move into supporting Quality Improvement of Maternal and Neonatal Health in Africa, through a new 5-year programme in Malawi, and later a second country in the region. Meanwhile LATH continues to support the MOH in Malawi to implement the national Sexual and Reproductive Health Programme. This DFID-funded support has provided opportunities for trialling a sector-wide approach (SWAp) to service delivery, whereby all funders work in a coordinated way under a MOH-led strategic framework. This experience was a factor in LATH s winning a DFID contract in Kenya this year, supporting improvement of Essential Health Services, with an emphasis on Safe Motherhood, while promoting the SWAp.

Capacity is USAID s flag-ship global human resource development project. LATH is part of a consortium of 7 American partners led by *Intrahealth*. LATH s entr e was due to the reputation of the School s Tim Martineau, Senior Lecturer in Human Resource Management & Development (HRM/D) and the proposal development skills of LATH s Steve Perry. LATH has a key technical role in leading the workforce policy and planning initiatives, and recruited Geoff King for a full time position based in North Carolina. This required LATH to set up a company in the USA. HRM/D is an area of comparative advantage for LATH. We have a strong track record in this field, largely based on Tim Martineau s consultancy support e.g. this year in Zambia, Tanzania, Eritrea and Malawi. We have recruited a LATH full-time

Above - Dr. Nynke van den Broek with local stakeholders in Jigawa State, Nigeria on developing strategic plans for safe motherhood

Left - Dr Xavier Bosch-Capblanch undertaking a GAVI DQA with colleagues in the Ministry of Health, North Korea

HRM/D, Margaret Caffrey, based in Malawi. In the past year Margaret has carried out multiple assignments in Tanzania, Zambia, Uganda and Malawi for a range of donors including: World Bank, DFID and Europe Aid. We have three long-term HRM/D specialists in Malawi supporting the implementation of the SWAp as part of a contract funded by DFID and other MOH collaborating partners, that we won this year. It involved the recruitment of 14 posts, to be based in Malawi, covering technical areas where there is lack of MOH capacity: Financial Management; HRM/D; Procurement; Health Planning, Essential Medical Laboratory Services and Monitoring and Evaluation. The recruitment process served to strengthen partnership working with the MOH and its partners. Of particular note was the success of qualified, experienced Malawians in being appointed to 5 of the 9 new international posts.

Other health systems work included our on-going work in China in Urban Health and TB Control, spearheaded by Dr Shenglan Tang, and the TAMA programme in Pakistan. We were awarded a World Bank contract in Mozambique to support the revision of health planning procedures, particularly with regard to strategic planning for HIV/AIDS prevention and control. On a similar note Prof Paul Garner undertook four consultancies for the World Bank to support strategic planning at the national level for Papua New Guinea. We continue to promote the need for efficient essential medical laboratory services as a vital component of an efficient health system. Drs Imelda Bates, Charles Chevasse and Chris Parry of LSTM/UoL continued to lead this work for us in Nigeria, Pakistan and Malawi and we have strengthened this team by recruiting Russell Dacombe.

At the clinical level, Drs David Lalloo and Angela Obasi of the School, supported the Strengthening HIV/AIDS Partnership Responses (SHARP) project, Ghana, under another USAID contract on which LATH is a partner of the Academy for Educational Development. Additionally, a team of consultants from the School s Gender and Health Group supported by LATH s Lorelei Silvester, produced a background paper for UNAIDS, WHO and the International Community of Women with HIV/AIDS (ICW), focussing on equity in scaling up the provision of free anti-retroviral treatment.

On behalf of The Global Alliance for Vaccines and Immunisations (GAVI) LATH and Euro Health Group, conducted further data quality audits (DQA) in Cameroon, Central African Republic, Congo, DR Congo, Guinea, Kenya, North Korea, Liberia, Mauritania, Togo and Sudan, and is currently preparing for audits in Burkina Faso, Burundi, Haiti, Laos, Nigeria, and Yemen. The audits use a set of indicator-based data collection tools and interviews to assess the quality, accuracy and completeness of administrative immunisation reporting systems and audit the increase in DTP3 vaccinations given to infants.

We continue to benefit from the advice of our Board of Directors, chaired by Nick Earlam of Plexus Cotton. The Board was instrumental in the appointment of two new posts to strengthen our financial management, including Dougal Freeman, our first full-time Finance Director and Hannah Brooks, Management Accountant.

> “LATH has been invited by The Health Foundation, to help pioneer its move into supporting Quality Improvement of Maternal and Neonatal Health in Africa, through a new 5-year programme in Malawi, and later a second country in the region”

Sixty Years Ago

> I organised a team of local men to act as 'fly boys' at various points in the forest to catch all the flies which came to bite them

This year we invited Dr. W. "Bill" Crewe to reminisce about the start of his parasitological career 60 years ago. Bill was appointed the Leverhulme Lecturer in 1963, later to become the Leverhulme Reader in Parasitology. He retired from the School in 1993.

In the Spring of 1947 (Yes, I know! That's not quite sixty years) I was working in the Department of Zoology, finishing off an MSc research project on the parasites of limpets, when I was asked to visit Professor Gordon in the LSTM. After introducing myself, he told me that the Government was having difficulty in getting British administrators to serve in the Cameroons because of a filarial disease, loiasis, which was transmitted by *Chrysops*, a horsefly. The LSTM had been asked to form a scientific team to investigate the underlying causes of the disease, with a view to controlling it: and Professor Gordon invited me to go to the Cameroons to set up the scheme. I needed little persuasion to accept!

I spent the summer of 1947 studying the behaviour and breeding sites of *Chrysops* in the New Forest, then I returned to the School, where I met Dr. Kershaw, the Senior Lecturer in Parasitology. He gave me a great welcome, and as he was then working on cotton-rat filariasis he spent much of his time explaining to me the background to 'filariasis' in general. For the next few months I practically lived in the School library reading the literature on loiasis and its vector, *Chrysops*, although I also attended some relevant DTM&H lectures and did some experimental work on biting flies. During this period Professor Gordon and Dr. Kershaw were in the Cameroons discussing the *Chrysops* problem with local workers and selecting the site for the proposed investigations.

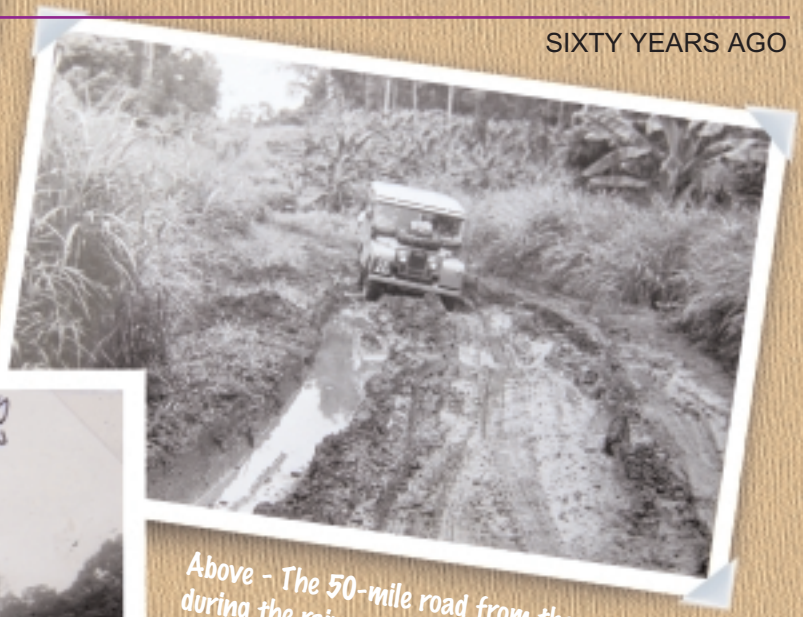
Then in the Spring of 1949 I set sail in a "banana boat" from Garston Docks in south Liverpool. The voyage took 10 very relaxing and enjoyable days - much preferable to the present method of flying! When I arrived in Kumba, where the scheme was to be based, I organised a team of local men to act as "fly boys", and placed them at various points in the forest to catch all the flies which came to bite them, while I myself, with a local guide, surveyed the area for horsefly breeding sites, similar to those I had found in the New Forest. In my 'laboratory' (a small room in the local hospital) I set up a 'breeding cage' for the larvae and pupae I collected. After about nine months 19 flies had emerged, and I was astonished to see that while the fly-boys collection of hundreds of *Chrysops* comprised of only two species, I had bred five species of *Chrysops*.

As I could not identify all the flies, I sent the whole collection to the Natural History Museum in London, and I received in return a very excited letter from their expert on tabanids (horseflies). He said that nine of the 19 flies were males, which were very rarely caught by collectors; this comment agreed with our findings, because the fly-boys had only collected one male in the hundreds they had caught. But, more interestingly, he wrote that one of my 'new' species (of which I had bred eight specimens) had never been caught in the area where I was working, and that the other two species had never been caught before anywhere. So there was obviously a larger population of *Chrysops* in the Kumba area that we had never seen, and had not known existed.

In my reply to the Museum I asked how it was that there were two species that had never been caught, yet had scientific names. The answer was that paralyzed specimens had been found (by a collector in 1915) in the 'nests' of mason wasps on high forest trees in the Congo. These wasps had obviously been 'collecting' their tabanids from places that I had not checked.

It therefore seemed likely that the habitat of all the tabanids was in the sunlit area above the forest 'canopy', so we (there was by now a permanent team of three) fashioned a set of rough ladders, tied and nailed to a suitable high tree, with a ramshackle platform at the top. From this platform we caught a large assortment of tabanid flies, not only *Chrysops*, and the new information we obtained led in due course to the discovery of the parallel existence of human loiasis transmitted by *Chrysops* which fed at ground level during the day, and monkey loiasis transmitted by *Chrysops* which fed at tree-top level at dusk and dawn. But that is another story.

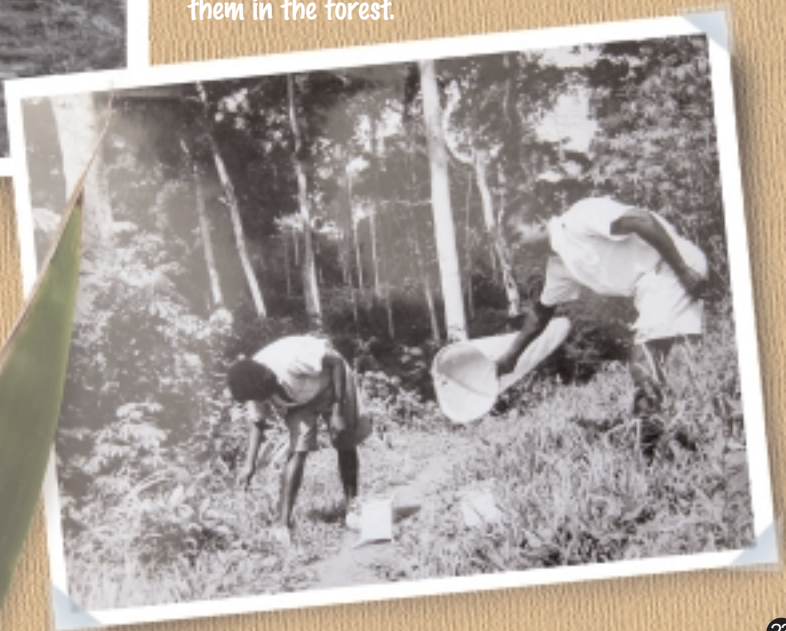
Ed. In last year s article on filariasis, Drs. McGarry and Turner (pages 10 and 11) mentioned their collaboration with teams from Kumba Research Laboratory. This is the laboratory that Dr. Crewe set up nearly 60 years ago, and he mentions in this article.



Above - The 50-mile road from the coast to Kumba during the rainy season. The Land Rover, which belonged to Dr. Crewe, was the only one in the area. During the rainy season it was the only vehicle that could bring supplies and mail to Kumba.

Above and Right - The front and rear views of the Kumba hospital outbuilding in which Dr. Crewe set up his laboratory. Professor Gordon wrote the notes on the photos.

Below - Moses and Melago, two of the "fly boys" catching *Chrysops* that came to bite them in the forest.



Above - The author at work: sieving swamp mud in order to collect horsefly larvae.

The transmogrification of the Donald Mason Library

The School has had a library since its earliest days. The Archives contain some fascinating material on its evolution from the early acquisition of books and the appointment of a malaria bibliographer in 1909. Premises were erected for the School in Pembroke Place before the First World War, and contained a purpose built library.

This library, then as now, was constantly outgrowing the available space. In 1949, a stock room was formed out of part of the museum. Then, in 1968 it was ingeniously divided, by installing a mezzanine floor. With the opening of the Maegraith Wing, again in the 1960s, the library expanded further. In a process of reorganizing the administration of the School, a library committee was set up in 1972 and in 1997 the Library was named the Donald Mason Library , to commemorate a gifted School Chairman who had an exceptional love of books and learning, and who was an enthusiastic friend of the Library.

By the time of the School s centenary in 1998, the library s space problems were observably becoming severe again. The upper mezzanine floor was bearing such a weight of periodicals that it was creaking alarmingly if one ran too enthusiastically up the stairs, and vague, sporadic sightings of the ghost of a melancholy user who had allegedly passed away up there, of unrequited love and rejection, were troubling the more faint hearted of the student groups. On another frequency, the revolution in the information world had made the provision of computing power, as an adjunct to the printed collection, imperative. In addition, the growth of research expertise in the School meant that the library s remit was moving regularly into new specialist areas.

The School was blessed, early in the new millennium, to receive a grant from the Wolfson Foundation for the refurbishment of various teaching and learning areas. The Library was included in this initiative, with the aim of creating more effective and imaginative use of the existing space. An initial project analysis seemed fairly simple and reasonably optimistic. Design a new library. Take everything out. Let the work take place. Put everything back.

When the Library staff surveyed the amount of material that had actually been squeezed into the available space, over time, the complexity of the task became apparent. The Historical Collection of the Library contains much that is very old and rare, and is consequently in a fragile condition and requires the most careful handling. The classification scheme of the library was devised specifically for the very few British tropical collections many, many years ago, and its mysteries are not immediately transparent even to erudite scholars who devote their lives to such matters. Fortunately the Library staff had the help of the Administration staff, and the ingenuity of the School s maintenance team, who know the library well and were robustly unafraid of strange noises. Many helped in working with the architect in devising a critical path to get the Library completely refurbished and back in action in time for the large student intake of September. Mrs Cathie Coffey and Mr Austin Johnson worked valiantly and under difficult conditions to work out the details of the final plan.

A temporary facility was set up in a teaching room, and great efforts were made to inform staff and students of the School, university and wider research community of the highly unusual closure of the Library, on whom many depend. The School s website was very useful here, as it enabled messages about the status of the work to be literally regaled globally in a matter of minutes. Staff at the University of Liverpool made our readers especially welcome during the temporary closure.

Everything, without exception, had to be packed into large green crates, many thousands of which were eventually needed. The new library layout was broadly similar to the old, with the exception of the mezzanine, which was completely cleared, and its shelving replaced by movable, high capacity storage modules, and a window was created in the current periodical display area. Air conditioning was installed, and a spacious new computer cluster created.

The refurbishment was an upheaval unprecedented in the Library s history. Many thousands of items were removed and replaced. A transformation of Damascene proportions took place. The Donald Mason Library, renewed and reinvigorated, looks to the future with optimism.

> “Vague, sporadic sightings of the ghost of a melancholy library user were troubling the more faint hearted of student groups”

Inspired by long-term vision to leave a lasting contribution in malaria education

Above - A social gathering: Drawing water from a community pump in Malawi

Education plays a vital role and forms an integral part of the work undertaken by the School in collaboration with the Gates Malaria Partnership's (GMP) extensive research and capacity development programme. The School supports GMP in its role as one of the many European and African Partners and continues to assist the fight against malaria in Sub-Saharan Africa.

In-country education programmes including the training of journalists, so that they can report on malaria related topics more effectively, the training of District Malaria Focal Persons, who will act as advocates in the community, and a project to strengthen advocacy efforts of parliamentarians are offered through the 4 training centres: The Malaria Alert Centre, Malawi (MAC), and The Centre for the Effective, Enhancement of Malaria Interventions, Tanzania (CEEMI), The Ghana Malaria Centre, Ghana (GMC) and The Centre for Innovation against Malaria, The Gambia (CIAM), which are funded by GMP.

Accomplishments to date include positive feedback to incorporate the concept of a virtual learning environment (VLE) to support current training programmes and to collaboratively develop, store and share malaria related resources. Each training centre has identified areas that they wish to develop. These include a revision of current Community Health Nurses learning materials as a basis for a distance learning course; a course for the training of trainers in community advocacy for malaria control, and the use of distance learning techniques to support a current District Malaria Focal Persons course. One centre is planning to assume responsibility for housing, running and supporting the VLE in the future.

To further promote collaboration and sustainability through the marketing of their services, the School has assisted the centres with the development of individual web sites. As a result, one-to-one support and training regarding the use of the Internet for marketing purposes and the update, design and development of effective web sites have been provided. CIAM and MAC now have complete control of the updating and possible redevelopment of their web sites, and developmental work is in progress with both CEEMI and GMC.

In response to specific requests for assistance from the training centres over the past 12 months, and the direct observation of some programmes, support workshops have been developed and delivered on a demand-led basis. There are few members of training centre staff who hold a current, recognised teaching certificate or who fully understand current teaching and learning theories and principles. As a result, the underlying need for a broader based teaching and learning initiative was clearly identified and the School, in conjunction with the University s Centre for Lifelong Learning (CLL), successfully submitted a training proposal to GMP.

This proposal aims to build capacity within the GMP training centres through a structured programme to enhance teaching and learning. The Initiative, the Teaching and Learning Enhancement Project (TALE), will build upon existing educational strengths within the centres and aims to address gaps with the teaching and learning design, planning, delivery and resource development within each centre. The initiative will be integrated into existing structures, because current educational activities will be used as the focus for assignments and case studies, in order to improve the quality of existing programmes and nurture reflective practice. Therefore, the TALE project will effectively contribute towards the sustainable development, in relation to malaria education and advocacy, by building upon existing training programmes and skills.

GMP officially comes to an end in June 2006, but will be extended for a further six months with limited financial and staff resources. The TALE project however, extends this support to September 2007 by building in a thorough monitoring and evaluation programme aimed at assessing the impact of the capacity building project in relation to the effectiveness of the health education programmes offered by the centres.

The long term vision is to contribute towards leaving a lasting contribution to each centre, when GMP comes to an end. It is expected that, through the recognised teaching qualification that is offered, the profile of each Centre will be raised, best practice will be promoted, and they will have been assisted in their mission to become sustainable centres of excellence for health related training programmes.

> "Centres will have been assisted in their mission to become sustainable "centres of excellence" for health related training programmes"

The Diploma in Tropical Medicine and Hygiene - the first 100 years

Above - Staff and students outside the Johnson Building, 1912. Front row, left to right: Dr JWW Stephens, Sir Ronald Ross, Sir William Lever, (later the first Lord Leverhulme, Chairman of the School), and Professor Robert Newstead.

The 2004 / 2005 academic year marked the centenary of the first award of the Liverpool School of Tropical Medicine's Diploma in Tropical Medicine (DTM). The DTM was introduced in 1904 with the enrolment of 18 students. The School provided three ten-week courses of instruction each year, consisting of lectures and practical classes at the School and clinical lectures and bedside teaching at the Royal Southern Hospital.

Major Ronald Ross, the Professor of Tropical Medicine and Hygiene, delivered 40 lectures each term featuring diseases that still occupy the core of today s DTM&H. Ross s lecture series also encompassed topics in tropical hygiene, including Houses in the tropics and conservancy . Major CL Williams and Mr WT Prout each provided three lectures on Special Indian Diseases and Special African Diseases respectively. Students were also treated to three lectures on the parasitology of meat by Professor HE Annett.

Dr JWW Stephens s 50 practical classes on Tropical Pathology, Parasitology and Bacteriology included delights such as the cultivation of bacilli from dysenteric, choleraic dejecta .

Medical Entomology consisted of thirty lectures and thirty practical classes. The syllabus included the study of the biting lice of cattle and forest flies and their allies .

Clinical lectures and practical classes at the Royal Southern Hospital were conducted in the Tropical Ward by the Physician or Surgeon in charge of the ward; the Professor of Tropical Medicine, or the Walter Myers Lecturer .
Fees for the Course of Instruction were a princely ten guineas, with an additional examination fee of five guineas. Students were also charged ten shillings per term for the use of microscopes and were held responsible for their soundness at the end of the Course .

Liverpool s DTM course was not, in fact, the first Tropical Medicine course in the UK. Edinburgh University awarded a Certificate in Tropical Medicine in 1899.

The first DTM&H was actually awarded by Cambridge University on 3 November 1903. Edinburgh s Certificate in Tropical Medicine was replaced by a DTM&H in 1905, and London s DTM&H was introduced in 1925.

The School introduced the Diploma in Tropical Hygiene (DTH) in 1926. Eleven students were enrolled for the first DTH, which was only open to successful DTM students

The DTM and DTH combined to become the Diploma in Tropical Medicine and Hygiene (DTM&H) following resumption of teaching at the School after the Second World War in 1946.

The DTM&H continues to thrive to this day. Attracting between 140 and 160 candidates per year, demand for the twice-yearly programme is currently exceeding capacity. The reputation and influence of the DTM&H has become truly global. The DTM&H is justifiably regarded as the flagship course of the Liverpool School of Tropical Medicine.

> "Fees were a princely ten guineas and students were charged ten shillings per term for the use of microscopes"

International Training in Health Systems Management

A Postgraduate Diploma in Health Systems Management has recently been launched in Syria and Sudan, organised by Dr Amir Hassan and colleagues from the School. It is planned to continue to offer the diploma overseas, and also in Liverpool in 2007. The course runs for six months, and consists of 8 modules of 3 weeks each

The establishment of the Diploma course followed a demand for training in health care management. The School was commissioned in 1999 by the World Health Organization s (WHO) Eastern Mediterranean Regional Office (EMRO), with co-sponsorship by DFID, to help establish and conduct a programme of training in health systems management in Syria, with a view to building it as a facility for countries of the region.

Since then, the School has continued to work closely with EMRO and the Syrian Ministry of Health to build the programme into a national centre of health systems management studies. The centre currently receives requests for training, and candidates, from other countries in the region. As part of the capacity building programme, WHO is sponsoring five of the full time staff from the Syrian centre to obtain postgraduate qualifications from the School.

In addition to helping with the Syrian courses, School staff, sponsored by the British Council, DFID, WHO and UNFPA, have run several courses in health care management in Yemen. Specialist training was also offered in quality assurance in reproductive health services, including the development of guidelines that were adopted and published by the Ministry of Health (MoH).

In Sudan the Diploma course was funded by the National Health Insurance Fund, and was aimed at the leading regional and headquarters organisation s executive and medical directors. In Syria, the MoH provided funding, and applicants came from central, regional and district health levels and included programme managers. There was strong competition for places on the course, and a rigorous selection process had to be implemented.

Teaching was undertaken by staff from Liverpool, other UK universities and the NHS, all of whom were well supported by national counterparts. In Sudan, counterparts included Dr Suliman Suliman, Dr Tarek Hassan and Dr Fathi Khalil, from the National Health Insurance Fund, and Dr Zidan Zidan, Professor Abdelrahman Al-Tom and Professor Abdelrahman Musa, from the Sudan Medical Specialisation Board. In Syria, counterparts were Dr Reem Akras, Dr Gazal Faris and Dr Kassem Hassan from the Centre for Health Systems Management Studies. H.E. the Minister of Health of Syria, Professor Mahir Al-Husami, keenly followed the progress of the course. The WHO Representative in Syria, Dr Mujalid, provided much appreciated support and advice; and the external examiner, Professor Ali Fadl, provided valuable input drawing on his academic as well as his health services management expertise. Results of the assessments, and the evaluations by participants, tutors and the external examiner commended the course strongly on its success in transferring knowledge and skills in health systems management. At the same time the course equipped the participants with study skills that will help them keep up to date in the future.

Course graduates in Syria have been appointed or designated to take senior management posts in the health sector, and in Sudan, the course graduates, who have already gained career promotion, have been charged with reviewing and overhauling the management system at all levels plus they now have the responsibility of the annual planning process. Finally, School staff advised the employing organisations on the options and requirement for further professional development and career pathways.

In addition to education and learning, there is a research aspect to the Diploma course. Ian Willis, of the University s Centre for Life Long Learning presented a paper to the International Conference on Critical Thinking held in Australia, on the study skills module he conducted. Drs Xavier Bosch-Capblanch and Amir Hassan are assessing the impact of the quality assurance case study, conducted as a real-life situation, on both the participants as well as the staff of the health facilities where the work was undertaken.

Above - Drs Nicola Ruck and Amir Hassan with participants in front of the Sudan Medical Specialisation Board building, in Khartoum

Retirements

Brian Coulter

Children in many parts of the world have benefited from the dedicated work of Dr Brian Coulter, as a medic, teacher and research scientist. After qualifying as a paediatrician in his native Ireland, Dr Coulter journeyed overland to India, Pakistan and Afghanistan and took a paediatric post in Lahore.

He had worked in Pakistan and Nigeria before coming to the School in 1978 as Senior Lecturer in Child Health and became Director of the School s Diploma in Tropical Child Health from the late 1980s. This was the only clinical course in tropical paediatrics in Europe, giving students the opportunity to combine their studies with clinical experience at the bedside in the Royal Liverpool Children s Hospital. Many of his students have gone on to become eminent paediatricians across the world.

The main advantage of the course was that it developed good clinical skills which they could use on return to their own country in promoting best practice in tropical paediatrics , said Brian who has always cycled to the School from his Aigburth home, no matter what the weather.

His areas of research have included studies into toxins and malnutrition in the Sudan, where he was Associate Professor in Paediatrics at the University of Khartoum. He has also had a teaching role in Libya for many years. But his main area of interest overseas has been in Uganda where he has been involved since 1986 as a visiting lecturer, supporting paediatric post graduate education at Makere University Medical School in Kampala. This work was funded originally by the Save the Children charity and for eighteen years by the Nuffield Foundation. He has also been involved in HIV and TB research in Uganda.

On leaving the School, Brian said: One of my concerns is that there is a fall in standards of clinical skills in paediatrics and I hope that one of the main benefits of the course here at the School and the work I have done in teaching abroad will help to maintain good clinical standards. Although he has retired from the School, Brian intends to continue some teaching abroad. He will remain Editor of the Annals of Tropical Paediatrics for which his wife Vanessa will continue to be editorial assistant. He is also going to develop his interest in antiques.

Marcel Hommel

After qualifying in medicine and completing further studies at Strasbourg University, Marcel came to Liverpool, where he was awarded a PhD for work on leishmaniasis in 1977. He then went on to work at the National Institute for Medical Research in Mill Hill, at the Institut Pasteur in Paris and spent three years at Harvard Medical School in Boston before returning to Liverpool. George Nelson appointed him in 1982, to set up the Wolfson Tropical Immunology Unit, then in 1986, he succeeded Herbert Gilles as the Alfred Jones and Warrington Yorke Professor of Tropical Medicine and Head of the Department of Tropical Medicine and Infectious Diseases. For the next six years, Marcel encouraged colleagues in the Department to initiate new research projects. He obtained substantial research funds, trebling the number of post-doctoral fellows and research students in the Department. Among the many important achievements of that period was the initiative to set up a field base for the Department in Blantyre, Malawi, in collaboration with Malcolm Molyneux and Terrie Taylor, for the study of the pathophysiology of cerebral malaria in children. This followed up research leads based on Marcel's ground-breaking work on antigenic variation and cytoadherence of *Plasmodium falciparum*.

Marcel has always been convinced that the strength of a discipline depends on the stimulation generated when scientists meet together to exchange ideas. As a member of Council of the British Society for Parasitology and of the Royal Society for Tropical Medicine and Hygiene he has organized numerous meetings and conferences, including two international congresses. This belief in the importance of communication in science led to his involvement in editorial activity. He is a member of the editorial board of several scientific journals, including the Annals of Tropical Medicine and Parasitology, Journal of Protozoological Research, M decine Tropicale, and Microbes and Infection. He created the Malaria Journal, an online, open-access journal of which he has been the editor-in-chief since 2001. Last month, he was made a Membre Honoraire of the French Soci t de Pathologie Exotique, in recognition of his outstanding contribution to the discipline.

Retirement for Marcel means pursuing this commitment to tropical health and parasitic disease, as medical and scientific advisor to the International Network of Institut Pasteur, in its 28 partner institutes, from Shanghai to Montevideo and from St Petersburg to Antananarivo !

Retirements

David Theakston

David began his career at the School in 1965, when he came from the University of Leeds as a Research Assistant to do his PhD on drug resistance in malaria with Alex Fletcher. After completing his PhD in 1969, he became a post-doctoral research fellow in the Department of Tropical Medicine. In 1972 the money ran out (!) and he moved to Nigeria, where he was appointed Lecturer in Parasitology and Microbiology in the Faculty of Health Sciences, University of Ife. He was promoted to Senior Lecturer in 1973. In 1974 he returned to Liverpool as a Senior Research Fellow, working with Alistair Reid on venom research – and this was the start of his eminent career on the toxicology of snakes, scorpions and spiders. Two years later he was promoted to Lecturer in Medical Biology, and shortly afterwards he was made Senior Lecturer.

On Alistair s death in 1983 he took over as the head of the Alistair Reid Venom Research Unit and as Director of the WHO Collaborating Centre for the Control of Antivenoms. David was appointed to Reader in 1991 and in 1998 the University of Liverpool awarded him a personal Chair in Medical Biology.

His interest and drive in venom research has meant that he has travelled extensively in many areas of the rural tropics, particularly in West Africa, South east Asia, Papua New Guinea and to four countries in South America. It was in Ecuador that David was bitten by a green pit viper, which, if it were not for the timely intervention of his colleague and close friend Professor David Warrell of Oxford University, may have resulted in his premature retirement!!

And what is David going to do in his retirement? Well, fly-fishing is one major interest, a recreation that he feels he has neglected for far too long. He also loves investigating the ambience and products of a variety of hostelries around the north of England (he is, after all, a true Yorkshireman), and travelling for fun. To fill the gaps between these leisure activities, Emeritus Professor Theakston plans to keep a watching brief on his current Nigerian research project — and so he has come full circle during his distinguished career.

Harold Townson

On hearing a talk on mosquito-borne filariasis by Professor William Kershaw in early 1963, Harold wrote enquiring about PhD positions in the School. Little did the twenty-year old realise that this would lead to a career based in Liverpool stretching over 42 years, and beyond. He gave his first lecture to the DTM&H class and jointly launched a statistics course for MSc students before gaining his PhD and subsequently became Lecturer in Medical Entomology in 1967. He continued with laboratory research on genetic aspects of filariasis vectors and gained valuable field experience visiting vector-borne disease projects in Burkina Faso, Nigeria and Cameroon.

A key formative period was spent as Senior Lecturer in Parasitology in the University of Dar es Salaam, Tanzania, between 1972 and 1974. There then followed an exciting period of laboratory research based in Liverpool and field research in West Africa, funded by the Onchocerciasis Control Programme (OCP). Working in Benin, Togo, Ghana, C te d Ivoire, Burkina Faso and Sierra Leone, he and his group provided key operational information to OCP, often on a weekly basis, enabling it to focus control more effectively. He also pursued studies of genetic factors influencing the ability of mosquitoes to transmit filariasis. This led to an involvement in establishment of the Wolfson Unit of Molecular Genetics in 1981 and interests in DNA-based tools for studying mosquito vectors. For a 20-month period in 2000-01, Harold was interim-Director of the School

Research into malaria and its control has taken him repeatedly to South Asia - Afghanistan, Pakistan, India and Sri Lanka - and to South-East Asia, particularly Vietnam and Indonesia, but the transmission and control of malaria in Africa remains an abiding interest.

Retirement is not quite the description for Harold s current position. He retired from the Selwyn Lloyd Chair in Medical Entomology at the end of July 2005 only to resume part-time work on 1st September, lecturing and supervising two remaining PhD students, Kwang Shik Choi and Claudia Paredes Esquivel, a total of 31 PhD students during his career. Granted the status of Emeritus Professor in the University in September, he will shortly wind up his role as Director of Graduate Studies, which includes responsibility for overseeing the progress of c. 110 PhD students in the School. He is Editor-in-Chief of the Transactions of the Royal Society of Tropical Medicine & Hygiene and is working with WHO to refocus attention on control of disease vectors as a means of preventing infection. Harold says Retirement is an interesting theoretical construct but it doesn t seem to work in practice.

School is commended for high quality programmes in a year of endings and new beginnings

> "Students enjoy the intimate learning environment and value dedicated input from staff"

This has been another busy year for teaching in the School. Everything is organised for two new MSc programmes to commence in September of this year, although we have had to close a long standing clinically based Diploma programme due to staff moving on or retiring.
We have had our programmes that attract University of Liverpool awards reviewed by the University and have implemented major changes in the administrative support for our teaching. In addition, we continue to teach overseas and explore new opportunities remote from Liverpool.

Building on the very successful Diploma in Humanitarian Assistance launched in 2002, Dr Tim O Dempsey has been instrumental in developing two new master programmes, the MSc in Humanitarian Programme Management and the MSc in Humanitarian Studies. Both are due to start in September this year, and the former has added a new dimension to our portfolio. Formal training in Humanitarian Programme Management was identified as an urgent need in this field as a result of research carried out by staff at Bioforce, a charity based in Lyon, France. Bioforce Development Institute is a centre for professional training and human resources management, specialising in International Aid. It has more than 20 years experience in training and preparing people to work in this challenging environment. Initial discussions between Bioforce and School staff have proved to be the beginning of what we hope will be a long and fruitful relationship. A partnership has been forged between Bioforce and the University of Liverpool, implemented locally by the School. Students will study at least one third of the programme in Lyon before arriving in Liverpool to continue their Masters. Mango, a UK-based charity that exists to help aid agencies and NGOs to work more effectively through the strengthening of their financial management, will also work closely with us in the delivery of a financial management module.

The other MSc is based in Liverpool and will share some modules. Both will routinely involve overseas projects and also build on our links with departments in the University of Liverpool.

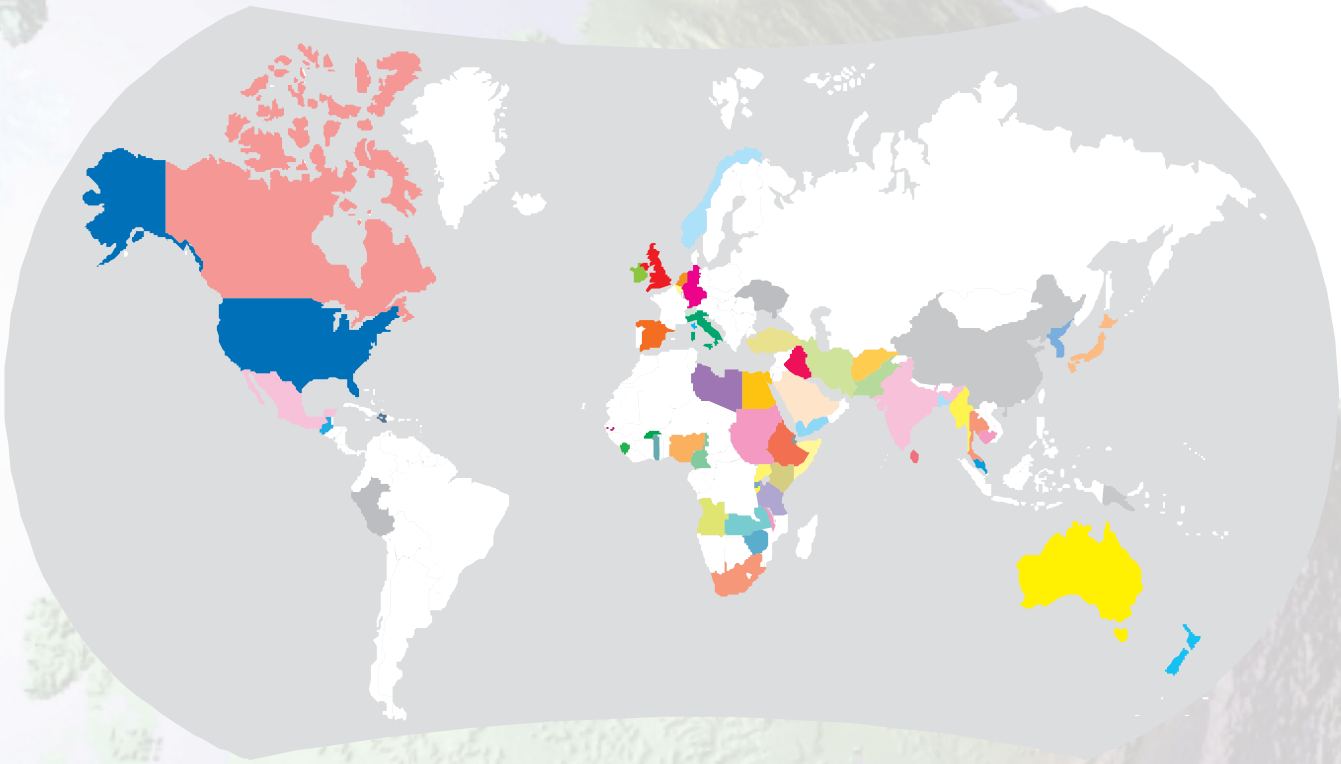
It is with regret that we have had to close our only course that involves hospital-based clinical work as part of the curriculum: the Diploma in Tropical Child Health. This was the only course of its kind in Europe, aimed at developing clinical skills in the practice of paediatrics, particularly for paediatricians from developing countries. The programme ran successfully for 35 years. It was always going to prove very difficult to maintain the high standards required after the well-earned retirement of Dr Brian Coulter, who was Director of Studies for approximately half of the course s life! Dr James Bunn, a paediatrician who contributed significantly to the teaching, has left to work in Malawi.

In March this year, a team from the University, together with two external members, reviewed those taught programmes that attract University awards. Part of the robust quality assurance regime operated by Liverpool, this process takes place every 6 years and examines in detail several aspects of provision from curriculum development to the enhancement of quality control. In addition, student opinion on the training we offer forms an important aspect of the review. This process provides an invaluable opportunity to discuss our programmes with the team and identify strengths and weaknesses. The review team concluded that, the School s programmes are comparable in their high quality to those provided by other institutions in the UK. Students on all programmes enjoyed the intimate learning environment in the School, valued the dedicated input from staff and gave a strongly supportive account of the positive experience the School s programmes provide. Our thanks go to the staff in the School who put so much effort into their teaching. The next step is to construct an Action Plan to help implement and monitor a number of changes, many of which will be underpinned by a new modular framework.

It is customary, in articles of this nature, to emphasise the academic side of teaching. We all know, however, that its success is ultimately dependant on quality administrative support. Academic staff and students have enjoyed such support for many years from our course secretaries whose jobs have become more complex over the years. After lengthy discussions it was decided to bring everyone together and, early this year, a Registry was established.
A manager (post currently vacant) is in charge of three administrators who look after admissions (currently Joyce Herbert, Eleanor Carr and Andrea Bryant) and three secretaries who provide support to students after their arrival (currently June Ritchie, Sue Caine and Emine Bay). Last but not least, we now have a new Welfare & Accommodation Officer, Ruth Pollard. The purpose of this development is to unify ways in which the various tasks are carried out, and to provide an effective system of mutual support. Some of the staff are new and still learning their trade, and it has been a steep learning curve for all involved. Everyone is working hard to adapt to the new system and I feel confident that, by the time the next education report is due, we will have a settled team.

Ian Marshall, Education & Training Co-ordinator

Student Numbers



Afghanistan	4	Iran	7	Somalia	1
Angola	1	Iraq	8	South Africa	1
Australia	6	Ireland	5	Spain	4
Bangladesh	1	Italy	12	Sri Lanka	2
Belgium	3	Japan	4	Sudan	5
Burkina Faso	1	Kenya	9	Switzerland	1
Burma (Myanmar)	1	Korea	1	Tanzania	4
Burundi	1	Libya	2	Thailand	9
Cambodia	1	Malawi	11	Turkey	1
Cameroon	2	Malaysia	1	Uganda	4
Canada	55	Mexico	3	UK	127
China	5	Netherlands	2	Ukraine	1
Djibouti	1	New Zealand	1	USA	10
Egypt	2	Nigeria	29	Yemen	14
Ethiopia	2	Norway	10	Zambia	1
Gambia	4	Pakistan	1	Zimbabwe	2
Germany	22	Palastine	1		
Ghana	25	Papua New Guinea	1		
Guatemala	1	Peru	1		
Haiti	1	Rwanda	1		
Hungary	1	Saudi Arabia	8		
India	5	Sierra Leone	2		

Research Grants and Contracts

Dr P A Bates, Dr R Dillon and Professor M J Lehane
Wellcome Trust (supplement)
Development and use of sandfly EST microarrays to study gene expression in response to Leishmania infection **£1,593**

Dr I Bates and Dr O Hassall
Wellcome Trust
Safety and efficacy of umbilical cord blood transfusions in severe malarial anaemia in children **£299,896**

Dr I Bates and Dr O Hassall
Wellcome Trust (supplement)
Safety and efficacy of umbilical cord blood transfusions in severe malarial anaemia in children **£3,499**

Dr T Blanchard
Genetic Innovation Network (supplement)
Eliciting Neutralising antibodies to HIV with Poxviruses **£9,000**

Professor B Brabin
Academic Medical Centre, University of Amsterdam Tropical paediatrics programme **£19,106**

Dr P Bray
Medical Research Council
Transport of organic cations in *Plasmodium falciparum* **£325,954**

Dr A G Craig
Medical Research Council
An analysis of ICAM-1 adhesion in *P. falciparum* malaria **£518,172**

Wellcome Trust (supplement)
Parasitic-host interactions in malaria pathogenesis and transmission **£7196**

Dr L Cuevas
World Health Organization
Mycobacterium TB in Yemeni children (Dr Al-Agbhari PhD) **£8,077**

Dr M Donnelly
International Water Management Institute
Urban Malaria in Ghana **£10,884**

International Development Research Centre, Canada Support for technical consultation on strategies for assessing and controlling urban malaria **£13,286**

Gates Malaria Programme(supplement) Biology and control of malaria vectors in Blantyre and Chikwawa Districts, Malawi **£60,295**

Ghanaian Educational Trust Fund
Adaptive genetic variation in *Anopheles funestus* **£92,384**

World Health Organization (supplement)
Gene flow and population structure of malaria vector-continuing Mr A Egyir-Yawson PhD **£6,118**

Mrs J Fahy
Izumi Foundation
Year 5 — Mass Drug Administration **£27,174**

GlaxoSmithKline
Support for Global Alliance Executive Group **£62,294**

Merck & Co Inc
Support for Global Alliance Executive Group **£62,294**
Support for GAELF 4 **£27,174**

Dr N French
World Health Organization
Interactions in non-pregnant adults including clinical issues **£2,227**

Professor P Garner
Department for International Development
Effective Health Care Alliance Programme **£2,256,063**

Dr G V Gill
Roche Diagnostics Ltd
Causes of anaemia in diabetic patients **£13,500**

Ministry of Defence
Strongyloides Hyperinfection **£11,000**

Diabetes UK
A 20 year outcome study of brittle type 1 diabetes **£9,990**

Novo-Nordisk Ltd
The 4T Study — Treating to Target in type Two diabetes **£104,000**

Dr G V Gill and Dr N J Beeching
Iranian Department of Health
Factors determining hospital in-patient mortality **£22,375**

Dr R Harrison
Wellcome Trust (supplement)
Bioinformatics & DNA immunisation strategies to generate neutralising antibodies specific conserved haemostatis-disruptive toxins in African viper venom **£6,513**

Dr N Hawkes
The Nuffield Foundation Undergraduate Research Bursary Isolating the acetylcholinesterase gene(s) implicated in insecticide resistance in sandflies, vectors of leishmaniasis **£1,215**

Professor J Hemingway
Gates Malaria Partnership (supplement)
PhD Studentships **£27,036**

Gates Malaria Partnership
PhD Studentships **£240,564**

Commonwealth Scholarship
Molecular Entomology and Biology scholarships for Dr Srikshnaraj and Dr de Silva **£2,800**

Shell International Ltd (supplement)
Malaria Control in Nigeria **£27,000**

Wellcome Trust (supplement)
A full genome microarray resource for *Anopheles gambiae* and *Aedes aegypti* **£4093**

National Institute of Health (NIH-USA) supplement
Development of novel resistance management strategies **£184,747**

Wellcome Trust (supplement)
Positional cloning of the major genes conferring in pyrethroid resistance in the malaria vectors *Anopheles gambiae* and *Anopheles funestus* **£3,923**

Wellcome Trust (supplement)
The effect of insecticide resistance on mosquito vectorial capacity **£140**

Wellcome Trust (supplement)
GIS mapping of the movement of insecticide resistant genes through *Anopheles* population **£802**

Dr J Hodgkinson
Horserace Betting Levy Board
Role of beta-tublin gene mutation in benzimadole resistance in cyathostomins **£90,982**

Horserace Betting Levy Board (supplement)
Role of beta-tublin gene mutation in benzimadole resistance in cyathostomins **£54,651**

Ms A Hogg
UNICEF (supplement)
Adolescent Girls Literacy Project (AGLIT) **£39,785**

Ms J Hill and Dr F O ter Kuile
Malaria in pregnancy working group **£33,000**

World Health Orgasnization
Malaria in pregnancy trial registry **£7,745**

Professor M Lehane
Wellcome Trust
Tsetse genome wide arrays **£52,048**

Pfizer
Field studies in trypanosomiasis vectors **£5,000**

Wellcome Trust
Characterisation and function of molecules expressed in the salivary glands of *Triatoma brasiliensis* and their influence in the vector-host interactions **£75,196**

Medical Research Council
Comparative analysis of promoter function in defensin genes from *Anopheles gambiae* and *Ades aegypti* University of Bangor component **£47,152**

Professor M Lehane and Professor W Gibson
Wellcome Trust
Tsetse fly immunity genes and their interactions with trypanosomes **£62,874**

Mr T Martineau
World Health Organization
Review of tools for appraising the human resource situation in health services **£6,844**

Dr P McCall
Gates Malaria Programme (supplement)
Vector biology of malaria vectors in Malawi **£33,320**

Professor D H Molyneux:
DFID
Lymphatic Filariasis Support Project **£2,500,000**
DFID (supplement)
Lymphatic Filariasis support at country level **£505,000**

GlaxoSmithKline
Lymphatic Filariasis Support Project **£500,000**

GlaxoSmithKline
Supplement AME funding **£60,000**

Gates International
Lymphatic Elimination Program **£255,367**

Professor M E Molyneux
The Wellcome Trust
Malarial Disease in Children **£570,077**

Dr A Obasi
African Medical Research Council
Mema Kwa Vijana Phase 2 **£115,943**

Dr H Ranson
TDR/WHO
A functional genomics approach to studying insecticide resistance **£12,760**

Wellcome Trust (Vacation)
Assessing the impact of insecticide spraying on the genetic structure of the malaria vector, *Anopheles funestus* **£1,400**

Royal Society
Enzymes in the mosquito midgut and their effect on malaria transmission **£3,888**

World Health Organization (supplement)
A functional genomics approach to improving insecticide resistance detection in *Anopheles gambiae* **£17,549**

Dr H Ranson, Dr P McCall and Dr M Donnelly
NIH (supplement)
Partnerships: Hepatitis B and vector borne disease control **£75,885**

Dr S B Squire
Norwegian Heart & Lung Patient Association (LHL)
Linking civil society and TB care **£173,657**

Norwegian Heart & Lung Patient Association (supplement)
Extending services to Communities (Equi-TB Knowledge Programme) **£6,122**

Dr S B Squire & Mr A Ramsay
World Health Organization (TDR)
Evaluation of sputum concentration methods for the diagnosis of new pulmonary tuberculosis cases by smear microscopy **£38,787**

Dr S Tang
Ministry of Health, China (supplement)
China s national household health survey 2003 **£25,000**

Dr M Taylor
Wellcome Trust (supplement)
Wolbachia endosymbionants in filarial immunity and disease **£418,374**

Dr F O ter Kuile and Professor J Hemingway
Centre for Disease Control
Facilitating, collaborating and exchange of information between CDC, WHO and LSTM in the area of malaria epidemiology, maternal child health **£124,715**

Dr F O ter Kuile and Dr M Boele van Hensbroek
Novartis
An investigation into the potentia1 cardiotoxic interactions of quinine and lumefantrine-artemether (Coartem¤) when used sequentially in the treatment of Malawian children with severe malarial anaemia . **£28,466**

Dr F O ter Kuile and Ms J Hill
EDCTP
Malaria in pregnancy research consortium **£17,726**

Dr D Terlouw and Dr F O ter Kuile
Centre for Disease Control (CDC)
Rapid assessment of the burden of malaria in pregnancy in Madhya Pradesh, India **£31,714**

Red Cross (FRC)
Programme evaluation of malaria morbidity in Togo **£67,626**

Dr D J L Williams
Wellcome Trust (supplement)
Protective Type 1 helper T cell response induced by *Neospora caninum* infection are detrimental to the maintenance of pregnancy in cattle **£3,160**

Novartis Animal Vaccines Ltd(supplement)
Vaccination against *Neospora*-associated abortion in cattle **£56,400**

SHARED AWARDS

Dr P A Bates and Dr J B Alexander
The Wellcome Trust
Role of domestic chickens in the transmission of visceral leishmaniasis **£297,444**

Shared with Dr R Cavalcante, Universidade Federal do Piaui, Brazil

Professor P Garner
The Nuffield Foundation
Training in the Science of Research Synthesis (RAP) **£150,087**

Shared with Professor Jimmy Volmink, Director of the South African Cochrane Centre, Medical Research Council of South Africa, Cape Town

Dr P McCall
The Wellcome Trust
Novel methods for dengue prevention by vector control **£36,510**

Shared with Dr Elci Villegas, Universidad de los Andes, Trujillo, Venezuela University

Professor M E Molyneux
The Wellcome Trust
Malawi-Liverpool-Wellcome Trust Clinical Research Programme (MLW), a Tropical Research Platform **£1,602,084**

Shared with Professor Peter A Winstanley, Department of Clinical Pharmacology & Therapeutics, University of Liverpool

The Wellcome Trust
Malawi-Liverpool-Wellcome Trust Clinical Research Programme (MLW), a Tropical Research Platform —Training Budget **£299,589**

Shared with Professor Peter A Winstanley, Department of Clinical Pharmacology & Therapeutics, University of Liverpool

Dr S Tang
Rockefeller Foundation, New York (supplement)
ALPS — Affordability Ladder Programme **£2,082**

Shared with Professor Margaret Whitehead, Department of Public Health, University of Liverpool

Dr S Tang
TDR Project, World Health Organization
Comparing access to TB diagnosis between migrants and residents in Chongqing, China **£13,889**

Shared with Dr Yang Wang, Chongqing Medical University, Chongqing, China

Professor R D G Theakston
Wellcome Trust
Snakebite in Bangladesh **£25,500**

Shared with: J B Harris, University of Newcastle, A Faiz, University of Dhaka, Bangladesh, D A Warrell University of Oxford

Professor R D G Theakston and Dr R Harrison
Leverhulme Trust
Genetic and morphological diversity in the medically important viper genus *Echis* **£102,591**

Shared with W Wuster, University of Wales, Bangor, Dr C J McCarthy, Natural History Museum, London

Dr S Theobald
EQUINET/WHO
Promoting Equity and a health systems approach towards treatment access and responses to HIV and AIDS in South Africa **£5,556**

Shared with Dr I Makwiza, REACH Trust

World Health Organization
Are health workers accessing Counselling and Testing and ART services in Malawi **£55,556**

Shared with Anne Phoya, Rhehab Chimzizi, Ministry of Health, Dr I Makwiza, REACH Trust; Mr Sam Phiri, The Lighthouse; Mindy Hochegasang, Communicable Disease Control (CDC), Malawi

Dr N van den Broek
Wellcome Trust (supplement)
Prevention of infection associated premature delivery in a rural population in Malawi **£18,000**

Shared with Professor J P Neilson, University of Liverpool

Professor S A Ward
BBSRC Strategic Research Studentship (2005-2008)
Artemisinin action **£75,000**

BBSRC Strategic Research Studentship (2005-2008)
Probing the molecular mechanism of action of novel antimalarial falcipain 2 inhibitor peroxide pro-drugs in isolated parasite digestive vacuoles **£201,205**

Shared with Dr P O Neill (University of Liverpool)

Student Profiles

Juan Ortin

Juan Ortin, of Murcia in South East Spain, has taken an unusual route from home to the School. He studied medicine at the University of Murcia. After qualifying, he worked as a house officer for three years in that city s university teaching hospital, followed by two years in the accident and emergency department and then in primary care, working at an emergency health centre.

Twelve months ago, **Juan** came to Liverpool to work as a GP in response to an NHS arrangement with Spain. He has found working in Britain very easy to adapt to because, he says, the two medical systems are very similar in the way that they work. Juan would like to combine working here, and in other parts of Europe, with working abroad. He chose Liverpool above other cities because he was already interested in working in the tropics - the reason he applied

for the Diploma in Tropical Medicine and Hygiene Course.

I would like to go to Africa with an organisation such as M decins Sans Fronti res said Juan. I would be happy to go into emergency situations, but first I would like to gain experience in the tropics by taking part in a longer term health project, like vaccination, for one or two years. He feels that the lectures at the School give a true picture of what it will be like in various tropical situations, because the scenarios are so lifelike. This is largely because the lecturers relate their personal experience as part of their teaching. Ideally, Juan would like to work in Europe, but be able to go to Africa or elsewhere when an organisation needs him.

Juan finds Merseyside a very friendly place and has made time to visit the Lake District, which he finds incredibly beautiful , and North Wales.

Cheryl Heykoop

Cheryl Heykoop of Ontario, Canada, had always intended to train as a medical doctor. But after graduating in Biomedical Science, she spent a year in Uganda with a Toronto-based organisation called Right to Play and her ambition changed. The organisation aims to convey health messages to children around issues such as immunisation through encouraging them to take part in organised sports programmes and health festivals.

We ended up immunising 18,000 children, aged from 6 months to 15 years, said Cheryl, who then moved on to work with Right to Play in Northern Uganda. There, play was used as a means of helping to rehabilitate child soldiers who had been forced to fight in the civil war. Said Cheryl: Some of them, girls as well as boys, were as young as five and six and were traumatised. Their eyes were blank. They had been forced to shoot people or the alternative was death. By encouraging them to play, we gave them the opportunity to be children again. We could see them happy and laughing. Thousands of children from outlying villages used to walk into town at night to sleep on verandas and in doorways because they were frightened of being abducted and forced to become soldiers.

Her experience in Uganda convinced Cheryl that this was the type of humanitarian work where she feel that she could make a difference but she wondered how best she could achieve this. After being recommended to consider the Liverpool School of Tropical Medicine I took one look at the details of the Master s in Humanitarian Assistance and it seemed just what I needed, a perfect fit.

Cheryl intends to focus on child soldiers in Sierra Leone and Liberia for part of her course research and to pursue a career in humanitarian work.

Phantina Belouli

Phantina Belouli is a paediatrician who has never wanted to do anything else but work with children. Growing up in Germany but now having moved to her mother s native Athens, she qualified in medicine at the University of Heidleberg. She then spent five years specialising in paediatrics. Phantina went on to study neuro-paediatrics at a university children s hospital and was particularly interested in the development of children with disabilities and psychological and behavioural disorders. The next stage in her career took her to Berlin where she worked in a social paediatrics centre, especially for children with spina bifida and muscle diseases. She then joined a scientific study into the development of language in children, tracking their development from birth to aged three. But as Phantina explains, throughout her life she had always remembered her grandmother s advice that everyone must realise their most important dreams. Having already fulfilled her wish to become a paediatrician, Phantina is now determined to realise another dream that is to work with children in the developing world. It is this that brought her to Liverpool to join the School s Diploma in Tropical Medicine and Hygiene course. She has already spent a month working in field hospitals in Niger with the charity M dicins Sans Fronti res (MSF) during the recent famine and describes it as a very important experience for her.

I have seen children dying in hospital - but never like this. The reality is worse than anything we can imagine. We are living in paradise compared to these people who face malnutrition, malaria and infectious diseases. But MSF are very well organised and are making a big difference. I was involved in a therapeutic feeding programme involving thousands of children and it was so rewarding to see them looking well nourished again.

When Phantina has completed her DTM&H course she intends working with MSF in Africa and in other countries.

Staff Profiles

Billy Dean

New arrival **Billy Dean** has taken up the challenge of being fundraising assistant to the Director at one of most exciting times in the School s history. With funding now in place for the construction of the new research centre for infectious diseases, one of his main tasks is to raise funds for its furbishment and equipment. The way in which he is setting out to achieve this ranges from simple strategies such as introducing a donation box for foreign currency in the reception area to assisting the Director in making major fundraising applications for public sector and private grants.

Billy arrived at the School from National Museums Liverpool where he started off as a volunteer while studying the History of Art at Liverpool John Moores University and where he then worked for five years. Once on the staff, he joined the development office as a member of a large fund raising team and decided that the fundraising side of his work was the part he liked best. He

also decided that he would like to fundraise for a rewarding charity - hence his arrival at the School.

When I was applying for the job, I looked at the School website and was impressed with the wide ranging area of activities. I d always been aware of the School s teaching role but not so much the medical research.

This breadth of the School s work has made me even more passionate about my role.

When he first arrived, Billy was involved in fundraising for the construction of the new research building. Now that is in place we must continue fundraising for fit out costs and other School initiatives.

Billy has found that the School already has considerable support from individuals and charitable trusts who are particularly keen to support students during their time at the School. But many people do not actually realise that the School is a registered charity. He has lots of exciting ideas for new ways of raising funds and plans to engage more with individuals and the local community in raising support.

The School enjoys such a unique position with an amazing international reputation for advancement in so many areas and crossing medical boundaries.

Ruth Pollard

As a teenager, **Ruth Pollard** left her Somerset home to come to Liverpool to study French and Latin at the University of Liverpool, so she knows how it feels to be a newcomer in a strange city. Now as the School s new Student Welfare and Accommodation officer, she helps smooth the way for students who have crossed continents to get here rather than counties.

After marrying and raising her family, Ruth became International Administrator for students at Liverpool Hope University, where she became used to problem solving for overseas students.
It was a natural progression to come to the School after seven years at Hope and I felt that I wanted a new challenge , said Ruth.

With students from more than 70 countries attending the School, Ruth enjoys the contact with people from all over the world and is interested in their different backgrounds and cultures.

As Ruth observes, Faced with the strangeness of a new country, some students need more help than others in settling in. Even more mature students need quite a lot of support. The interesting thing is that students from different backgrounds share some of the same problems. Initially, most centre on teething troubles around accommodation and information about public transport. Or they may have been given a visa which does not last long enough to cover their course. Ruth will also find schools, nursery places and English language classes, where appropriate, for family members accompanying a student.

Other students may need some emotional support or just someone to talk to. Most are very committed to their courses , said Ruth,

who has a hobby that not many colleagues know about - she is a keen, medal winning tap dancer, and has been tap dancing for 14 years and has the gold medal of the Associated Board of Dancing. Ruth regularly appears in shows at local theatres and also enjoys painting.

Angela Obasi

Dr Angela Obasi, who has joined the School as a Senior Clinical Lecturer and honorary consultant, qualified in medicine at King College London. An interest in tropical medicine then led to her training at St. Pancras Hospital for Tropical Diseases, at a time when HIV was becoming increasingly important as a cause of tropical illness. Her experience of managing the end stages of HIV-related disease convinced her of the importance of developing effective prevention strategies, particularly in Africa. She then secured an MRC training fellowship to complete a Masters in Communicable Diseases Epidemiology and undertake HIV prevention research in Tanzania. She was resident there for four years, developing and evaluating strategies for HIV prevention in young people in a programme funded by the European Union and Ireland AID.

Angela has always been interested in the links between culture, behaviour and health and prior to completing her training in HIV medicine she took a Masters degree in Social Anthropology. This interest in the social causes of ill health has continued to inform her research both the UK and overseas.

HIV prevention is now her main interest; especially amongst young people, but her other academic interests include the epidemiology of herpes simplex and ethnic minority health.

In addition to teaching and research at the School, Angela works as a clinician at the Royal Liverpool and Broadgreen University Hospitals.

Officers 2004 - 2005

Patron
Her Royal Highness
The Princess Royal GCVO

President
Sir Mark Moody-Stuart
KCMG PhD FGS

Chairman
Mrs R H Hawley JP DL

Director
Professor J Hemingway BSc PhD

Vice-Presidents
Lord Alton of Liverpool
N C F Barber CBE
N Baring CBE LLD
Sir Arnold Burgen FRCP FRS
Sir Richard Evans CBE
N W A FitzGerald KBE
Dr A S Ganguly
Sir Patrick Gillam
Emeritus Professor H M Gilles
CMG UOM KCSJ MSc DSc MD FRCP FFPH DMedSc
Mrs J Newell OBE JP
The Rt. Hon. Lord Owen CH
Sir Michael Perry GBE
Sir Crispen Tickell GCMG KCVO
Sir Leslie Young CBE LLD DL

BOARD OF TRUSTEES

Chairman
Mrs R H Hawley JP DL

Vice-Chairman
S P Sherrard

Hon Treasurer
A T R Macfarlane BA FCA

Deputy Hon Treasurer
I M Jones ACIB

Director
Professor J Hemingway BSc PhD

Elected Members
Dr I Bates BSc MBBS MRCP MD MRCPath
H Banner LLM
M J P Cooke FCA
N P F Earlam
W D Fulton FCA JP DL
Professor J Hemingway BSc PhD
Mrs R Hawley JP DL
Dr R Hussey OBE MSc MBChB FFPHM DRCOG
C M Jones
I M Jones ACIB
N Kemsley BComm AICSA
A T R Macfarlane BA FCA
Professor J R Saunders
S P Sherrard
Sir Brian Smith

Secretary & Bursar
R E Holland FCCA

Academic & Academic related Staff 2004 - 2005

Director
Professor J Hemingway

Bursar
R E Holland

Professors

Professor of Molecular Entomology and Parasitology
M J Lehane

Professor of Tropical Paediatrics
B J Brabin

Professor of International Health
P Garner

Alfred Jones and Warrington Yorke Professor of Tropical Medicine
M Hommel

Middlemass Hunt Professor International Community Health
A Kroeger

Professor of Tropical Health Sciences
D H Molyneux

Professor of Clinical Tropical Medicine
M E Molyneux

Professor of Medical Biology
R D G Theakston

Selwyn-Lloyd Professor of Medical Entomology
H Townson

Professor of Veterinary Parasitology
A J Trees

Walter Myers Professor of Parasitology
S A Ward

Professor of Tropical Child Health
Vacant

Reader

A Craig
(joint Pharmacology & Therapeutics)

Senior Lecturers

G Barnish
I Bates
P A Bates
N J Beeching
T Blanchard
J Bunn
M L Chance
J B S Coulter
L Cuevas
I G Edwards (joint Pharmacology & Therapeutics)
G V Gill (joint Department of Medicine)
S B Gordon (from 1.3.2005)
D Haran
D Lalloo
I Mackenzie
I Marshall
P J McCall
A Obasi
T O'Dempsey
P Shears (joint Med. Microbiology)
S B Squire
S Tang
F ter Kuile
D J L Williams
N Van den Broek

Lecturers

P G Bray
J Critchley
M Donnelly
L Ford
A A Hassan
I Hastings
J E Hodgkinson
T C Martineau
H Ranson
S Theobald
R Tolhurst (from 1.2.2005)
Y Wang (from 1.2.2005)

Research Staff

Vector Research Group
J Alves Da Silva
M Coleman
J-P David
N Hawkes
J Hume (from 7.2.2005)
P Müller
P Pignatelli
M Sant' Anna (from 1.4.2005)
C Strode
C S Wondji

Veterinary Parasitology Group

C Guy
S Lake (from 1.1.2005)
C McCann
J McGarry
B Makepeace
R Norton
A Rosbottom

Molecular & Biochemical Parasitology Group

J B Alexander
(from 1.6.2005)
G Biagini (from 24.10.04)
S J Chakravorty
R Dillon
R Harrison
R Hughes
K L Johnston
(from 4.1.2005)
R S Langley (from 1.10.2004)
G D Laing
H McGarry
L Ochola (from 1.5.2005)
J E Salcedo Sora
(from 25.4.2005)
P Stocks
T Szestak (from 8.6.2005)
M Taylor
J Turner
S Wagstaff
Y Wu

Disease Control Strategy Group

O Hassall (from 1.10.2004)
H Howden-Leach
A Medina-Lara

Child & Reproductive Health Group

S Gillies (from 1.3.2005)
J Hill
A Hogg
E Savory
D J Terlouw
M A Yassin

Clinical Research Group

J W Bailey
N Beare (from 1.2.2005)
J Komrower (from 1.1.2005)
G Mann
R Parks
A Ramsay
R Thomson
A Willetts

International Health Research Group

G Gyte
C L Hookham (from 1.7.2005)
K Jones
V Lutje
H MacLehose
J Raven (from 18.7.2005)
R Robb
H J Smith

Head, Donald Mason Library

C M Deering

Head, Teaching Laboratory

C Chavasse

Annals of Tropical Medicine & Parasitology

K R Wallbanks

Annals of Tropical Paediatrics & International Child Health

J B S Coulter
V Coulter

Lymphatic Filariasis Support Centre

D H Molyneux
L Bluett
J Fahy
M Fraser
K Taylor

Liverpool Associates in Tropical Health

J McCullough
V Doyle
L Silvester
G Afenyadu
E Kelly
D Freeman

Brief Highlights

Professor David Warrell, professor of Tropical Medicine and Infectious Diseases at Oxford University, and the founding director of the Oxford Centre for Tropical Medicine was presented with the School's highest honour, the Mary Kingsley Medal, at a ceremony held earlier this year. Professor Warrell paid tribute to Alistair Reid (after whom the Alistair Reid Venom Research Unit was named), and Emeritus Professor Herbert Gilles, both of whom persuaded him to follow his interests in tropical medicine.

The Mary Kingsley Medal is awarded, by the School, to persons who have made outstanding contributions to tropical medicine. Professor Warrell certainly falls into this category, having made many significant contributions in a wide variety of tropical medicine fields, including the toxicology of snake bite venom; many aspects of malaria; immunisation against rabies, and the current problems associated with HIV/AIDs. He is seen here with Rosemary Hawley (Chairman of the School), Prof. Janet Hemingway, Director and Professor David Theakston who read the citation at the ceremony.

Our congratulations go to Emeritus Professor Herbert Gilles on being appointed a Companion of the Order of St. Michael and St. George (the CMG) for services to tropical medicine, in particular his work into the understanding and treatment of malaria.

Professor Gilles is seen here with his daughter, wife and sister. The Queen, at a ceremony held in Buckingham Palace, presented him with the medal.

Although he officially retired from the School as Alfred Jones and Warrington Yorke Professor of Tropical Medicine in 1986, he has steadfastly refused to stop work. He is a Vice-President of the School and regularly visits the School to discuss malaria issues. He frequently travels overseas on behalf of international organizations, particularly the World Health Organization. In addition to his numerous peregrinations to distant places, Professor Gilles visits his *alma mater*, the Malta Medical School twice a year as a visiting professor to run a public health and infectious diseases programme.

Sandy Trees, Professor of Veterinary Parasitology, was awarded the Selborne Medal for veterinary research by the Association of Veterinary Teachers and Research Workers at their annual conference in March 2005.

The medal is awarded biannually in recognition of excellence and achievement in veterinary research by the Association, a division of the British Veterinary Association, on the recommendation of its Council, which represents scientists working in veterinary research throughout Great Britain and Ireland. Professor Trees is also currently Dean of the Faculty of Veterinary Science which was ranked as the top UK veterinary school in the Times Good University Guide in May - the third time in four years that it has been top-rated. The Faculty and the School of Tropical Medicine have had a long and fruitful association through the veterinary parasitology unit. Formed in the early 20th century, the veterinary parasitology group has taught successively bigger groups of undergraduate veterinary students, who now number over 120 per year. Professor Trees is the first serving member of the veterinary parasitology staff in LSTM to be Dean of the Faculty of Veterinary Science, although a former distinguished veterinary parasitologist at the School, Michael Clarkson, went on to become Professor of Veterinary Preventive Medicine and later Dean of the Faculty.

Dr. James Bunn, who was Clinical Senior Lecturer, Programme Director of the Master's Degree in Tropical Paediatrics and member of the Child and Reproductive Health Group, has left Liverpool with his family to take up an exciting new challenge in Africa.

Dr Bunn, who held an honorary consultant appointment at the Royal Liverpool Children's Hospital NHS Trust, Alder Hey, has been appointed to a teaching, research and clinical post at the College of Medicine in Blantyre, Malawi, as an Associate Professor. He is particularly pleased to be involved in postgraduate teaching at the new medical school and wants to play a part in encouraging Malawian doctors to stay in their own country.

With him have gone his wife, Mary and their four children, Thomas, 11, Samuel, nine, Rosie, seven and Jonathan, four. Mary, who was a GP in Liverpool, now intends working in paediatric palliative care. The family will have some support in their new life from Emmanuel Mission Health Care and have been motivated by their faith to work overseas, said James, who worked at a mission hospital in Sierra Leone before coming to the School. He is now looking forward to new challenges in Malawi where his post will be equally divided between academic duties and clinical work, much of it in the community.

In Liverpool, his patients included children with HIV. Now he faces the challenge of managing the care of children with severe malnutrition and HIV in a country that is facing a famine. He will be working in a resource poor environment at a time when anti-retroviral drugs are becoming available through international support, said James.

"The challenge will be how best to use these for children in Malawi."

While at the School, he befriended refugee doctors from overseas and ran a study club for them at Liverpool's Medical Institute for the past three years. He was also instrumental in setting up the School's Diploma in UK Medicine course for refugee doctors.

After 27 years' working as a technician at the School, Carol Ruddock has embarked on a totally new career as a gardener, swapping the laboratory for suburban plots all over Merseyside.

As Carol explained, she joined the School as a trainee at 16 but after passing the big 40 landmark, she felt that if she was ever going to try something different, it was now or never.

Because I enjoyed my work at the School so much I wanted to do something that I could equally enjoy. Gardening has always been a special interest of mine. Last year I was allowed some unpaid leave and went to work for the National Trust at some gardens in Cheshire. I worked there as a volunteer and I enjoyed it so much that I realised this could be my new direction. I love being out of doors. Whenever I get the chance I head for the countryside.

After working initially for a garden maintenance firm, Carol has now launched her own business with another gardening enthusiast. She especially enjoys bringing neglected gardens back to life.

Quite a few of our customers are elderly people who cannot manage their gardens any more. They are so thrilled to see their gardens looking nice again.

Although she enjoyed her years at the School, Carol has no regrets about taking a new direction. I have many happy memories of the School, but I feel this is the right step for me at this stage in my life, said Carol whose long term aim is to move to Scotland. She said the School had also given her an interest in travel, which had led to her travelling all over the world, including Africa, India, Nepal, Thailand and Malaysia, on walking and climbing holidays with colleague Davina Moor.

Out with the Old, in with the New

May 2004 - end of Course parties are over and contact details exchanged as students say farewell to the School and their many new friends. Before anyone could catch a breath, the students were replaced by men in hard hats.

The Nuffield Lecture Theatre in the process of renovation

The chatter and laughter was exchanged for knocking and banging, and the sound of drills. There was no time to lose as the refurbishment had to be completed before the new intake of students arrived in September.

Packing up the Library

Over the coming months there was a great deal of hustle and bustle mixed in with an air of anticipation as every inch of spare space was taken up. The Library housed its books in a stockade while the library staff were squeezed into the Johnson teaching room.

The new Nuffield, full of enthusiastic students

Then in early August, the first of the ugly ducklings turned into a beautiful swan! The Nuffield Lecture Theatre was complete and open for business, with beautiful seating and lighting and state of the art audiovisual equipment. The School had made its first step into the 21st Century with style .

The refurbished Masters Teaching Laboratory

One by one each area was completed to the same high standard, from a new teaching laboratory to multi-use seminar rooms offering multi-media teaching facilities.

In early September 2004 the refurbishment was completed much to the delight of everyone.

Photograph Credits

Page 2	Kate Davis
Page 3	Mealey Photography
Page 4	Irene Reece
Page 5	William Dean
Page 6	Harold Townson
Page 7	Harold and Pam Townson
Page 8	TDR/WHO
Page 9	Philip McCall & Audrey Lenhart
Page 10	Tsetse.org
Page 11	WHO & Guy Barnish
Page 12	Eveline Klinkenberg
Page 13	Martin Donnelly & Guy Barnish
Page 14	Dave Haran
Page 15	Guy Barnish
Page 16	Qin Xu
Page 17	REACH Trust, Malawi
Page 18	David Molyneux
Page 19	Guy Barnish
Page 20	Nynke van den Broek
Page 21	Xavier Bosch-Capblanch
Page 23	W.Crewe
Page 24	Guy Barnish
Page 25	Hazel Howden-Leach
Page 26	LSTM Archives
Page 27	Nicola Ruck
Page 28	Eileen Taylor & Graham Watson
Page 29	Aura Kamiguti-Theakston & LSTM Medical Illustration Unit
Page 30	Guy Barnish
Page 34	William Dean & Guy Barnish
Page 35	Eileen Talyor, Guy Barnish and Anon
Page 38	Eileen Taylor and Anon
Page 39	U of L Corporate Communications, William Dean & Pam Pask
Page 40	Teresa Southern & Guy Barnish

Editorial Team
Editor - Guy Barnish
Editorial Assistant - Irene Reece
P.R. Officer - Eileen Taylor

LIVERPOOL
SCHOOL OF
TROPICAL
MEDICINE

Affiliated to the University of Liverpool

Pembroke Place
Liverpool L3 5QA
Telephone: 0151 708 9393
Fax: 0151 705 3370
email: imr@liv.ac.uk
http// www.liv.ac.uk/lstm

Company registration number 83405
VAT registration number 732 5378 31
Registered Charity number 222655

Liverpool 08
EUROPEAN CAPITAL OF CULTURE