

11<sup>th</sup> January 2016

## Curriculum Vitae

Patricia E.J. Wiltshire B.Sc., D.Sc. (hc), FLS, FSB, FCSFS

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Nationality: British  
Date of birth: 16<sup>th</sup> February 1942  
Marital status: Married - no children  
Address: Milford House, The Mead, Ashted, Surrey, KT21 2LZ  
Profession: Forensic ecologist, botanist, and palynologist.  
Work Status: Freelance since 2004.  
Years' experience: Over 22 years in forensic science, and 40 years as ecologist, botanist, and palynologist (these overlap)

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### **Relevant qualifications, professional awards, and accolades:**

B.Sc. Botany (1<sup>st</sup> Class Honours) - King's College London University

Fellow of the Linnean Society

Fellow of the Society of Biology

Professional Member of the Chartered Society for Forensic Sciences

D.Sc. (Doctor of Science) hc:

University of Gloucestershire: For contributions to Forensic Science

Private lunch with Her Majesty Queen Elizabeth and the Duke of Edinburgh at Buckingham Palace (March 2010)

University of London - Elizabeth Graham Hocart Prize for Botany (1973):

*Best botany degree in University of London*

King's College Carter Medal for Botany(1973)

*Best botany degree at King's College London*

King's College Layton Research Prize (1973)

*Best research dissertation at King's College London*

Dissertation title: Effects of soil reaction on *Azotobacter chroococcum*

King's College Jelf Science Medal (1973)

*Best science degree at King's College London*

Merchant Taylor's Prize (1972)

11<sup>th</sup> January 2016

**Membership of professional societies and associations, and positions held**

The Biological Society King's College London  
*President* (1971-1973)

Mires Research Group  
(Research sub-group of The British Ecological Society)  
*Secretary* (1974-1976)

Ecology and Conservation Studies Group (Birkbeck College London)  
*President* (2001-2003)

British Association for Human Identification (BAHID)  
*Secretary* (2005-2007)

The Chartered Society for Forensic Science (Fellow)  
The Society of Biology (Fellow)  
The Linnean Society (Fellow)  
The British Ecological Society  
The Linnean Society Palynology Group  
The Botanical Society of Britain and Ireland  
Geoforensic International Network  
National Crime Agency: Registered Expert Advisor  
UK Register of Expert Witnesses

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**Career Details:**

Charing Cross Hospital: Medical Laboratory Technician: 1960-1964  
Full-time student at West London College (Business studies); 1964-1965  
Personal Assistant to Director of John Mowlem & Co. Ltd: 1965-1970  
King's College London (1970-1973) Undergraduate  
King's College London (1973-1980) Research in environmental reconstruction (vegetation history).  
King's College London (1980-1988) Lecturer  
King's College London (1988-1993) Honorary Lecturer  
University College London (1988-1998) Senior Research Fellow  
University College London (1998-2004) Senior Research Fellow & Honorary Lecturer  
Forensic Alliance Ltd (2003-2004): Forensic ecologist  
Freelance: Forensic Ecologist, botanist, palynologist (2004-)  
Research Fellow of the University of Aberdeen (2005-)  
Research Associate of the University of Gloucestershire (2004-)  
Research Associate of the Royal Botanic Garden, Kew (2013-)

11<sup>th</sup> January 2016

**Teaching experience and organisation of academic courses:**

King's College London: 1973-1980 (as teaching assistant and demonstrator)

Lecturing in ecology: Laboratory demonstrator: Field demonstrator in ecology and statistics.

King's College London: 1980-1988 (as University lecturer and examiner).

Organisation and teaching of undergraduate courses in Microbial Ecology (mycological and bacteriological). Teaching of general ecology (special responsibility for soils and plant ecology). Teaching of palynology.

Birkbeck University of London Extra-Mural Department: 1983-1998 (lecturer part-time, & examiner): Lecturer and field instructor in ecology and conservation

Birkbeck University of London Extra-Mural Department: Course leader and lecturer (1983-1998)

Residential field courses on various aspects of ecology, vegetation history, palynology, and landscape appreciation.

Birkbeck University of London: Lecturing medical microbiology course (forensic mycology).

Supervision of M.Sc. students in mycology (alternate years 2010-).

University College London: Institute of Archaeology: Organiser, lecturer and examiner (1998-2004): M.Sc. Forensic Archaeological Science.

Individual British Police Forces - Theory: 1995-

Lecturing in forensic ecology, botany, palynology, and mycology, at police training schools, in aspects of these subjects to enhance their appreciation of the role of whole organism biology in forensic investigation. Lectures to Australian National Police (2011).

Forensic residential ecology courses for individual police forces: 1998-

Occasional residential course for police forces emphasising crime scene protocol and management for environmental evidence and theoretical and practical studies in the value of ecology in criminal investigation.

Regional Police Training Schools: 1995-

Forces and specialist departments in Belfast; Metropolitan Police, Hendon London; Scottish Police Forces, Edinburgh.

National Police Improvement Agency:

I have given several lectures to senior personnel in this agency over the years.

British Universities and Institutions: 1995-

Lectures in ecology, botany, palynology, mycology, environmental archaeology, forensic archaeological science to M.Sc. and B.Sc. teaching programmes at:

Jill Dando Institute of Crime Science (University College London):

The Institute of Archaeology (University College London)

University of Oxford

University of Dundee

University of Strathclyde

King's College London

11<sup>th</sup> January 2016

Cranfield University  
University of East London  
University of the West of England  
Bournemouth University  
University of Gloucestershire  
University of Sussex  
University of Southampton

### **Keynote Speaker, Invited Speaker, Public Lectures, and Conference Presentations**

On many occasions, I have presented public lectures on various aspects of my forensic and environmental archaeological work at meetings. I have also lectured at many amateur societies and associations on environmental archaeology, soil science, ecological topics, medical microbiology, and forensic science. The following are associations and societies to which I have given lectures.

The Association for Environmental Archaeology (several times)  
The Linnean Society London  
The Geological Society London (several times)  
Birkbeck College London (several times)  
The Forensic Science Society (several times)  
The Association for Environmental Archaeology (several times)  
International Palynological Congress, Aix-en-Provence  
The British Association for Human Identification (several times)  
International Palynological Congress, Granada (Keynote and others)  
The Geological Society of London Forensic Geoscience Group, Los Angeles  
The Australian and New Zealand Forensic Society (invited speaker)  
The Netherlands Institute of Forensic Science (two invitations)  
The University of Tennessee (invited speaker)  
The University of Uppsala (invited speaker)  
Consultants Association Epsom and St Helier Hospital Trust (invited speaker)  
The British Association in Forensic Medicine London (invited speaker)  
The Medico-Legal Society London (invited speaker)  
Academia Internationalis Medicinæ Legalis Lisbon (invited speaker)  
University of Vienna (invited speaker)  
University of Syracuse New York (invited speaker - series of lectures)  
International Homicide Investigators Association at Bramshill (invited speaker)  
International Conference of Forensic Geosciences, Edinburgh (invited speaker)  
Faculté de Droit et des Sciences Criminales, Université de Lausanne (Keynote - invited speaker)  
Geoforensic and Information Management for Crime Investigation, Macaulay Institute  
Environmental Forensics Meeting, Paris (invited speaker)  
European Academy of Forensic Sciences Madeira (Keynote - invited speaker)  
New York Microscopical Society (Keynote - Lecture to honour scientist)  
6th European Academy of Forensic Science Conference (Keynote & Chair of session)  
Forensics Europe Expo, Olympia 2013 (invited speaker)  
Forensic Europe Expo Olympia 2014 (invited speaker)  
Association of Coroners for England and Wales (Keynote - invited speaker)  
V111 Latin American Congress in Mycology, Colombia, 2014 (Keynote - invited speaker)  
University of Medellin, Colombia, 2014 (invited lecturer)  
Chichester Archaeological Society (invited speaker)

11<sup>th</sup> January 2016

University of Newcastle (invited speaker - public lecture)  
University of Portsmouth  
University of Southampton  
Forensic Forums (O2 Stadium) 2015  
Universidad de Complutense de Madrid  
Workshops for The Chartered Society for Forensic Sciences  
Lectures for various research groups in universities  
Lectures for amateur archeological and ecological groups

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### **Court Experience:**

I have acted as an expert witness in many criminal courts, including:

The Central Criminal Court for England and Wales (Old Bailey)  
High Court, Edinburgh,  
Criminal Court in Belfast,  
Cardiff Crown Court,  
Criminal Courts of Justice, Dublin.

I have given evidence for the Prosecution and Defence on many occasions.

### **Principal clients**

I employ ecological, botanical, palynological, and mycological methods to support criminal investigation. I have worked with every police force in the United Kingdom and Eire. I have also worked with the Netherlands Forensic Institute.

I engage in a small amount of archaeological environmental reconstruction for archaeological units in Britain. In the past, I have worked very many archaeological excavations, some of which include human remains. I have made important contributions to the reconstruction of environments at Pompeii, Hadrian's Wall, during the construction of runways at Heathrow Airport, and many sites over the whole of the United Kingdom. I have worked in every period from Palaeolithic to Mediaeval.

I have carried out work for Stoney Forensics Inc. of Washington (provider for FBI), and liaised with Microtrace Inc. of Chicago. I have also carried out work for the Atomic Weapons Agency in Britain.

### **Key Capabilities**

Forensic skills (ecology, botany, palynology, and mycology): Using my knowledge of animals, plants, microorganisms, pedology, geology, and archaeological techniques, I have been able to contribute to criminal investigations in many ways. The work involves:

1. Holistic evaluation of crime scenes
2. Developing sampling strategies for the different types of crime scene
3. Obtaining appropriate comparator samples from the crime scene

11<sup>th</sup> January 2016

4. Obtaining appropriate samples from exhibits such as footwear, clothing, vehicles, aircraft, digging implements, and many other objects
5. Pre-processing and chemically processing exhibits (methods have to vary to cope with the variety of material)
6. Microscopical scanning and analysis of preparations
7. Identification of palynomorphs (biological particulates)
8. Statistical analysis of data
9. Presentation of analytical and interpretive reports for court
10. Dealing face to face with Investigating Officers and Barristers for presentation of evidence to court
11. Presentation of evidence in criminal courts
12. Analysis and identification of plant material (from anatomy)
13. Examination and sampling of gut contents, vomit, and faeces of cadavers
14. Examination and sampling of nasal passages and hair of cadavers
15. Envisaging locations from assemblages of biological particulates (provenancing from proxy indicators)
16. Recognition of fungal material (e.g. magic mushrooms) and toxic plants
17. Assisting in search for exposed bodies, graves, and other buried objects

I am able to provide information and evidence on the following:

1. Recognition of offender pathways
2. Timing of offender access
3. Timing of time since deposition of bodies or other disturbances
4. Timing of death (through botanical, palynological, and mycological analysis)
5. Differentiation of kill sites from deposition sites
6. Cause of death (in some instances)
7. Links between people, objects, and places
8. Provenancing objects to aid location of places, burials, and objects
9. Eliminating places, objects, and people from suspicion

Archaeological Skills: Using many of the methods mentioned above, I am involved in reconstructing environmental conditions and scenarios from biological and inorganic particulates retrieved soils, sediments, and artefacts from archaeological excavations. I have excavation skills and understand archaeological techniques.

Ecological Skills: I understand field techniques and the application of statistical techniques to data. I have a good grasp of pedology. I lectured in these aspects of ecology at King's College and Birkbeck College (Extra-Mural).

Palynological Skills: I worked for several years in reconstructing ancient landscapes at King's College London. I then worked at University College London as an environmental archaeologist for 16 years, using palynology for reconstruction of ancient environments. I developed the discipline of forensic palynology through casework and experimentation. I have written the protocols for forensic palynology which, at the moment, are in the hands of publishers. The Forensic Regulator has been in possession of these protocols for several years.

Bacteriological and Mycological Skills: I am trained in microbiological technique which is important for isolating organisms from forensic situations. The evidence may be retrieved from cadavers, objects, or soils.

### **Past and Present Research Interests & Collaborators**

1. King's College London: 1973-1974: Effect of the soil flora on antibiotic production by Actinomycetes:
2. King's College London: 1974-1978: Vegetation history of Central Wales: 1974-1978
3. King's College London: 1978-1980: Extraction and characterisation of secondary compounds from *Millettia thoningii* and their effects on bacteria, fungi, and insects.
4. University College London: Institute of Archaeology: 1988-1998: Environmental reconstruction of ancient environments through analysis of palynological sequences in archaeological sediments, buried soils, and riverine deposits.
5. University College London: Institute of Archaeology: 1998-2004 & current: Taphonomic processes affecting palynological surface ground patterning
6. University of Gloucestershire: current: Pollen taphonomy: factors affecting the distribution and frequency of palynomorphs on clothing, footwear, vehicles, and other items.
7. University of Aberdeen: Co-supervision of EC grant-awarded post-doctoral researcher into the effects of palynological processing on the survival of fungal spores and other fungal structures that are useful in forensic examination
8. Natural History Museum & English Heritage: Environmental reconstruction at the Happisburgh Early Palaeolithic site in Norfolk, using palynological analysis of submerged, marine peat deposits. This site has evidence of a human presence dating from 1,000,000 years before present. It is the earliest site of *Homo brittanicus* in Europe.
9. English Heritage: Environmental reconstruction through palynological analysis of Roman wells and ponds at Godmanchester.
10. University of Gloucestershire: Identification of footmarks from trace evidence.
11. Royal Botanic Gardens, Kew: Estimates of fungal diversity in Devon woodland through palynology and molecular analysis.

### **Other activities: 1980-present:**

Consultation: I have been frequently consulted by officers of the National Crime Agency (formerly NPIA and Centrex) for help in interpreting situations and for providing information and help to police forces. I am on their list of experts. I give a free telephone advice service to any police service needing help or information.

Tutoring: I have personally tutored Criminal Barristers and Queen's Counsels on many occasions.

11<sup>th</sup> January 2016

Guidelines and Protocols: I have written guidelines for employing environmental disciplines in sampling at crime scenes and for subsequent investigations. This was written at the request of the National Police Improvement Agency. This is available for all British Police Officers.

Reports: I have written approximately 200 interpretive field and analytical reports for criminal investigations. These have restricted distribution but some are available on application to the courts. My environmental evidence has often been the only forensic evidence available for a trial. In many cases, it has been robust enough to contribute to convictions. In many other cases, the suspects have confessed when presented with my evidence so that public trials have been obviated.

Publications: I have credible record in peer-reviewed scientific papers and have been co-editor of a specialist volume of the journal *Forensic Science International* as well as a conference volume on *Industrial Archaeology*. I am co-author of a monograph in archaeological excavation. I have also written book chapters and popular articles on ecological, archaeological, and forensic subjects. A large number of unpublished archaeological site reports have been written to aid interpretation of archaeological excavations. These are available from English Heritage archives and individual archaeological units and trusts. I have written a chapter for the *Encyclopedia of Forensic and Legal Medicine 2nd ed* (edited by Jason Payne-James and Roger Byard): Elsevier.

Editorial duties: I am a member of the editorial board of *Forensic Science International*, an Elsevier journal. I frequently review submitted papers for both forensic and botanical scientific journals. I am an advisor for a book series on *Forensic Soil Science* Edited by Dr Henk Kars for Springer International.

Media: I am an experienced broadcaster and have been involved in the making of factual documentaries, and programmes of scientific interest on television and radio. I worked with the BBC Wildlife Unit in Bristol in the production of natural history programmes for radio.

I have appeared in the interview situation (such as for 'Tomorrow's World' and 'Crime Watch' and in other capacities. Several documentaries have been made about my work, and my contribution to forensic science, for British television (Channel 5) and international distribution.

I have contributed articles on general ecology to newspapers and magazines, as well as being an advisor to some crime writers, and TV script writers.

I am a visiting professor at Southampton University.