

# BSPP News

The Newsletter of the British  
Society for Plant Pathology

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# The Value of Plant Pathology

## Editorial

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One of the most enjoyable parts of my work is discussing new knowledge of crop disease with growers and crop consultants. That they immediately examine the practical implications of the information for their own work is both encouraging and gratifying. Sadly, however, these conversations often end with agreement that the new information cannot yet be exploited in commercial crop production. To some extent this is inevitable, because research progress is slow and incremental. And technology transfer will always trail somewhat behind. But I am doubtful whether this explanation truly exonerates plant pathology research from all charges of self-indulgence. One might argue that the obligation to ensure relevance and delivery rests with the funders and the process of peer review. Though I suspect that the rapid advances in technology and the increasing breadth of the discipline have made that task hugely difficult.

I was lucky to be able to attend the 8th international epidemiology conference in Oreo Preto. The scientific achievements of the delegates were unquestionable, and many of the presentations were fascinating. However, I was surprised that so little time and serious attention was devoted to the practical application of the work to commercial crop production- despite the clearly focussed title 'Understanding epidemics for better disease management'. It seemed especially odd that there should be so little consideration of how epidemiology might help developing nations. More widely across the Plant Pathology discipline, similar criticisms might equally be levelled against many of our major scientific meetings. Perhaps we are losing an appropriate balance between 'exciting' new research opportunities and the ability, perhaps even the desire, to deliver the benefits from that work?

Articles in this issue of the Newsletter exemplify the tension that exists between the pursuits of progress, relevance and grant funding. The biographical introduction to our new president, Stuart Wale, suggests that he will be an active proponent of the benefits of linking research to practice. A century of plant pathology at Long Ashton Research Station is summarised by John Lucas. Having spent eight fantastic years there, I was obviously saddened to hear of the need for closure. However, John sets this against the new opportunities that are presented by the opening of the impressive Plant Sciences Building at Rothamsted Research. Certainly, it is heartening to hear that so many scientists have relocated to Rothamsted. We are also fortunate to have an article from Dr Fen Beed who, with the hope of achieving more immediate tangible evidence of the value from research, departed the relative comforts of UK cereal pathology to work in West Africa.

**'Knowledge may give weight, but accomplishments give lustre,  
and many more people see than weigh'**

Lord Chesterfield

# Conferences

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## 14th International Reinhardsbrunn Symposium

### Modern Fungicides and Antifungal Compounds

April 25 - 29, 2004

Friedrichroda, Germany

**Topic 1** - Monitoring & Molecular Diagnostics of Pathogens

**Topic 2** - Discovery & Evaluation of New Fungicide Targets

**Topic 3** - Fungicide Mode of Action

**Topic 4** - Formulations & Additives

**Topic 5** - Fungicide Resistance Management

**Topic 6** - Natural Antifungal Compounds

**Topic 7** - Resistance to QOI Fungicides

**Topic 8** - Opportunities & Challenges of Modern Disease Control

**Conference organisation:**

Prof. HW Dehne

Institute of Plant Diseases

University of Bonn

Nussallee 9,

D-533115 Bonn

Germany

email: reinhardsbrunn@uni-bonn.de

**Further details:**

[www.pk.uni-bonn.de/reinhardsbrunn](http://www.pk.uni-bonn.de/reinhardsbrunn)

## British Mycological Society Annual Scientific Meeting

13-15 September 2004-03-23

University of Nottingham, UK

**The meeting will include sessions on:**

Fungal population Genetics

Plant Pathogen and Mutualist Interactions

Fungal Imaging

Contact BMS Meetings Manager

([john.peberdy@nottingham.ac.uk](mailto:john.peberdy@nottingham.ac.uk))

**For more information visit:**

[www.britmycolsoc.org.uk/meetings/scientific.asp](http://www.britmycolsoc.org.uk/meetings/scientific.asp)

## 9th International Congress Of Plant Pathology 2008

24 - 29 August 2008

Torino, Italy

**Keynote themes:**

- The role of plant pathology in food safety and food security.
- Host-pathogen interactions and molecular plant pathology.
- Diseases of Mediterranean crops and forests.
- Recent developments in disease management.
- Transfer of knowledge and technology in plant pathology.

**Further information**

/first announcement at

[www.icpp2008.org](http://www.icpp2008.org)

Information on these and other meetings as well as all aspects of the BSPP are at BSPPWeb - [www.bspp.org.uk](http://www.bspp.org.uk)

## **The BSPP Presidential Meeting 2004**

### **European Foundation For Plant Pathology Meeting And Bspp Presidential Meeting 2004**

#### **Discovery, Development And Delivery In Plant Pathology**

*5-10 September 2004*

*Aberdeen, Scotland*

#### **Main topics:**

##### **Discovery**

New horizons in plant pathology - genes and their products, novel discoveries, plant 'omics' and pathogen 'omics'

##### **Development**

Understanding the pathogen - epidemiology & forecasting, diagnostics, biology of pathogens

Controlling the pathogen - breeding, chemical, biological and cultural control

##### **Delivery**

Converting research to practical messages - decision support, advice in developing countries, training methods and the involvement of growers, buyers and policy makers in decision-making.

The scientific programme will consist of a mixture of plenary sessions, invited contributions from keynote speakers and offered contributions, both oral and as posters. Oral presentations will be invited and selected by the scientific committee from the papers offered. Other contributions will be accepted as posters to complement the oral sessions.

**Further information and booking form at [www.bspp.org.uk](http://www.bspp.org.uk)**

# Fellowship Report

## The aetiology of eucalypt diseases

My three-month fellowship study was hosted by Professor J. Swings at the University of Ghent, Belgium. The objectives of the study were:

Identification and characterisation of *Pantoea* spp. infecting eucalypts locally and from countries where symptoms similar to those observed in South Africa have been reported. Preliminary results suggest that more than one member of the Enterobacteriaceae are involved in this disease. Identification and characterisation of two species of *Pantoea* associated with Coniothyrium canker of eucalypts in South Africa. These two bacterial species are believed to have a synergistic interaction with the fungal pathogen, *Coniothyrium zuluense*.

### Results obtained

During the course of the past two years, we have obtained authentic *Pantoea ananatis* strains from a number of hosts including rice, onions, pineapple, sudan grass, melons and a clinical strain. These strains were included in this study together with strains isolated from eucalypts showing typical symptoms of bacterial blight and die-back from various countries in South America and Uganda. Preliminary results obtained in South Africa indicated that we were dealing with *P. ananatis* and one or more unknown *Pantoea* spp. These results were obtained from phenotypic characteristics and sequences of the interspacer region (ITS) between the 16S and 23S rRNA genes. Species specific primers which amplified a 400bp fragment in the ITS region, and successfully used by researchers working on central rot of onion caused by *P. ananatis* in the USA, were also used. Despite these results we could not accurately group the strains into those that were indeed *P. ananatis* or another *Pantoea* sp. or even other members of the Enterobacteriaceae. All authentic strains of *P.*

*ananatis* were, however, indole positive and the species specific primers successfully amplified the given region.

After examining the results obtained in South Africa, it was decided that my first research objective in Ghent would be to try and group the strains using another molecular method, namely, REP-PCR. The technique is relatively simple involving DNA extraction, a PCR reaction with universal BOX and ERIC primers and running the products on an agarose gel. Included in this study, were the eight *Pantoea* type species, namely, *P. ananatis*, *P. agglomerans*, *P. dispersa*, *P. stewartii* subsp. *indologenes*, *P. stewartii* subsp. *stewartii*, *P. citrea*, *P. punctata* and *P. terrea*. It was also decided to include two authentic strains of each of these species to determine the variation in profiles within a species. A computer programme, Bionumerics, was used to analyse the results obtained. Only the results obtained from the ERIC profiles were considered, because they were more distinct than those obtained using BOX primers. All 68 strains used in this study, including the eight found associated with *Coniothyrium zuluense*, grouped into 5 clades. The type strain of *P. ananatis* grouped with the largest clade. The type strain of *P. agglomerans* also grouped with one of the clades. All other types strains were distinct and grouped separately. These results were then compared to those obtained in South Africa and the strains grouped accordingly.

The next step was to conduct DNA:DNA hybridisations between selected strains from the various sub-clades and the type strains of *Pantoea*. This is a complex process which requires DNA of a very high quality and quantity. The first task was to grow up sufficient quantities of bacteria for DNA extraction (i.e. at least 1 gram). The final stage of the DNA extraction process was to wind the DNA around a glass rod. This was fascinating as one finally got to see the product you needed for further experimentation. Because of the time constraint it was decided that three strains from Uganda, eight

strains from South America and eight strains associated with *C. zuluense* would be hybridised with the type strain of *P. ananatis*. Hybridisation with the other type strains would proceed once we ascertained which strains were indeed *P. ananatis*. The hybridisation method, which is very sensitive and requires very careful preparation, is based on fluorometric measurements. Microdilution well plates are used so each hybridisation is repeated four times and results averaged and analysed statistically. None of the strains obtained from Uganda and South America are *P. ananatis* (DNA binding values range from 4 - 56%). Three of the eight strains associated with *C. zuluense* are *P. ananatis* (DNA binding values range from 74 - 94%; others had a values between 39 - 56%). Based on these results, DNA from two strains from Uganda and two strains associated with *C. zuluense* but not *P. ananatis* were hybridised with DNA from the types of *P. agglomerans* and *P. stewartii* subsp. *indologenes* (based on 16S rRNA gene sequences these two species are closely related to *P. ananatis*). None of these strains are either *P. agglomerans* or *P. stewartii* subsp. *indologenes* and are thus probably undescribed *Pantoea* spp.

#### **Future research:**

The DNA:DNA hybridisations between the various strains and the type strains will continue in the Laboratorium voor Microbiologie at the University of Ghent. In South Africa, the molecular technique, AFLPs, will be used on all strains mentioned above including the type and two other authentic strains of each *Pantoea* species. This is to further group the strains and confirm the results obtained thus far. The 16S rRNA gene sequences of all strains that were hybridised will also have to be undertaken. This procedure is standard when describing new species. I have no doubt that results obtained both prior to my departure and while at Ghent will lead to publications in internationally recognised journals. At the moment, we are still unravelling a surprisingly complex taxonomic situation.

#### **Personal benefits:**

My first impression of the Laboratorium voor Microbiologie was of vibrancy. The atmosphere is very similar to FABI - academics, students and technicians strive for excellence and conduct focused research in the broad field of bacteriology. Conducting research and publishing results in the top scientific journals is their goal. The topics they cover in this field are broad - from probiotics to identifying lactic acid bacteria found in cheese. The group consists of 60 people, a third are academics and researchers, a third students and a third are technicians linked to the BCCM/LMG collection. I shared a laboratory with a visiting Serbian professor working on lactic acid bacteria and Dr. Marc Vancanneyt, a researcher and my "hands on" collaborator on this project.

I thoroughly enjoyed doing hands-on research again and by re-examining my daily programme perhaps I can spend more time in the laboratory in future. Having no responsibilities other than getting results was pleasurable. Gaining some experience in molecular techniques has boosted my confidence and I now feel much more self-assured when advising students on which molecular technique to use for which purpose. I have now learnt how to do techniques I had previously only had an understanding of - REP-PCR and DNA:DNA hybridisations. I was also given opportunities to see other bacterial diagnostic techniques performed. These included FAMES, SDS-PAGE and DGGE.

#### **Brief summary of other activities undertaken while at the University of Ghent:**

Attended the PhD defences of two candidates from the Laboratorium voor Microbiologie. I was fortunate to meet with the gurus of bacterial taxonomy who were the external examiners of the two candidates.

Attended the "Feest" for Professor Monik Gillis to celebrate her retirement from the Laboratorium voor Microbiologie. It was in the form of a mini-symposium with invited speakers.

Invited to present a seminar entitled: "Coniothyrium canker of eucalypts: a phytopathological enigma" at the Centraal Bureau voor Schimmelcultures (CBS) in Utrecht, the Netherlands. 5 November 2003.

Invited to present a seminar entitled: "South Africa, Forestry and Pathogens" in the Laboratorium voor Microbiologie, University of Ghent. 26 November 2003.

**Professor Teresa A. Coutinho**  
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## BSPM Membership

The society has had a few hiccups with membership records and communication with members over the past few months. The board aspire to the highest stands of service to members and have put in place measures address the recent glitches. The worst of the disruption ought to be past, Diane Brown has taken on the role of managing the membership database and Tijs Gilis is the new membership secretary. Please contact Tijs if you have any concerns about your membership, or if you have any suggestions about how the service to members might be improved. One immediate change will be a more 'welcome and information' package for new members.

Title date	First name	Surname	Affiliation	Country	Type	Joined
Mr	Shaukat	Iqbal		UK	student	8/10/03
Dr	Laura	Grenville	IMS Foresterhill, Aberdeen	UK	full	8/10/03
Mr	Pedro Luiz	Nurmberg	The University of Edinburgh	UK	student	8/10/03
Miss	Hang	Cui	The University of Edinburgh	UK	student	8/10/03
Dr	Andrew	Pitman		UK	full	15/10/03
Dr	Byung-Wook	Yun	University of Edinburgh	UK	full	15/10/03
Mr	Andrew	Howden	New College, Oxford	UK	student	15/10/03
Prof	Jonathan	Jones	The Sainsbury Laboratory, Norwich	UK	full	31/10/03
	Victoria	Worthington		UK	student	05/11/03
Miss	Anne	Coules		UK	student	05/11/03
	Tim	Jürgens		Switzerland	student	30/01/04
Miss	Marie	Guingouain	University of Nottingham	UK	student	05/11/03
Dr	Stephen	Rossall	Nottingham University	UK	full	05/11/03
Mr	Hema Prasad	Narra	University of Reading	UK	student	12/11/03
Mr	Douglas	Arkell	Rothamsted Research	UK	student	12/11/03
Mr	Keith	Cottrell	University of Nottingham	UK	student	26/11/03
Miss	Elizabeth	Pirie	Rothamsted Research	UK	student	26/11/03
Miss	Nathalie	King	University of Birmingham	UK	student	12/11/03
Dr	May Bente	Brurberg	The Norwegian Crop Research Institute	Norway	full	12/11/03
Dr	Luis	Gonzalez-Candelas	Instituto de Agroquímica y Tecnología de Alimentos	Spain	full	26/11/03
Dr	Ashok	Chaudhury	Guru Jambheshwar University	India	full	26/11/03
	Catherine	Taylor		UK	student	26/11/03
Dr	Narpat	Singh		India	full	14/01/04
Dr	Lesley	Torrance	Scottish Crop Research Institute	UK	full	26/11/03
Dr	Peter	Bittner-Eddy		UK	full	08/12/03
Mr	Saurabh	Kulshrestha	Institute of Himalayan Bioresource Technology	India	student	30/01/04
Dr	Shengyi	Liu	Rothamsted Research	UK	full	08/12/03
Miss	Susan	Morris		UK	student	08/12/03
Mr	Gavin	Eyres	Nottingham University	UK	student	15/12/03
	Hans-Jakob	Schaerer		Switzerland	full	15/12/03
Ms	Brenda	Pottinger		New Zealand	student	15/12/03
Mr	Madhav	Mondhe	The University of Wales, Aberystwyth	UK	student	17/12/03
Mr	David	Parker	The University of Wales, Aberystwyth	UK	student	19/12/03
Mr	Janathan	Danial	Scottish Agricultural Science Agency	UK	student	10/01/04
Miss	Elizabeth	Reather		UK	student	10/01/04
Mr	Reza	Shafiei		UK	student	14/01/04
Dr	Simon A.	Weller	CSL	UK	editor-PP	14/01/04
Dr	Solveig	Danielsen	Danish Seed Health Centre for Developing Countries	Denmark	editor-NDR	30/01/04
Mr	Ashutosh	Singh	Sugarcane Research Station	India	student	04/02/04
Ms	Maneesha	Singh	Sugarcane Research Station	India	student	04/02/04
Dr	Anna	Brown	Forest Research	UK	full	04/02/04
Dr	Jaume	Almacellas Gort		Spain	full	04/02/04
Prof	Seung	Kim	KNU Education	South Korea	full	04/02/04
Ms	Yohko	Miyajima		Japan	full	04/02/04
	Svetlana	Milijasevic	Pesticide & Environment Research Centre	Serbia & Monenegro	student	06/02/04
Dr	James R.	Alfano	The Beadle Centre for Genetics Research	USA	editor-MPP	6/11/02

# President of the BSPP 2004

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## Stuart Wale

Fate has played a large part in Stuart Wale's career. Each step in his career has been unexpected but turned out well. When he 'scraped' into University, plant pathology was not even a subject he had heard of. He chose a general Biological Sciences degree to study just because he wasn't sure what aspect to specialise in. In retrospect, the wide ranging course at Aston in Birmingham was good preparation for putting plant pathology in scientific context later. It was the tutelage of HOW Eggins at Aston that sparked an interest in mycology. And when the course was going well it was Howard Eggins who suggested undertaking a PhD in the subject. Seeking out a studentship from a number of prestigious Universities, Prof. John Colhoun invited Stuart to Manchester, the invitation stating that his department was more concerned with plant pathology than mycology - did this matter? Since Stuart hadn't had a single lecture in plant pathology at Aston the interview was a daunting prospect. The interview turned out to be an alcoholic affair because after 10 minutes John Colhoun decided to adjourn to the staff common room for numerous pints of beer. Somehow responses to questions remained coherent and a place at Manchester was offered. Perhaps it was the University expedition Stuart was about to go on to Morocco to study invertebrates in two river systems that secured the place.

Three potential areas for studentships were offered. One of these meant a Potato Marketing Board (PMB) interview for a studentship trying to detect early rotting of potatoes from volatiles emitted. The topic of the studentship was turned down by the PMB. However John Colhoun's alternative was a MAFF studentship studying the Post-harvest Pathology of Dutch White Cabbage. Interestingly, in recent years the successor body to the PMB, the British Potato Council (BPC) funded a project on detecting volatiles at the University of the West of England. Little did Stuart know how close his contact with the PMB/BPC would be in future years. Those who were privileged to study plant pathology in the Department of Cryptogamic Botany in John

Colhoun's days will remember just what an experience it was. More than a dozen PhD students, a few postdocs and four staff all focussed on plant pathology! You couldn't fail to learn in this environment. Stuart was hooked on plant pathology and immersed himself in his somewhat open-ended project. During one part of the research, he met John Fletcher of ADAS, a future president of the Society and his wide knowledge and practical understanding convinced Stuart that advisory plant pathology was a good career.

The PhD ended and despite several interviews no job had appeared. Another twist of fate and a postdoc at Manchester was offered studying aerial

dispersal of *Leptosphaeria (Septoria) nodorum*. This entailed catching aerosol droplets during rain downwind of stubble fields and looking for spores.

When the post of Adviser in Plant Pathology at the North of Scotland College of Agriculture in Aberdeen was advertised, it seemed an ideal job but at a remote location. The post comprised not just advisory work but applied R&D and some teaching. Of the five candidates for the job, two others were from Manchester and more experienced; but to his surprise the panel chose Stuart. The phone call home after getting the post was all about explaining that Aberdeen wasn't that remote and it did have a Marks & Spencer!

Thus began a beguiling period as a front-line plant pathologist in an intriguing area that stretched from Dundee to the Shetlands and from Aberdeen to the Western Isles. This area encompasses all forms of agriculture from crofting to enormous estates, from mixed farming to intensive arable. Advisory work involved providing solutions to disease problems for those with little knowledge and for first rate agriculturalists. One of the first lessons in technology transfer was to develop the skill to explain things to people at different levels of understanding. Another early lesson was that knowing about diseases is not enough to provide solutions - you have to understand general agriculture as well to put advice in context.

For a specialist adviser who was not brought up on a farm there were two ways Stuart developed his general knowledge of agriculture. Firstly, he attended and spoke at farmer discussion groups across the north of Scotland. Each winter, for more than a decade, there would be 2 or 3 evening meetings a week to go to. Although plant diseases would be the topic he was there to discuss, general agriculture was frequently discussed and an understanding of how plant pathology integrated into agricultural production was realised. These meetings had two other benefits. They enabled him to develop presentational skills and also forced him to develop a good understanding of Doric, the NE Scotland dialect, which was crucial to effective communication!

The second way he developed his agricultural knowledge was in the Crop Clinic. If you want to learn about plant diseases spent a week in a crop clinic! Although weed scientists, zoologists and crop physiologists dabbled in the Crop Clinic it was usually the plant pathologist who had to give the final diagnosis and advice. There's nothing more demanding than a farmer with a sample expecting an immediate diagnosis and how to solve his problem!

The importance of putting disease control advice in

a practical context related to the agricultural situation of a farmer, understanding the psychology of the farmer and ways to put advice across most effectively will feature in the Presidential address in the forthcoming BSPP conference in September.

In the north of Scotland cropping is not as diverse as further south in the UK, but the pathology problems are no less significant. This meant researching a diverse range of diseases such as Red Clover Necrotic Mottle Virus, Raspberry Rust, Halo spot on Timothy, *Penicillium* rot of Crocus, Leek Smut etc. But it was the diseases of cereals, oilseed rape and potatoes, the main economic crops in the area that gained most attention both in research and advisory work. Major diseases studied included powdery mildew and *Rhynchosporium* on barley and oats, *Septoria* spp. on wheat and seed-borne diseases of potatoes such as skin spot, black scurf, gangrene and blackleg. Occasionally unusual diseases cropped up and these proved a great stimulus. Stuart remembers particularly the upsurge in *Typhula incarnata* (snow rot) in winter barley, the first local outbreaks of barley mild mosaic virus and the discovery of how damaging light leaf spot could be on oilseed rape.

When he first arrived in Aberdeen, his mentor was Peter Shipton. But the Scottish Agricultural Colleges had a large number of plant pathologists (as they do today) who could be all be relied on for support. Equally, for applied plant pathology, ADAS pathologists have always been fonts of knowledge and Stuart has been pleased to be closely associated with many of them. He recalls with fondness the ADAS Advisory Plant Pathology Conferences as great meetings of like minds.

Teaching has always been a small part of Stuart's job description but he firmly believes that the close integration of Education, Advisory/Consultancy and R&D provides added value for each function. For example, students taught by advisory plant pathologists get a practical insight into disease control not normally available. Similarly R&D is

more focussed where it is based on need as identified by consultancy. He fears that this integration (the Scottish System) also found in the Land Grant Universities of the USA is under threat today. Supervising MSc and PhD students has also proved a worthwhile and stimulating part of the job.

As with all organisations, there have been many changes in the 25 years since he arrived at NOSCA. Notable among these have been the merger in 1987 of the three Scottish Agricultural Colleges to form a single organisation (SAC) and the introduction of charges and competitive bidding for R&D in 1990. Each change has brought a new role and with time an increase in managerial responsibility but Stuart is thankful that the essential part of the job, advisory work (now called consultancy!) and applied R&D has remained constant. The introduction of charging for advice, although daunting does have merit in that you focus on what is essential. If your advice is not good enough you lose your client. However, he feels that competitive bidding for research has not served agriculture in the UK well because of the time spend in preparing bids and that the attitude of institutes working together has changed. Despite this it is still the buzz of dealing with plant diseases that keeps the job exciting. In the last five years, Stuart's attention has turned almost exclusively to potatoes and its diseases.

Plant pathology increasingly offers opportunities for travel, and the BSPP Travel Fund is there to encourage it. Stuart has been grateful for the opportunities to travel widely through both conferences and consultancy throughout the world. He believes that the wide range of international speakers at the Presidential conference in September will confirm BSPP and its journals as truly international.

Publishing in refereed journals has never been number one priority for Stuart. Conference papers and other means to get applied R&D out to the end-user quickly have been more important. There are those who contend that applied R&D is somehow

less scientific than 'pure' R&D. Stuart dismisses this contention, arguing that both need to follow the same scientific principles and both have a place in plant pathology. Nonetheless, he is adamant that refereed publications are crucial and is proud of the Society's two journals.



Stuart finds the prospect of being president as daunting. However, it is encouraging that the society in good heart - as the reports of the annual review meeting will testify. The hard work of BSPP Board members reassures him that there is a good team working for plant pathology. However, he believes that it has to be recognised that for all plant pathologists today, the pressure of work is greater and giving time to a society like BSPP is demanding. He is keen therefore that more professional help is available to support the role of Board officials.

The presidential conference in September is entitled 'Discovery, Development and Delivery in Plant Pathology'. The conference is joint with the European Foundation for Plant Pathology and the title was chosen to allow all pathologists to get involved whatever aspect of plant pathology they study. However, the theme was also chosen to emphasise the need for everyone to bear in mind the practical end-point of their work, something which is dear to Stuart's heart.

# Undergraduate Vacation Bursary Report

## The role of latent infection of seed tubers in the epidemiology of potato late blight

I worked beside a PhD student, Clare Pudsey, who is investigating the contribution of seed tuber-borne *Puytophoru infestans* to potato late blight epidemics. Within the project, various field trials were done in potato crops and the BSPP bursary provided me with the opportunity to help with some of the fieldwork, e.g. planting potatoes, inoculating plots and disease assessments. During the assessing of the field trials I examined lesions on the leaves and on stems that were the result of *P. infestans* and I also observed some potato plants with blackleg, which is caused by the bacterium *Erwinia carotovora* subsp. *atroseptica*.

Planting seed potatoes that have blight is known to produce infected plants. Often the diseased seed rots and emergence is delayed or prevented. However, seemingly healthy tubers sometimes produce diseased plants, or can have reduced emergence. But the effect of latent infection on disease development in the growing crop is unclear. Modern analytical methods provide an opportunity to examine the role of latent infections in the epidemiology of late blight. Several experiments were set up. Latent infection was assessed using the PCR test developed by Dave Cooke at the Scottish Crop Research Institute.

A large field experiment was conducted that looked at the relationship between latent infection on the seed and blight development on the plant. Blight development from this seed was compared with artificially inoculated seed tubers and healthy controls. Symptoms of seed-borne blight were only observed on plants grown from inoculated seed. Symptoms first appeared one week after plant emergence began. All plots grown from inoculated seed eventually showed signs of seed-borne blight. Slow decay of seed tubers and late release of

zoospores from them is the probable explanation of this result. Since the weather conditions in 2003 were very dry the seed tubers survived much longer after planting and this led to a high incidence of seed-borne blight. Some of this may have been caused by spread to neighbouring plants. However, there were a few plants with no infected neighbouring plants that were infected at a later date. This suggests that the inoculated seed had survived for a longer period of time. Spread of blight did not occur very quickly during the growing season as many of the infected plants or stems died before spread occurred. Looking at the infection of plants in the plots and the spread to neighbouring plants, the incidence of seed-borne blight for this experiment was just under 5%. The frequently quoted average value based on the literature is 0.5%.

One pathway used by *P. infestans* to spread from seed onto the growing plant is the movement of zoospores through the soil profile. The effect of the depth of soil covering tubers on transmission from seed to haulm was examined. Based on the literature, the expected result was for the incidence of plants with seed-borne blight to decline as planting depth increased. This result was not obtained. As expected, seed planted 2.54 cm (1 inch) shallower than recommended had significantly more plants with seed-borne blight than the other treatments. However, at both assessments, the plots grown from the deepest planted seed had significantly more blighted plants than those from the recommended planting depth.

A storage experiment examined the influence of three storage regimes on *P. infestans* on seed tubers.

In this experiment different varieties of potatoes were kept at three different temperatures; these being cold stored, ambient and processing (10°C). These tubers were to be analysed for latent blight. The peel was removed and the sap was then extracted from the potato. Once the samples of sap were prepared the DNA extraction was carried out on these samples of sap. The DNA extracted was then stored ready for PCR. By doing the DNA extraction I was able to become more familiar with working in a laboratory environment and also become more confident in using the various equipment within this environment. However, no results are available at the time this report was written.

**Catherine Kerr, SAC**

**Supervisor: Dr. Ruairidh Bain, SAC**

## **Horticulture Research International**

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HRI is preparing for its merger with Warwick University. From the 1st of April 2004 HRI Wellesbourne and Kirton will be named 'Warwick-HRI'. The new organisation will be a lot slimmer than the old one. By the end of March 2004, over 160 staff will be made redundant. East Malling will become independent from Warwick-HRI and will be managed by its trustees as 'East Malling Research'. We are hopeful that the new organisation will work and will be successful in attracting sources of funding for plant pathology research on horticultural crops. However, all plant pathologists/mycologists feel sad to see so many good colleagues leave HRI, such as Steve Roberts, Tim Pettitt, Tony Roberts, John Carder, Geoff Petch and Tim Elliott.

On a positive note, HRI has opened a £2.5 million Genomics Centre at Wellesbourne on 17 October last year. The centre was officially opened by the Vice Chancellor of Warwick University, Professor David van de Linde. The centre is stocked with the

Before starting this placement I was aware of blight but not of the fact that there was early and late blight, and that these were caused by two different fungi. I have also been able to see how quickly *P. infestans* appears on the potato plants after the initial inoculation has taken place and how quickly the infected part has died. By working on this project I gained further knowledge of blight, useful experience in laboratory and field work. I also had the opportunity to see how research for a Ph.D. is carried out and the kind of work involved. I wish to thank the BSPP for giving me this opportunity.

latest molecular biology gadgets to produce genetic maps of populations, to investigate gene expression and to rapidly sequence genes.

Peter Darby of HRI-Wye and Colin Campbell of East Malling have received the Worshipful Company of Fruiterer's prestigious award for excellence in the category of 'Outstanding Achievement in Organic Research and Development'. They received the award for their research to reduce pesticide use in hops. It is hoped that this research will eventually lead to the total elimination of pesticide application on that crop.

**Tijs Gilles**  
**Warwick-HRI**

# Plant Pathology at Long Ashton Research Station

## 1903-2003

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For Long Ashton Research Station, 2003 marked a milestone for two reasons. Firstly the site celebrated its centenary, a notable achievement for a public sector research establishment. Secondly, after years of rumour and speculation, the research station finally closed. The last staff left the site in May 2003, around 60 of them transferring to Rothamsted. Some of the land has now been sold to a developer for housing. The closure represents the end of an era for agricultural research in the south west of England.

For most of its one hundred year history Long Ashton was closely associated with research on plant pathology and crop protection. The research station began life as the National Fruit and Cider Institute, housed in "a building which initially comprised a cart-shed and a fowl or pigeon house". This was renovated to house a cider mill and cellar, an enclosed yard for fermentations, lofts for apple storage, and in front, a laboratory. There was also a cider orchard of around two hectares and another three hectares of pasture on which was established a trial cider orchard. Not surprisingly, in the early years the main focus was on diseases of apples, especially, scab, canker and brown rots. But from the outset other crops were covered in both a research and an extension capacity. During the First World War work was done on diseases of asparagus and tomatoes, as well as field trials on the control of potato blight with copper fungicides. In the 1920s and 30s research on plant disease focussed mainly on the use and mode of action of fungicides. Advisory work for the 'Bristol Province' (five neighbouring counties) also became an important responsibility for Long Ashton in the inter-war years. Following the formation of the National Agricultural Advisory Service (NAAS, later to become ADAS) in 1946, work on plant diseases at Long Ashton was

devoted entirely to research. Nonetheless, studies on plant disease gradually expanded both in scope and staff resource. During the 1950s the Plant Pathology Section was formally defined, with Ralph Marsh as Head and several other staff who included Robert Byrde and Tony Corke. Eric Hislop and Vic Jordan joined the Section in the 1960s. Much of the research continued to concentrate on improving methods of chemical control of plant diseases, particularly those of fruits. The role of organic chemistry was developed by David Woodcock and colleagues who, in collaboration with the plant pathologists, investigated relationships between chemical structure and fungicidal activity. Fundamental studies on the physiology and biochemistry of brown rot diseases of apples were initiated by Robert Byrde.

In 1975 Jim Hirst moved from the Plant Pathology Department at Rothamsted to become the 6th Director of LARS. This coincided with major changes to the research programmes with an increased emphasis on arable crops and much less work on fruit.

Subsequently the more fundamental pathology research was reinforced by the transfer of scientists, including John Bailey and John Hargreaves, from the ARC Unit at Wye College. Their work focused on mechanisms of fungal pathogenicity and plant defence, especially host cell death and the phytoalexin response. Ultrastructural studies on the effects of fungicides were conducted by Don Richmond and Richard Pring, and later on host-pathogen interactions by Richard O'Connell.

By 1980 the Crop Protection Division was established under Keith Brent, with separate Physiological Plant Pathology and Crop Pathology

Sections. At that time about 25 biologists and chemists, plus five research students, were involved primarily in research aimed at combating plant diseases. In 1986 a further major organisational change took place in which LARS was combined with Rothamsted, Brooms Barn and the AFRC Unit of Insect Neurophysiology and Pharmacology, Cambridge to form the Institute of Arable Crops Research (IACR). The emphasis of the research had already shifted mainly to cereals. David Royle and Michael Shaw developed a programme on the epidemiology and control of cereal diseases, in which the current Newsletter Editor, Steve Parker, later played a key role. Derek Hollomon moved from Rothamsted to investigate the mechanisms and management of fungicide resistance. Tom Hunter discovered *Tapesia* (the sexual stage of eyespot) in the UK for the first time, and made novel observations on the infection cycle of *Septoria*. John Lucas joined the molecular pathology group in 1994. During the remaining years the research of this group mainly concerned the molecular genetics of pathogenicity, identification of fungal genes involved in the disease process, and further molecular work on fungicide mode of action and resistance.

Looking back through the annual reports and publication lists from this long history one is struck by the diversity of areas in which research at Long Ashton made an impact in plant pathology. In addition to the main areas of the biology and control of fruit diseases, and later the epidemiology and management of cereal diseases, there is work on potato blight, *Botrytis*, and rust diseases of willows. Pioneering trials on optimising the use of fungicides were accompanied by experiments on alternative biological and integrated methods for the control of such diseases. Fundamental studies included work on the host range, specificity and molecular taxonomy of *Colletotrichum*, and mechanisms of resistance to the parasitic weed *Striga*. Early biochemical characterisation of enzymes involved in soft rot diseases was followed later by molecular genetic approaches to discover

and characterise genes involved in host-pathogen interaction including those encoding fungicide targets. In the last few years some of this work moved into the arena of plant pathogen genomics with the production and analysis of the first EST libraries from *Mycosphaerella* (*Septoria*) as part of the ongoing BBSRC-funded COGEME consortium. Viewed together with all the LARS research on food and beverages, plant nutrition and development, weed control and latterly, plant biotechnology, the founders of the original Fruit and Cider Institute would today surely be astounded by what they had started.

Long Ashton also made an important contribution to the education and training of plant pathologists, both via the staff and research students who passed through LARS, and latterly the large number of Masters students taking the MSc course in Crop Protection run jointly with the Universities of Bristol and Bath. The course began in 1988 and ran until 2002, with around 24 students per year graduating. Many went on to higher degrees or careers related to crop protection. The first Course Director was Bryan Smith, succeeded in 1991 by Neville Pinfield who oversaw it until the end.

Long Ashton has now closed but a significant proportion of its science lives on in the newly integrated Institute at Rothamsted Research. The Centenary Building, which houses many of the scientists transferred from LARS, is named in recognition of the one hundred years of Long Ashton science. In front of this imposing modern laboratory complex stands an old stone cider mill recovered from the Long Ashton site, a monument to the original institute, and the century of research the building commemorates.

### **Acknowledgement**

This abbreviated history is based on a more comprehensive account co-authored by John Lucas and Keith Brent for the LARS centenary volume published earlier this year (Long Ashton Research Station: one hundred years of science in support of

agriculture). In a brief article it is not possible to acknowledge all those whose work contributed to the science and reputation of plant pathology at Long Ashton.

**John Lucas**



**The cider mill from Long Ashton in front of the new Centenary Building at Rothamsted Research.  
Photo Nicola Seymour**

# Central Science Laboratory

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Back in March 2003 the Plant Health Group at CSL played host to a visiting party from the All Russian Scientific Research Institute of Phytopathology (VNIIF) in Moscow. The party comprised the vice director, Anatoly Makarov, the Head of Molecular Biology, Vitaly Dzhavakhiya and the Head of the Department of Potato and Vegetable Disease, Alexei Filippov. Over the course of a hectic four day programme the group both received and gave a series of presentations on work areas of mutual interest in order to explore the potential for future collaboration. These included the National Collection of Plant Pathogenic Bacteria by Andy Aspin and molecular methods for detection and typing of bacteria and fungi presented by Ian Barker, Neil Boonham and Sean Simpkins. Charles Lane, Kelvin Hughes and Claire Sansford outlined the current situation regarding the status of the Sudden Oak Death pathogen (*Phytophthora ramorum*) in the UK. Perhaps the hardest working member of the Russian party was their interpreter, Mrs. Ludmila Belaits, who spent over eight hours each day relaying presentations, questions & answers and social conversations during food breaks. John Elphinstone visited *Pelargonium* growers in Germany, the USA and Guatemala in April, May and June of

2003 to advise on monitoring and control of *Ralstonia solanacearum* race 3 biovar 2 (the potato brown rot pathogen) which has recently been spread in the USA through import of infected cuttings from Central America and Kenya. He also attended a USDA workshop in Washington DC in June where industry and plant health officials met to share experiences with this pathogen, particularly in the light of it being listed amongst 10 plant pathogens as a possible bioterrorism agent. A further workshop is being planned in Kenya to standardise control measures across companies exporting cuttings to the USA and Europe. John also attended the International Congress in Christchurch where he presented an invited paper on advances in molecular taxonomy and detection of *Ralstonia solanacearum* and understanding of its biology. He also represented the UK in an international workshop organised by Plant Health Australia aimed at developing a world class plant pathology diagnostic network, presenting a review of emerging technologies currently used or under development at CSL.

Other participants from the lab travelling to New Zealand for the International Congress were Claire Sansford and Alan Inman. Claire gave an invited paper in the Biosecurity session on "Pest risk

analysis: A tool to identify research needs in support of phytosanitary policy" concentrating on the work being conducted on *Phytophthora ramorum* in the UK. As Project Co-ordinator, she also ran and spoke in an evening workshop on the EC Fifth Framework Project "Karnal bunt risks". Alan spoke on some the work of the Project, particularly the survival of teliospores of *Tilletia indica* (the cause of Karnal bunt) in European soils. (conducted under quarantine containment of course!). This four year, nine partner, multi-disciplinary project culminates in 2004 with a conference on the outputs of the project consortium at CSL. The key aim is to have developed a new pest risk analysis for *T. indica* based upon the project results over the coming months. Nigel Hardwick and Kelvin Hughes were also in Christchurch, Nigel organised and chaired a plenary and concurrent session on "Knowledge transfer for plant pathology". Nigel also handed over his role as chairperson of the ISPP Extension Committee to Eric Boa of CAB International. Kelvin presented a paper entitled "Molecular diagnostics for fungal pathogens in plant quarantine" and a poster on "First report of *Phytophthora ramorum* in the UK".

During the summer there was some further restructuring at CSL with Nigel's Crop Disease

Research team joining up with Keith Walters' entomologists to form the all new "Environmental Entomology and Plant Pathology Team". With Nigel's impending retirement, Judith Turner has taken over the running of the plant pathology section (10 staff members) of Keith's rather enlarged team of 23 staff and students. As usual the team had a busy summer, particularly with setting up the new live monitoring of cereal diseases experiments at 15 sites across England (<http://www.cropmonitor.com/>). The new web based monitoring network includes collaborators from ADAS, NIAB, Morley Research Centre and the Arable Research Centre was demonstrated to growers and the media at Cereals 2003. Phil Jennings attended the Association of Applied Biologists Conference on "Mycotoxins in food production systems" at Bath in June where he presented a paper, co-authored with Mary Coates, Judith Turner and Paul Nicholson (Paul is at the John Innes Centre), on the "Distribution of deoxynivalenol/nivalenol producing isolates of *Fusarium culmorum* and *F. graminearum* in England and Wales". Judith attended the 11th International Rapeseed Congress in Copenhagen during July where the team had a main poster on "Effective control in oilseed rape diseases in the UK - challenges and threats" and was involved with Neal Evans' (Rothamstead) poster on "Interactive forecasting of light leaf spot (*Pyrenopeziza brassicae*) for winter oilseed rape on the internet".

One of the small band of CSL fellows has been busy since his retirement, David Ebbels has had a new book published by CABI with the title "Principles of Plant Health and Quarantine". This is David's attempt to show how administrative methods of plant pest control are important in crop production, the text provides an understanding of international plant health management, which is essential in an increasingly free-trade environment.

Alan Pemberton of the Plant Health Consultancy team has been awarded the EPPO (European and Mediterranean Plant Protection Organisation) Gold

Medal for his services to international plant health. Alan's work in preventing the invasion, establishment or spread of new pests and diseases into Europe has been recognised with the award of only the fourteenth medal in the 50 year history of EPPO.

The laboratory's workforce was strengthened over the summer with the arrival of two new members of staff - Nicola Spence and Steven Parker. Nicola joins CSL from Horticulture Research International and brings with her an international reputation for high quality research on virus diseases of horticultural crops, particularly in the area of International development. Steve has joined the Environmental Biology Group from ADAS, he will be leading projects on crop disease epidemiology and decision support systems on a wide range of arable and horticultural crops. His appointment strengthens the expertise on disease risk management and he will contribute to research on the understanding of the mechanisms that determine crop performance with the aim of improving management practices.

### Moray Taylor

#### Production Schedule

Copy deadlines and the distribution dates for the newsletter are as follows:

Copy deadline (2004)	Newsletter distribution
30 June	16 July
15 September	30 September
30 November	17 December

# A Week in the Life of Fen Beed

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## Biological Control Centre for Africa, International Institute of Tropical Agriculture (IITA), Cotonou, Republic of Benin, West Africa

Firstly, I should explain why I came here: a feeling of futility. After 16 years of studying and then working in the UK as a plant pathologist/crop physiologist at the Universities of Sheffield, Strathclyde, U.C.L., Nottingham and then at ADAS, I was looking for new challenges and a more fundamental sense of purpose. IITA's mission is to increase sustainable agricultural production to reduce poverty in sub-Saharan Africa; now that is a proper challenge!

What do I do here? Well, my first position was to manage a project in West Africa to control water hyacinth (*Eichhornia crassipes*) using fungal pathogens. Water hyacinth is an exotic weed in Africa, first introduced 100 years ago. As a consequence of its extreme durability it has since disrupted most of the waterways of the continent. It kills fish, hinders transport and hydroelectric power generation, upsets irrigation and harbours vectors of human diseases. This project provided me with an understanding of how to manipulate plant pathogens for use as biocontrol agents and mycoherbicides. When funding for the water hyacinth programme ended IITA appointed me to manage a weed pathology programme to include *Imperata cylindrica* and *Striga hermonthica*, the most noxious weeds of the moist and dry savanna, respectively. These indigenous weeds are causing increased agricultural yield losses as a consequence of land use intensification and ever-shortening fallow periods.

One of my other roles for IITA is to manage a diagnostic laboratory for pathogens of plants and arthropods. Pathogens are identified; often for the first time from the country, region or even continent, stored and catalogued in a database.

Much of any week is spent in front of the computer

in search of information, funding leads, collaborators and producing concept notes, and, as is probably true for you, my priority is attracting funding. My last week can be summarised as follows:

**Monday:** I arrive at work by 8 am laden with a collection of unread references and books. My first task is to help with the processing of diseased *I. cylindrica* samples collected from recent field surveys. Thereafter I tackle my overdue annual project highlights for IITA's Work Planning Week. Surprisingly difficult to provide a series of heart stopping highlights, but at least I'm forced into contacting collaborators for updates on their activities and results.

**Tuesday:** Team meeting to discuss a water hyacinth tank trial. Results support previous findings that disease severity and incidence, due to *Alternaria eichhorniae*, are increased when nutrient content of water is reduced. Therefore applications of this biocontrol agent should be limited to sites and seasons with reduced nutrient content. Next, I visit the diagnostic laboratory to discuss progress. One outcome is that the pressure gauge for the freeze drier is showing signs of old age. Orders for materials, as with all administrative matters, can take a long time and must be addressed pronto to avoid disruptions to the research.

**Wednesday:** Called unexpectedly to a meeting on crop protection issues concerning peri-urban agriculture: the increasing and intensive production of vegetables and herbs, with representatives from private, public, non-governmental and International organisations. Then on to another meeting, this time with a student to look at results from a socio economic study of the perception of farmers to *I. cylindrica*, across Agro-ecological zones. Socio-

economic studies have become an increasingly important aspect of research in Africa to both identify problems and determine project impact.

**Thursday:** A visiting scientist from IITA HQ in Ibadan, Nigeria arrives to discuss interest from funders to support weed management in the Niger Delta. I draft a concept note and a detailed outline for a training workshop. Training workshops are of immense importance to transfer knowledge to National Agricultural Research Programmes, providing this information is then further disseminated! Finally, as part of IITA's publications review procedure I referee a draft manuscript written by colleagues.

**Friday:** Long overdue review of the status of a recently funded collaborative project with the University of Florida and PPRI, RSA: implement the allocation of budgets and sub contracts. With my head buzzing with numbers I convene a meeting with staff from my labs. Following, a slow and painful start, this develops into an insightful and social discussion of current technical problems. I leave at 5.30 for the sunny weekend with a spring in my step and a bag full of references I look forward to reading.

### **What's different about working in West Africa?**

The first problem I encountered was language. The official language across IITA is English but the practical language in Benin, and in many countries of the region, is unfortunately something called French. Although I was able to politely say it was rather hot or describe the colour of objects, I appeared severely mentally challenged during adult conversation. With time I became less linguistically handicapped and was eventually able to communicate, which is of paramount importance and interest when working and living within a totally different culture, particularly when the indigenous religion is voodoo!

Another striking aspect is travel: My drive to work is

a chaotic 16 km, 40 minute meander through the polluted city of Cotonou, over potholed tarmac, sand and dirt tracks. This is made even more exciting during the two rainy seasons when ponds of concealed depth appear. Travel outside of the city is even more dangerous due to the poor condition of roads, other vehicles and bandits. However, such travel is necessary for field surveys across West Africa and has given me a glimpse of areas unseen by tourists. It is a treat to be lost from the world for weeks at a time, listening to drums, ceremonies and weird animal noises, often staying in towns with no electricity or water. But the work can be arduous and following a full day's surveying in the sweltering heat the night duty of isolating pathogens from samples, in a room with all the windows shut to prevent drafts with ambient temperatures rarely beneath 30°C and humidity 80% provides little relief.

A variable aspect of surveys is the type of available food. I am fond of chilli soups and tropical fruits, readily available in the southern stretches of the region but further north I might only be offered bat, rat or fermented maize gloop! I particularly like foo foo (which means something completely different where my wife originates) but here refers to pounded yam served with a spicy tomato or peanut soup with fried cheese and leafy vegetables (costing 30p), yum!

One feature of daily life that absorbs more time than I had expected is the management of people: 10 at work and 3 at the house. At work I need to routinely visit experiments and discuss the progress of assessments in order to understand treatment effects and avoid confounding calamities e.g. aphids selectively feeding on plants of high nutrient treatments or large clumsy birds crashing around and defecating in tank trials! The comprehension of rigour, precision, planning and hypothesis development are lacking as a result of the education system, but can be introduced through careful management. I realise for most scientists the notion of people helping with domestic chores at the

house and garden is somewhat bizarre. However, society encourages me to employ as many staff as possible. This has its disadvantages and advantages, for example I recently bought a new moped for my maid from the Chinese chaps across the road, but not wholly unsurprisingly it has cyclical problems and most evenings I have to negotiate the next non-effective course of repair.

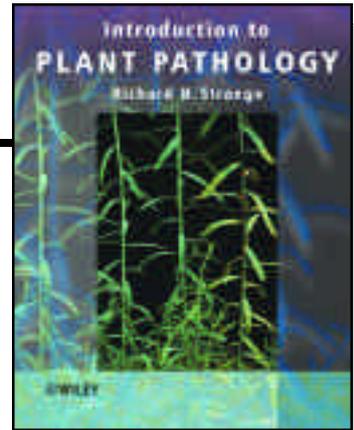
If there is one menace of living here it is disease. Stomach bugs are various and usually tolerable but there are other diseases which pose a more serious threat, especially to children, with malaria being the most common. For the affluent most diseases can be treated with early medication, but I would be happy to see malaria eradicated. The environment of Africa is fierce and man has not yet controlled its biodiversity as it has elsewhere in the world: this is one of the continent's attractions and disadvantages.



**Firmin Adjahossou (M.Sc. student), Flavien Zinsou (technician) and Fen Beed examining a water hyacinth tank trial**

# Introduction to Plant Pathology

**Richard Strange, University College London, UK**



Provides a comprehensive coverage of plant disease for plant science, plant pathology, biology, forestry and agriculture students.

This invaluable resource introduces in the first chapter the eleven types of organism that cause disease, ranging from higher plants to viroids, and describes examples of cash and staple crop diseases that have caused human catastrophes.

Other chapters cover serological and molecular techniques for the diagnosis of plant pathogens, epidemiology, methods for estimating disease severity and its effect on crop yields and techniques for limiting inoculum, including biological control.

Later chapters are concerned with colonisation of the plant and symptom development and the underlying biochemical and genetic factors that control these events. Finally, the control of plant disease using a variety of techniques including "genetic modification" is discussed.

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## Retirement

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In early February, colleagues, past and present, met to celebrate with Nigel Hardwick on his retirement from the Central Science Laboratory. That the event was so well attended will be unsurprising to those who know Nigel.

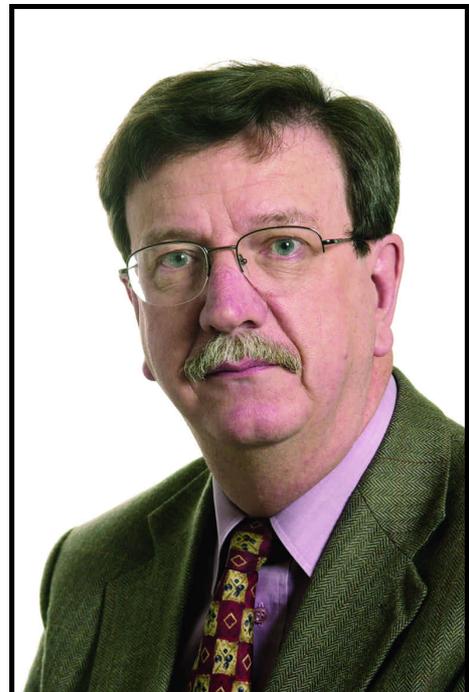
Nigel has been a stalwart of the BSPP since its foundation in 1981. Notably he held the office of President in 1997 and provided previous service on the board as Secretary. The society also benefited enormously from Nigel's enthusiasm and talents, when he took on the role of Secretary for the Organizing Committee of the 7th International Congress of Plant Pathology, held at Edinburgh in 1998.

More recently, those skills were again used to great effect during the Foot and Mouth outbreak. Nigel undertook a seven month secondment to the Farmer Contact & Operations Team at the Leeds Disease Control Centre. This required a sensitive and positive approach, which judging from plaudits from senior staff and colleges, was carried-off to great effect.

Despite his many and obvious achievements, Nigel is modest man keener to promote the successes of Plant Pathology and 'the pathology team'. However, in 1999 Imperial College recognized his contribution to research with the award of the Huxley Memorial Medal.

For all the extra-curricular activity Nigel has always remained dedicated to the art of plant pathology extension. This was summed up perfectly by Professor Steve Hill who described Nigel as 'the consummate advisor'.

Nigel is now a Fellow of CSL and can still be contacted using his previous contact details.



## Obituary

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It is with deep sadness that we report that Claire Shephard died on Sunday 1 February, after a brief illness. Claire was an active member of the BSPP, and provided service as our second Treasurer. A more complete obituary will be published in the next Newsletter.

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