



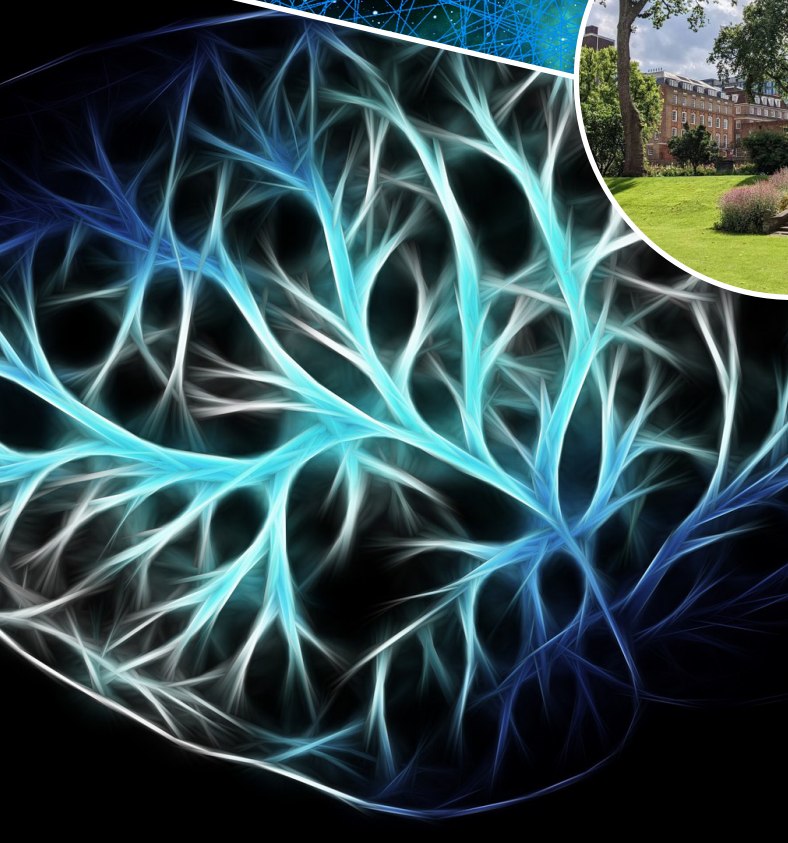
**BRITISH ACADEMY OF
FORENSIC SCIENCES**



**GRAY'S
INN**

NEUROSCIENCE AND THE LAW

**A multi-disciplinary meeting to discuss and
debate the place of neuroscience in the
law, now and in the future**



About BAFS

A person wearing a dark blue suit is holding a magnifying glass over a document. The magnifying glass is held in their right hand, and the document is held in their left hand. The background is a blurred blue-grey color.

BAFS Aims

To encourage study, improve practice, disseminate information, and advance knowledge in Forensic Science and Forensic Medicine for public benefit.

To further these objects by:

- **Holding educational meetings and seminars**, and publishing material that furthers the aims of the Academy. Promoting better cooperation and understanding between lawyers and expert witnesses.
- **Sharing expertise** in order to resolve legal conflicts justly and expeditiously.
- **Providing a forum** for exchange of information in the field of forensic science.
- **Using the skills and knowledge** within the membership to promote the resolution of national and international issues in Medicine, Science, and the Law.

Programme

Morning: Specific Topics in Neuroscience and the Law

Chairs: Tracy Alexander, Siobhan Grey QC

9.00	Registration opens	
9.40	Welcome	
9.45	The Hon. Mrs Justice Cheema-Grubb DBE	'Setting the scene'
10.05	Madeleine Payne (UCL)	Adolescent sociocognitive development and implications for the law
10.35	Dr Huw Williams (Exeter)	Head Injury in offenders
11.05	<i>Coffee</i>	
11.25	Professor Heather Flowe (Birmingham)	Alcohol and substance misuse in offenders
11.55	Professor Keith Rix (Chester)	Automatism cases as the law stands
12.25	Professor Ronnie Mackay (De Montfort)	Automatism as the Law Commission proposes
12.40	General discussion	
1.00 - 2.00	<i>Lunch</i>	

Afternoon: Debate - The future of Neuroscience in the Law

Chairs: Professor Michael Kopelman, Siobhan Grey QC

Discussion/Debate: 'Will Neuroscience change fundamentally the nature of court practice?'

2.00	Professor Adrian Raine (UPenn, USA)	The case for
2.20	Dr Nick Davis (Manchester Metropolitan Univ)	The case for
2.40	Professor Dennis Patterson (Surrey)	The case against (presenting virtually)
3.00	Professor Andrew Forrester (Cardiff)	The case against
3.20	General Discussion from the floor	
4.00	Summing up - Discussants:	
4.00 - 4.15	Professor Chris Frith FRS (UCL) (Neuroscience)	
4.15 - 4.30	Lord Hughes of Ombersley PC (Law)	
4.30	<i>Tea and Close</i>	

Chairs



Professor Michael Kopelman (King's College London)

Professor Michael Kopelman Ph.D, FBPsS, FRCPsych, FMedSci is Emeritus Professor of Neuropsychiatry, King's College London (Institute of Psychiatry, Psychology and Neuroscience). He ran a Neuropsychiatry and Memory Disorders Clinic for 25 years at St Thomas's Hospital, London. He has been President of 2 international organisations and 3 national societies (which included the British Academy of Forensic Sciences). He has written on many aspects of amnesia and memory disorders - from the nature of the cognitive deficits in neurological disease to amnesia in crime. His medico-legal work has included a variety of criminal, extradition, death row, civil, and Appeal Court cases.



Siobhan Grey QC

Siobhan Grey QC is a criminal defence barrister specialising in murder cases. She has extensive experience of dealing with expert witnesses particularly in the fields of psychiatry and pathology.



Tracy Alexander FKC

Tracy Alexander is a Fellow of King's College London, a Lecturer on the MSc Forensic Science, a PhD supervisor for the International Forensics, Wildlife Trafficking theme and the lead for the City of London Police (CoLP) accredited fingerprint lab housed in King's Forensics under a strategic partnership.

Speakers



The Hon. Mrs Justice Cheema-Grubb DBE

Born in Derby and brought up in Leeds, Bobbie Cheema-Grubb read law at King's College London before being called to the Bar in 1989. She practiced as a barrister for 25 years appearing in serious criminal cases and public law matters. She was appointed Treasury Counsel at the Old Bailey and in 2013 became Queen's Counsel.

She specialised in cases of legal complexity or sensitivity including the first man convicted of directing Al Qaeda in the UK, the first group charged with inciting hatred on the grounds of sexual orientation, allegations of torture of Maoist rebels during the Nepal Civil war and trials where national security concerns required private hearings. She also advised the Government in respect of extra-territorial fraud and corruption charges against US & European banks. She chaired the Advocacy Training Council working group which produced an influential report on the treatment of vulnerable witnesses and defendants in courts. This work led to changes in the training of advocates and fresh trial procedures such as 'ground rules' hearings.

Since taking up her appointment to the Queen's Bench Division of the High Court in November 2015 Bobbie has enjoyed the broad range of work that characterises the Division. She has sat regularly in the Court of Appeal Criminal Division, in the Administrative Court on judicial reviews of the actions of public bodies, and on serious criminal trials on circuit. She is one of the small number of senior judges who try terrorism cases.

In 2017 she delivered the Borderlands Lecture at Durham University on the Nature of Remorse and 2019 she gave a Royal Society Lecture on the connection between Neuroscience and the Law. In May 2022 she will deliver the Earlham Hall Lecture on Causation.

She has been a member of the Judicial College for over a decade as a contributor to course design, a Tutor and as Director of Training for Magistrates. She now chairs the International Training Committee of the Judicial College. She has trained judges and advocates in South Africa and India. She is involved in promoting women's participation in the delivery of justice in its widest sense.

Since 2019 she has been one of the four Presiders on the South-Eastern Circuit which is responsible for the welfare and deployment of over 40% of the England and Wales judiciary. In 2022, she is the Lead Presider.

Abstract: Setting the scene with four questions.

A true understanding of the interface between brain biology and human behaviour is a holy grail. Will we look back in 50 years and consider the 2020s to be the last years of clumsy, unscientific assumptions and inadequate evidence about such core concepts as responsibility, reliability, and recidivism?

Question 1. Is it time for a “paradigm shift”/how can we guard against neuro-hype?

- By asking rigorous questions of the science and not losing sight of 2000 years of distilled wisdom about human responsibility, typical behaviours and the purposes of punishment. Pain measurement. Recidivism. Addiction. Impacts of acquired brain injury. Empirical science is regularly received in courts and trusted but will courts ever trust machine learning interpretations of brain scans with ‘black box’ AI? Who should be the gate-keepers for this evidence?

Question 2. Could neuro-law improve human rights?

- By improving our understanding of non-visible damage eg psychological impact of trauma in PTSD in tort law. In sentencing will greater knowledge of genetic predisposition do away with the culpability and susceptibility dichotomy? Will the conflict between therapy and punishment become irresistible leading to a revolution in sentencing theory and practice?

Question 3. How likely is it that advances in neuroscience will ever mature sufficiently to contribute to better justice?

- Do we need to have an almost now, sometime and long into the future perspective? In the medium term maybe only when it supplements rather than subverts current approaches. If the mind-reading and the behaviour contradict each other, courts will act on the basis of the behaviour. However, where there is already a growing body of evidence against age-old assumptions such as with the baseline age of criminal responsibility and maturity of the adolescent brain, neuroscience could tip the balance towards reform as in the United States Supreme Court decision in *Jones v. Mississippi* (2021).

Question 4. What mechanisms or rules might be necessary for regulating and evaluating neuroscience in court rooms?

- Expert witnesses, expert assessors?
-



Ms Madeleine Payne (UCL)

Madeleine Moses-Payne is a PhD student at the Institute of Cognitive Neuroscience, UCL. She is based in the Neuroscience and Mental Health group, supervised by Professor Jonathan Roiser. Her research focusses on adolescent development, specifically how adolescents construct a sense of self. She is interested in how adolescents use their new-found autonomy to explore and learn about their identity. She is also interested in why some young people will develop a negative view of themselves and how this might increase their risk for depression. Madeleine hopes that increasing our understanding of this period of life will allow us to see adolescence as a period of opportunity, flexibility and exploration.

Adolescent sociocognitive development and implications for the law

Abstract: Adolescence is a period of substantial cognitive, social and emotional development. In this talk, I will show that many cognitive processes that are relevant to legal policy and decision making show protracted development across the teenage years and into the 20s. In particular, I will demonstrate that our ability to reflect upon our own decisions and to resist the influence of our peers undergoes significant change during adolescence. This continued development may leave some adolescents vulnerable to the contexts in which criminal behaviour arises but also suggests opportunity for intervention and rehabilitation during this period of life.



Dr Huw Williams (Exeter)

Violent Crime and Brain Trauma: What are the links and what can be done?

Abstract: Children and young people who come into contact with the law are likely to have a neuro-disability (ND). The most common being Traumatic Brain Injury (TBI) from falls, fights and assaults. TBI is present in more than half of young people incarcerated. TBI is often co-morbid with other conditions, such as ADHD (Attention Deficit and Hyperactivity Disorder). Often within experiences of adverse childhood experience. ND's are often accompanied by language and social communication problems. Due to impulsiveness, and poor social skills, they are linked to greater violence - which can be addressed through rehabilitation. The United Nations Committee on the Rights of the Child issued a commentary which states that children with Neuro-disability (ND) are heavily represented in those who enter custody, and should have their needs identified whilst detained, but, moreover, should not be made at risk of being imprisoned in the first place. Earlier management of such NDs – socially and through judicial systems - is likely to lead to better outcomes through improved socialisation and educational outcomes.



Professor Heather Flowe (Birmingham)

I study memory in the legal system.

With colleagues from around the world, I investigate and advise on methods to improve the accuracy of rape complainant statements and testimony, collaborate with rape survivors to document and preserve memory evidence; and develop novel lineup procedures to increase the accuracy and reliability of eyewitness identification.

I've published on:

- How the past sexual behaviour of rape complainants has nothing to do with false rape accusations
- Why victims blame themselves for rape if they were alcohol intoxicated during the attack - and shouldn't
- Indicators of eyewitness/victim memory reliability
- Why memory evidence given by victims who were alcohol-intoxicated can be just as strong as sober victims
- How to improve accuracy in other race/ethnicity identifications
- The prevalence of alcohol and other drugs among witnesses and defendants in violent crimes
- How lineup identification ability develops from childhood to adolescence
- How eyewitness attention and memory are affected by the presence of a weapon during a crime
- The preservation and protection of memory evidence in low resource environments
- How eyewitness/victim memory influences prosecutorial decision making in cases like rape.

Alcohol and substance misuse in offenders

Abstract: The relationship between alcohol, memory, and offending is an important area of research for both societal and legal reasons. Violent crime has been found to be associated with an increase in alcohol use, and with alcohol-related amnesia being commonly reported by offenders, it is crucial that the impact of alcohol on memory is investigated, particularly in the context of crime. This talk aims to address key questions about how alcohol and substance misuse in offenders.



Professor Keith Rix (Chester)

- Honorary Consultant Forensic Psychiatrist, Norfolk and Suffolk NHS Foundation Trust
- Visiting Professor of Medical Jurisprudence, University of Chester
- Mental Health and Intellectual Disability Lead, Faculty of Forensic and Legal Medicine of the
- Royal College of Physicians

Automatism cases: as the law stands

Abstract: A short, quick quiz will demonstrate that medicine and the law do not agree as to what is a disease of the mind and that automatism is a "quagmire of law, seldom entered nowadays save by those in desperate need of some kind of defence" (R v Quick [1973] QB 910) or so it was in 1973. A whistle-stop tour of a number of cases will reveal both the wide-range of conditions and states which may give rise to the defence and, when divided into non-insane (sane) and insane automatisms, the muddled if not also muddied medicolegal nexus that lay jurors, first instance judges and court of appeal judges have to unravel. Legal definitions are introduced to show that, in law, automatism can mean both absence of volition and action with no, or an altered state, of consciousness.

Problems are identified: (1) differences in the burden and standard of proof; (2) inconsistency in restriction where there is prior fault; (3) inconsistency in restriction where intoxication is self-induced; (4) the inconsistent if not unjust 'internal'/'external' distinction; (4) the inconsistent approach to the degree of impairment; and (5) the problem with the continuing danger test.

In summary it will be suggested that two varieties of involuntary control can be distinguished: (1) conduct involving a state of impaired consciousness where (a) voluntary control is absent or (b) there is some voluntary control and (2) conduct which does not arise from a state of impaired consciousness where (a) the nervous system is intact or (b) the nervous system is damaged or diseased. Applying Eastman's medico-legal mapping, it will be demonstrated that this illustrates the incongruous evidential 'mapping' of medical constructs onto automatism.



Professor Ronnie Mackay (De Montfort)

Ronnie Mackay is Professor of Criminal Policy and Mental Health at Leicester De Montfort Law School, De Montfort University. He has written and researched on mentally abnormal offenders for many years. He is the author of *Mental Condition Defences in the Criminal Law* published by Oxford University Press together with numerous other scholarly publications. He was a member of the Parole Board of England and Wales from 1995 to 2001. He has acted as a consultant to the Law Commission for England and Wales for whom he has conducted empirical studies on unfitness to plead, the insanity defence, diminished responsibility, provocation and infanticide.

Automatism as the Law Commission Proposes

Abstract: In criticising the current distinction between sane and insane automatism the Law Commission provisionally proposed a new defence of "not criminally responsible by reason of recognised medical condition". In doing so the Commission accepted that some conditions which currently support a sane automatism defence would fall within the new "recognised medical condition" defence. Would this mean the demise of the automatism defence? This presentation will assess the advantages and disadvantages of this approach which would inevitably lead to fewer unqualified acquittals and more special verdicts of "not criminally responsible by reason of recognised medical condition".



Professor Adrian Raine (UPenn, USA)

Adrian Raine is the Richard Perry University Professor of Criminology, Psychiatry, and Psychology at the University of Pennsylvania. His research focuses on the etiology and prevention of antisocial behavior. He has published 488 papers and given over 400 invited presentations in 32 countries. He is past-President of the Academy of Experimental Criminology, and has received numerous awards including an honorary degree from the University of York (UK) in 2015, and the Lifetime Contributions Award in Psychopathy in 2017 from the Society for the Scientific Study of Psychopathy.

Will Neuroscience Change Fundamentally the Nature of Court Practice?

Abstract: The rapid developments taking place in neuroscience are creating an uncomfortable tension between our concepts of responsibility and retribution on the one hand, and understanding and mercy on the other. Neurocriminology is a new field which is increasingly documenting brain impairments in violent offenders. This presentation examines the implications of this body of knowledge for the criminal justice system.

If the neural circuitry underlying morality is compromised in psychopaths, how moral is it of us to punish prisoners as much as we do? Should neurobiological risk factors be used to help us better predict future violence? And importantly, how can we change the brain to change violent and antisocial behavior? It is argued that while neuroscience may not fundamentally change the nature of court practice in the short-term, there is the potential for long-term change if the progression of advances in neurocriminology is sustained.



Dr Nick Davis (Manchester Metropolitan Univ)

The case for

Abstract: Guilt in a criminal act is decided by two things: a crime must have been committed (*actus reus*), and the person must have meant to do it (*mens rea*). I will argue, by analogy with studies of conscious experience, that *actus reus* is an "easy problem", in that forensic scientists can often find ways to associate a crime with a suspect. However *mens rea* is a "hard problem", as a person's intentional state at the time of the act is known only to that person. *Mens rea* is the province of psychology and neuroscience. I will talk about how neuroscientists have teased apart the processes underlying intention for actions, and how modern technologies may be used in legal processes, particularly technologies that modulate brain function. I will also suggest that some of these new developments may not be desirable, and that we need regulation to ensure that the rights of the accused are protected.



Professor Dennis Patterson (Surrey)

Dennis Patterson is Professor of Legal Philosophy. Among his many publications is 'Minds, Brains, and Law,' published by OUP.

The case against

Abstract: I plan to say 3 things. First, I am dubious of the idea that neuroscientific data adds to what we already know from other measures. I also think that, in general, neuroscientific data is "inert" when it comes to telling us anything to make the law better. Finally, I will say something about the utility of neuroscientific data.



Professor Andrew Forrester (Cardiff)

Andrew Forrester is Professor of Forensic Psychiatry at Cardiff University, and a Consultant Forensic Psychiatrist with Swansea Bay University Health Board and Oxleas NHS Foundation Trust.

The case against

Abstract: There have been significant advances in neuroscience in recent decades, and it is clear that some of these advances have wide implications, potentially influencing the very way in which we understand what it means to be human. In further contributing to advancing knowledge in the area of mental processes, there is also a consensus that neuroscience will likely continue to play a vital role in the future. However, this advance also has limitations, and one particular argument that has been put forward – i.e., that neuroscience will fundamentally change the nature of court practice – is an argument too far. I will consider some of these advances in neuroscience, review the sorts of questions that must be answered in courts, and discuss the essential difference between them. Court room questions are often complex and underlain by myriad potential variables, many of which we do not yet fully understand, and the idea that they can, or will, be entirely resolved by neuroscience is problematic. I will finish with a fictitious case study that demonstrates the limitations of neuroscience in the court room, and speaks to the ongoing need for experienced experts who can draw on a wide range of influences in preparing and delivering their evidence.



Professor Chris Frith FRS (UCL) (Neuroscience)

Chris Frith is Emeritus Professor of Neuropsychology at the Wellcome Centre for Human Neuroimaging at University College London and Honorary Research Fellow at the Institute of Philosophy, London University. Since completing his PhD in 1969 he was funded by the Medical Research Council and the Wellcome Trust to study the relationship between the mind and the brain. He was Niels Bohr Visiting Professor in the Interacting Minds project at Aarhus University in Denmark and a Fellow of All Souls College Oxford. He is a pioneer in the application of brain imaging to the study of mental processes. He is known especially for his work on agency, social cognition, and understanding the minds of people with mental disorders such as schizophrenia. He is a Fellow of the Royal Society and the British Academy. His most recent book, "Two Heads" is a graphic novel about social cognition and the brain.



Lord Hughes of Ombersley PC (Law)

- B 11 Aug 1948.
- BA (Law) 1969 Van Mildert College, Durham.
- Lecturer in law University of Durham and Queen Mary College London 1969-71.
- Practised at the Bar from Birmingham chambers 1971-1997.
- QC 1990.
- 1986 onwards: Recorder (part time judge Crown and County Courts).
- High Court Judge 1997-2006; Family Division then Queen's Bench.
- Court of Appeal 2006-2013, Vice President of the Criminal Division.
- Supreme Court 2013-2018. Retired at 70 under then applicable rules.
- Judicial Commissioner, Investigatory Powers Commission, 2018 to date.
- Long involvement in the liaison project between the senior judiciary and the Royal Society, inter alia arranging joint seminars and publishing primers for judges on scientific subjects encountered in trial courts.
- Chairman, Public Inquiry into the death of Dawn Sturgess (Salisbury and Amesbury poisonings) 2022-
- Veteran rowing, bellringing, garden machinery and local charities in Worcs.
- Married to a biochemist, now retired; two grown up children.



**GRAY'S
INN**

GRAY'S HISTORY

Gray's Inn has been home to lawyers since before 1388 AD and is today one of the four Inns of Court responsible for the education and training of barristers before and after their Call to the Bar.

The Inn originally formed part of the Manor of Purpoole belonging to the de Grey family who probably leased the Manor House to a society of lawyers who housed in their 'chambers' apprentice lawyers. The students used the Hall of the Manor as an 'Inn' in which to dine and hold their legal debates and 'moots' which formed part of their training.

The sixteenth century was known as the "Golden Age" of the Inn, when Queen Elizabeth I herself was the Inn's Patron. In this period the Inn was renowned for its "Shows" and there can be little doubt that William Shakespeare played in Gray's Inn Hall, where his patron, Lord Southampton was also a member.

Tradition claims that the Great Screen was built from the timbers of the Nuestra Senora del Rosario, the flagship of the Andalucian Squadron of the Spanish Armada in 1588. Following its capture by the English it was broken up at Chatham and may have been the gift of Queen Elizabeth I or the Lord High Admiral of the Fleet, Lord Howard, a member of the Inn. Diagonal rope marks can be seen on the third pillar from the left. The screen was rescued from the Blitz in 1941 which destroyed the Hall roof.

The stained glass within the Hall had luckily also been moved to safety earlier on during the Second World War and was thus preserved. Some of the exquisite stained glass windows in the Hall date back to 1462. The South Oriel window contains the Coats of Arms of Her Majesty Queen Elizabeth II and of Master the Prince of Wales.

Master Sir Winston Churchill and Mr Franklin Roosevelt (then Minister of Munitions and Assistant Secretary of the United States Navy, respectively) first met in 1918 at the high table within Gray's Inn Hall.

Our venue: The Large Pension Room





BRITISH ACADEMY OF FORENSIC SCIENCES

The aim of BAFS is to further education, training and the interchange of ideas in all aspects of forensic science.



BAFS welcomes

lawyers, scientists, pathologists, physicians, psychiatrists and police personnel who have an interest in justice and its application to the law.

Our meeting topics cover medical, scientific and legal disciplines and are supported by the quarterly journal **Medicine, Science and the Law**.

We hold events throughout the year: recent topics include the identification of Richard III, the case of Marine A, Mass Fatalities and Disaster Victim Identification, Miscarriage of Justice cases, advances in DNA technology and a variety of forensic investigative specialisms.

We hold regular meetings, usually in January, March, June, October and November (see website) and welcome students/trainees with discounted rates.



BAFS.org.uk

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To join please email
contact@bafs.org.uk