# TRANSACTIONS OF THE LEICESTER LITERARY & PHILOSOPHICAL SOCIETY

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Cover picture: Main Entrance, New Walk Museum, Leicester



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# SKETCHES OF LITERARY MEDICAL MEN

## Presidential Address by D.P.S. Sandhu, M.D., F.R.C.S. (Ed.UROL), F.R.C.S. (Glas)

Delivered on October 4th 2005

**When one looks at the topic of literary medical men where does one begin? Should I start with Aesculapius, the Greek God of Medicine, Homer, Hippocrates or St. Luke the beloved physician of the Gospel? In my research I have come over 50 examples of well known literary figures who trained as doctors. In such a presentation I can only limit myself to a handful. This is not a scholarly work of their literary output, but a personal view of aspects of their lives that has interested me.**

George Crabbe is now forever linked with Benjamin Britain and Snape Maltings near Aldeburgh. The poet was hooked on landscape around Aldeburgh and in common with his pitiable fishermen Peter Grimes trudging along the old estuary, he was born part of it and, later, it became part of him. His father worked as a warehouse manager and then as a collector of salt taxes. At the age of 13 Crabbe was apprenticed to a doctor, Mr Squeers, at Wickhambrook near Bury St. Edmonds, where he also had to double up as a farm labourer. He was dubbed the poet of the poor. He saw all round him poverty, degradation and suffering and wanted to, as he says, 'paint the cot as truth will paint it and as the bard will not'. He spent time as a doctor in Aldeburgh and, to gain more experience and skills in surgery, went to London where he was threatened with prison because of bad debts. Fortunately, the statesman Edmond Burke bailed him out and took him under his wing and introduced him to such luminaries as Samuel Johnson, George Fox and Sir Joshua Reynolds. In 1781, due to Burke's influence, the Bishop of Norwich licensed George Crabbe as curate to the rector of Aldeburgh. Later, Crabbe was Chaplain to the Duke of Rutland at Belvoir Castle. At the age of 28, he published his long poem 'The Village', an honest portrait of rural life. He drafted many novels but destroyed them all unpublished including 'An English Treatise and Botany'. For 22 years he did not write poetry again until 1810 when he published his famous poem 'The Borough', a long poem based on Crabbe's knowledge of Aldeburgh and the village characters, such as the fearsome fisherman, Peter Grimes.

His wife Sarah Elmy declined into mental and physical ill health. Crabbe eventually settled in Trowbridge, Wiltshire and remained there for about 20 years until his own death in 1832. He was praised by Wordsworth, Scott and Byron, who said of him, 'nature's sternest painter yet her best'. His parishioners said of him: 'He broke through the obscurity of his birth, yet never ceased to feel for the less fortunate, entering into the sorrows and deprivations of the poorest of his parishioners; and so discharging the duties of his station as a minister and a magistrate as to acquire the respect and esteem of all his neighbours.'

Born on the 10th November 1728 at Pallas near Bally Mahon, Ireland, Oliver Goldsmith's life was full of incidents. His writings drew largely based upon his own experience in which his own generosity and gullibility are irradiated by a sense of sheer fun. In 'The Citizen of the World' he writes about his father. 'His education was above his fortune and his generosity greater than his education. Poor as he was, he had his flatterers still poorer than himself. For every dinner he gave them, they returned the equivalent in praise, and this was all he wanted. We were told the Universal Benevolence was what first cemented society. We were perfectly instructed in the art of giving away thousands, before we were taught the more necessary qualification of getting a farthing'.

Goldsmith qualified from Edinburgh in 1752 and pursued further study of medicine at Leyden. His literary skills were recognised by Dr Johnson who introduced him to the literary circle in London with which Crabbe was also familiar. Goldsmith was a history scholar and a journalist, but best remembered now for his marvellous play 'The Vicar of Wakefield' and amongst his poems, 'The Magnificent Traveller' and 'The Deserted Village'. He died from a kidney infection on the 4th April 1774 in London and is buried in the Temple. In 1776, a monument was raised to him by Joseph Nollekins which is in

Westminster Cathedral with a Latin inscription by Doctor Johnson. Behind that witty façade, Goldsmith was lonely and one of his favourite quotations was 'that human life is at the greatest and best but like a forward child that must be played with, and humoured a little to keep it quiet, until it falls asleep and then the care is over'.

'Medicine is my legal wife, literature my mistress. When I'm bored with one I spend the night with the other.' So said Anton Chekhov. He was born on 17th January 1860 at Taganrog in the far south of Russia. He entered the medical faculty at Moscow University in 1879 aged 19 years. An early experience of peritonitis may have influenced him to go into medicine. In 1888 he won the literary Pushkin prize, and in 1890 travelled across Siberia, a thousand miles, to the island of Sakhalin to write a book about the penal colony. The bright period of his life was his marriage to the actress Olga Knipperin in 1901. The last 20 years of his life he was handicapped by tuberculosis and tried to escape by being in Yelta in his estate at Melikhovo. He cared for peasants at times of cholera and famine. There is a certain elusiveness of his personality but his life is well understood as he wrote more than four and a half thousand letters, as well as numerous short stories and plays including 'The Cherry Orchard'. He died on the 2nd July at the German Spa Town of Badenwieler and was given a state funeral in Moscow.

Sir Frederick Treves was a gifted surgeon, born in Dorchester in 1853 and studied at The London Hospital. In 1876 he got the Fellowship of the Royal College of Surgeons of England. In 1881 he became the Wilson Professor of Pathology and in 1885 Hunterian Professor of Anatomy at the College of Surgeons. He went to South Africa in the Boer War and took part in the relief of Ladysmith. He was one of the founders of the British Red Cross and he wrote a tale of a field hospital from his experience of the Boer War. He was famous as an expert on appendicitis (perityphlitis), and operated on King Edward the 7th on the eve of his coronation. Later he was knighted for this. Unfortunately, Treves the world expert, misdiagnosed his own daughter's appendicitis and Hetty died from peritonitis. He expressed this tragedy in a short story called 'The Idol with Hands of Clay'. His other fame was that he looked after Henry Merrick, the Elephant Man, which he described in his book 'The Elephant Man and other Short Stories.'

'There is no such thing as brave surgeons there are only brave patients', is an aphorism of Sir William Osler. Osler, the genius of medical education, stated that knowledge comes but wisdom lingers. This is testified by his academic distinctions. He graduated from McGill University Montreal in 1872 where later he held the Chair of Professor of Medicine. He went on to be Professor Medicine at the University of Pennsylvania and, in 1889, became Professor of medicine at John Hopkins Medical School in Baltimore, and also in Oxford. Numerous essays and bibliography exceeding 1500 are now part of the McGill collection. His book 'Aequanemitas and other Addresses' has given pleasure to public and patients alike. At John Hopkins, Osler's neighbour was Doctor Harvey Cushing, the famous American neurosurgeon, who went on to become Professor of Surgery at Harvard and later to Yale as Professor of Neurology from 1933-1937. He eventually retired as Director of History of Medicine, and published 'From a Surgeons Journal 1915 – 1918' his experiences of World War 1. It gives a sad account of the death of William Osler's son, Revere, at whose side he stayed until he died. Revere, on his mother's side, was the grandchild of the famous American patriot Paul Revere, and now was buried in a Union Jack. He wrote the life of Sir William Osler in two volumes which won him the Pulitzer Prize.

World War 1 is also associated with Lieutenant Colonel John McCrae (1872-1914), who was a brilliant graduate from the University of Toronto. He graduated in 1898 with honours and gold medal scholarship in physiology and pathology. McCrae was with the Canadian Queen's Medical Corp in World War 1. On May 2nd 1915, two medical graduates, Lieutenant Helmer and Owen Haigh, died in a shell burst. Unfortunately, because of other victims, a priest was not available and Colonel McCrae undertook the service himself. It is said that he was so moved that he sat at the back of an ambulance and in 20 minutes composed his famous poem 'In Flanders Fields'. It was this poem 'In Flanders Fields where the Poppies grow' that developed the poppy into being an emblem for Remembrance Day. McCrae died from pneumonia on 20th January 1918. He had written 'There is just one step from the midst of stormy life to the precincts

of everlasting rest' and now he had taken that step. His old Professors at McGill paid this tribute to him: 'Think of it, a poet and scientist and a soldier, a scholar, a gentleman, a Christian, a fine fellow, generous, unselfish, a tireless aggressive worker and in all this there was a charm, the spirit, the freshness of the budding personality of John McCrae'. The poppy factory manufactures 30-34 million each year and this helps to pay for the care of the armed services veterans.

Arthur Conan Doyle was born in Edinburgh on 22nd May 1859. In 1876 he went to Edinburgh University to study medicine. He worked as a Clerk for Dr Joseph Bell, a surgeon at Edinburgh University. Bell, on whom the character of Sherlock Holmes is based, delighted his students by his clever deductions about patients based on observation of their clothes, mannerisms and behaviour. As a patient walked in, Bell would say 'I see you walked across the golf course'. To the startled patient and students he would then explain, 'look at the sand on his shoes, nowhere in Edinburgh would you see red sand except on the golf course'. After qualifying, Conan Doyle worked as a ship's surgeon and then went into general practice at Southsea. In 1885 he married Louise Hawkins. He was unsuccessful as a doctor and to pass the time and make money he started writing detective stories for publication. Although he saw himself as a writer of historical novels, it was his future fiction hero, Ormond Sacker from Afghanistan, who lived at 221b Upper Baker Street, and Sherrinford Holmes, who studied the laws of evidence and was a philosopher and collector of rare violins, who made Conan Doyle famous. By the end of the first venture they had become Dr John Watson and Sherlock Holmes in the first adventure 'A Study in Scarlet'. Conan Doyle was a sporting man, played for the MCC, and was a patriotic man of letters. He campaigned in support of General Kitchener for his conduct of the Boer War, and in favour of George Edalji, an Indian solicitor, and Oscar Slater, who were both unlawfully imprisoned. He was particularly appalled by King Leopold of Belgium for his crimes against the people of Congo. He became interested in spiritualism and felt that women should have the vote provided they paid tax. But he did champion the divorce rights of women. He died on 7th July 1930. His grave in Bignell Wood in the New Forest is marked with a simple oak slab and, in true Victorian style, the epitaph states 'Steel true, blade straight.

William Somerset Maugham was born on 25th January 1874 in Paris in the British Embassy. His father, Robert, was said to be very ugly and his mother Edith was charming and good looking. They were known affectionately as the beauty and the beast. Unfortunately, by the age of 10 he had lost both his parents. The succession of grim early experiences, including stammering, drove Maugham to conclude that life has no logic to it. There was no intrinsic meaning. He decided, therefore, to make the most of his talent while enjoying himself to the full. He was a medic, bohemian and a playwrite novelist, ambulance driver and spy. Even his sex life was a search for variety. In 1892 he went to St Thomas's hospital and published his first novel 'Lisa of Lambeth', while still a medical student. By 1908 he had 4 plays running in the West End and this established him financially. Because of the trial of Oscar Wilde he kept his homosexuality secret. The American, Gerald Haxton, was the love of his life and stayed as his secretary until Haxton's death in 1944. Maugham married Syrie Wellcome in 1916. She was the daughter of the well known philanthropist, Dr Thomas Bernardo, the founder of the Homes for Homeless and Orphan Children. Maugham was invited to be a secret British agent and went to Russia with a large amount of gold to try to prevent the Bolshevik uprising by the Government of Kerensky, and in the Great War to keep Russia on the side of the Allies. He travelled all over the world and bought the Villa Mauresque at Cap Ferrat between Nice and Monte Carlo, living and entertaining in style. After Haxton's death, Maugham was devastated. He wrote that all the best years of his life were invested in him. Towards the end of his life, he said 'they say as one gets older one fears less, I wish it were true.' He died on the 15th December 1965.

Not many are aware that James Augustine Joyce spent a short time at the Catholic University Medical School in Dublin. Because he was unable to pay his fees, he went to Paris to study medicine and support himself by teaching English. However, because of financial reasons, he had to return at Easter 1903, no longer a medical student but a medical student's pal. This pal was Oliver St.John Gogarty, who was born on 1st August 1878 and had the priceless gift of robust health and a cheerful temperament. Gogarty's view was 'it is better to have been born lucky than rich'. He passed his medical degree in 1907 from Trinity College Dublin and specialised in ENT.

Sometimes he was called, 'a snot doctor, the kindest heart in Dublin and the dirtiest tongue'. When a Dr Ashe passed him in the street he murmured 'poor Ashe he fancies he's the whole cigar'. He used to tease a surgeon called MacArdle, 'Let MacArdle confine you in hope, a jockey fell off and his neck it was broke, he lifted him up like a fine honest man, and he said, he is dead but I will do all I can'. Gogarty supported the Sinn Fein movement when the Irish Free State was established. He was made a senator but his outspokenness created many enemies for him. The Republicans thought him an arrogant right wing reactionary and threatened to kill him. Once, when he was kidnapped, he evaded his captors by swimming the Liffey, and in gratefulness gave the Liffey two swans. Gogarty wrote several novels and won prizes for his poetry and Yeats published 17 of his poems in the Oxford Book of Modern Verse. He had a tremendous impact on society. The men admired his wit, 'I made my fortune with a knife and lost it with a fork'. Women loved him; he was a good conversationalist at dinner tables. Joyce cast Gogarty as Buck Mulligan in Ulysses. Gogarty never forgave him for this. When they last met in 1909 Joyce said to him 'you have your life, leave me to mine. I bear you no ill will but I must write as I have felt'. Gogarty replied, 'I don't give a damn what you say of me so long as it is literature'. That was the last time they met. Joyce died on 13th January 1941 from a perforated duodenal ulcer. There were two books on his desk, one a Greek dictionary and the other Gogarty's 'I follow St Patrick'. Gogarty died from a heart attack on 22nd September 1957 in New York and is buried in Connemara, Ireland.

Axel Munthe, famous for his best seller 'San Michele' was born in 1857 into a Flemish family of ancient lineage. He qualified in 1874 from Uppsala University, and when his health broke down due to tuberculosis, he went south to Capri to recuperate. This gave him an opportunity to spend two years to study at Montpellier specialising in gynaecology. He then moved to the University in Paris and developed a reputation for himself by advocating the use of blood transfusion and the prevention of haemorrhage from childbirth. In 1880 he married Ultima Hornburg. Munthe was a compassionate man and relieved the suffering of patients during a serious typhus epidemic in Capri and in Ischia on the aftermath of an earthquake. He was influenced by Charcot, a great physician, and moved to psychiatry. He left his successful professional life to help with the cholera epidemic in Naples which was leaving a thousand dead each day. He advocated the use of red wine as a disinfectant. He published his experience in 1887 as 'Letters from a Mourning City'. Later in Rome he lived at 26 Piaza De Espiana where previously Keats had died. In 1907 he married for the second time the beautiful Hilda Pennington Mellor. He went to France in 1914 as a Doctor with the British Army and took up British Citizenship. An autobiographical novel 'Red Cross and Iron Cross' was published in 1917.

Munthe had devoted a large part of his life to the Relief of Human Suffering. He was a great lover of science and Roman ruins. He was invited to the opening of the coffin of Tutankhamen by Lord Carnavon. The Tsar of Russia, Nicholas the Second, gave him an Icon. He supported euthanasia and blood transfusion, and was a great lover of animals, supporting the Society for Prevention of Cruelty to Animals. In 1945, the King of Sweden asked Munthe to live with him. He died at the age of 91 on the 11th February 1949.

Dannie Abse is the only living literary medical figure that I will mention. He was born in Cardiff in 1923 and continues to practice in London. His prodigious talent is reflected by the fact he has written three novels and ten volumes of poetry. His wife, Joan Abse, was an art historian. There is quite a lot of medical connotations in his work from 'Stethoscope – Sound of Creation' to his poem 'Tuberculosis', 'how we don't use that word, Kings Evil, Consumption, Koch's disease, Phthisis.' There is a reference to Keats in this poem: 'Bring me the candle Brown. That is arterial blood, I cannot be deceived in that colour, it is my death warrant.'

Abse's thoughts on consumption leads me to the most famous of all the poet doctors - John Keats. Keats was born 31st October 1795. His father died when Keats was only ten. His mother, Frances, disappeared leaving his grandmother, Alice Jennings, to look after the children. When Keats was 15, Frances eventually returned after an unhappy second marriage to William Rawlings, only to die of tuberculosis. At this stage this young melancholic lad had also lost two uncles to tuberculosis and later he nursed his brother Tom through the same illness, to which Tom

succumbed in December 1818. Keats was a bright lad and won prizes in school for English. In 1810 he joined Hammond in Edmonton as an Apothecary apprentice. In October 1815, he entered Guys Hospital for training and was in the same firm as the famous surgeon, Sir Astley Cooper. In July 1816, Keats presented himself for the Apothercaries exam and passed. However, by 1818 he gave up medicine for poetry. 'I will be amongst the English poets', was his confident view on his own literary ability. However, critics such as John Wilson Crocker and Lockhart attacked him savagely in the Cockney school of poetry. When Keats eventually found his love, Fanny Browne, his health failed him. He tells Fanny Browne, 'you have given me a thousand kisses but should you refuse me another I could not bear it'. In February 1820 Keats coughed up blood and knew he had contracted tuberculosis. He told Charles Brown, his friend, this was his death warrant. He was advised to go to Rome but nobody would support him. His publishers were loyal and persuaded Joseph Severn to accompany him. His letters are very touching. In one of his last letters to Brown he asks 'if he was born to this end, I always made an awkward bow. You can feel the cold grave, the quiet grave.' Keats suffering continued. 'How long will this posthumous life of mine last. I will soon be buried in the quiet grave. Thank God for the quiet grave where I can feel the cold earth upon me, the daisies growing over me and hear the tinkling bells of the simple sheep.'

In the Testaccio Protestant Cemetery Keats grave has the following headstone by Severn :- ' This grave contains all that was mortal of a young English poet who on his death bed in the bitterness of his heart at the malicious power of his enemies desired these words to be engraved on his tomb stone'.

'Here lies one whose name was writ on Water February 24th 1821.'

There is a further tribute to Keats on a wall near his grave which is equally touching;- ' Keats if thy cherished name be writ in water, each drop has fallen from some mourner's cheek, a sacred tribute such as heroes seek though oft in vain for dazzling deeds of slaughter, Sleep on, not honoured less for epitaph so meek.'

In conclusion, Medicine allows the discovery of human histories with all its emotions of happiness, grief, death and sorrow. Take Crabbe's, Ellen Oxford, the old blind women whose life of misery she recalls, her illegitimate child and the realisation that child was mentally handicapped and then seduced by another lunatic brother leading to incest and another son on the gallows. In different ways novelists, doctors and patients all seek to understand and express what it is to be human. Patients come to doctors to give an account of experience and sensations that they have found troubling or difficult. They must find words to communicate their distress and the listening doctor must find words to signal what he or she has at least partly understood. Novelists use words in ways which show that they have understood parts of the experience of all of us. We find incidents in the stories of fictional characters which resonate exactly with the reality of our lives and the expressive ability of the writer gives new dimensions to our experience. Patients want a kind, caring and understanding doctor. Their consultation should be meaningful. In effect what they want is not only competency but a holistic approach. Literature can give us that broad vision to deliver the health care we feel our patients deserve.

# DANGEROUS DECISIONS? THE PAROLE BOARD AND THE LIFE SENTENCE PRISONER

## Judith Pitchers (Lady Pitchers), Criminologist and Parole Board Member

Lecture Delivered on October 18 2004

**This paper focused on the Parole Board's duties with regard to life sentence prisoners, something that forms an increasing part of the workload, but began by looking at the broad concept of parole. The prospect of earned early release is an effective - possibly the most effective - control mechanism for prisoners. The primary distinction between parole and other forms of executive early release is that the decision to release a prisoner on parole is discretionary - a matter of judgment for Board members. By and large, parole has been seen as successful. As the rate of paroling has increased (now over 50%) so has the rate of reoffending (over 5%) - slightly. However, compared with the rate of reoffending for all prisoners, all commentators agree that this is a good result.**

There are currently about 120 members of the Board, including forty judges as well as criminologists, psychiatrists, psychologists, probation officers and independent members with a background within the Criminal Justice System. We sit in panels of three. For non-lifer prisoners these panels take place in London and are based solely on the papers. We operate under directions issued by the Home Secretary. We balance the benefits of early release for the prisoner against the risk of reoffending, but our overriding concern is for the safety of victims and of the public as a whole. Sometimes we are criticised, especially by journalists, because we do not release people who deny their guilt. This is completely untrue. We release so-called deniers all the time, because we focus on the risk of reoffending and some deniers do not pose a high risk. Statistically, denial does not increase the risk of reoffending.

The life sentence: We have more lifers in our prisons than the rest of the countries in Western Europe put together, because we pass so many life sentences. We currently have around 5600 lifers in prison, of whom less than 200 are female, and 160 under twenty-one. There are three sorts of life sentence prisoners: about 70% are mandatory lifers (murderers), and the balance is made up of discretionary lifers (where the judge could have imposed a determinate sentence, but chose not to) and automatic, or 'two strikes' lifers, where the judge had to impose a life sentence for the defendant's second 'grave offence'. After sentence, every lifer is given a tariff - the period considered necessary for the purposes of detention and retribution. This is the minimum sentence, and not the maximum. The lifer is expected to achieve identified targets, be open about his offence and work with probation staff and psychologists to ensure that he understands what led him to commit it. Three and a half years before tariff expires the Board advises the Home Secretary on whether the prisoner can move to an open prison, based on the risk he or she poses to the community. While the lifer is in the open prison he will have to prove his trustworthiness, and eventually find paid employment while still living there. When the lifer reaches his tariff date the Board considers whether he is suitable for release. Most lifers are not released until well after their tariff has expired because their progress through the prison system has been too slow for them to reach an open prison. The criterion for release is risk to life and limb, and the final release decision is entirely a matter for the Parole Board. The application for release is heard in court-like proceedings held at the prison with the prisoner legally represented. Even after release the Board remains involved. Lifers are on licence for the whole of their lives, with licence conditions both general and specific in nature. Reoffending or breaching of licence conditions will normally result in instant recall to prison. If, however, the lifer responds well to his licence, active supervision may eventually be lifted. There are currently 1350 lifers under supervision in the community. In the year ending April 2004, about 250 lifers were released, but around 50 were recalled.

The average period served by those released is now 13.7 years for mandatory lifers and 8.3 years for discretionaries. Some lifers have served more than 40 years, and are still considered unsafe for release. In 1996, figures showed that 25 lifers had served over 30 years, 85 over 25 years, and 200 over 20. These figures will have increased significantly since then.

How 'dangerous' is the release decision? Many years will have passed since the murder was committed. During this time the lifer will have been shielded from most of the factors that led to the offence. A large percentage of murderers have no previous convictions or pattern of violence on which one can rely in making risk assessments. The murder is the result of an unprecedented outburst of panic, rage or jealousy by a person with no history of violence. Most murderers kill partners, friends and family members, and the risk they pose to the general public is generally low. Statistics show that very few lifers reoffend seriously, and that the rate of reconviction among lifers is far lower than the rate among other sorts of offender even where the lifer had a record of offending before committing homicide. Those given a sentence of life for offences like arson or rape have the highest rate of reoffending. 9% of lifers released between 1972 and 1993 were convicted of minor offences (usually theft and handling stolen goods) within two years of release. Within five years of release, the percentage grows to 20%.

The reason for the extreme care taken with lifers is partly historical and political. The mandatory life sentence for murder was intended to reassure those opposed to the abolition of the death penalty. In the early years, after abolition, however, release depended mostly on good prison behaviour. In the last fifteen years, the Board has rightly become much more cautious in making release decisions. The hoops we expect lifers to go through by way of undertaking rehabilitation and the tight and strictly enforced licence conditions are not a part of the system in other European countries who have few lifers and tend to release them after a set period of years anyway. The Board is anxious to avoid future victims, and British politicians are anxious that the public does not lose faith in the system.

It is often suggested that 'life should mean life', i.e. that lifers should all remain in prison until they die. If we restricted the life sentence to the intensely dangerous the argument for this would be stronger, but we continue to impose life sentences on aggrieved spouses, aggressive drunks and 'two strikes' offenders. While the life sentence is mandatory for murder, and available for many non-murderers, life cannot sensibly mean life for all of them.

# 'OUR ENDLESS JOY – OUR MATCHLESS PRIDE' THE VICTORIAN SHAKESPEARE

## Professor Richard Foulkes, Department of English, University of Leicester

Lecture delivered on 17 November 2004

**Widely regarded as the greatest Englishman of all time, what was Shakespeare's status during the period of his nation's greatest power and influence?**

**Strictly speaking there has only ever been one Shakespeare and there were of course millions of Victorians, but they created many different Shakespeares.**

**The exploration of the changing face, or rather faces, of Shakespeare serves a twofold purpose. It expands our perception of the man and his works and provides insights into the zeitgeist of an era that laid the foundations of so many of our attitudes and institutions.**

I think that, like me, several of you can recall the Shakespeare quatercentenary of 1964, which, in my case, seems to have served as a sort of stepping-stone to Shakespeare in the nineteenth century. The fact that in the early 1960s Peter Hall created the Royal Shakespeare Company and Laurence Olivier was appointed the first artistic director of the long-awaited National Theatre surely owed something to the impending celebration. Across the land, indeed around the world, theatres rose to the occasion by staging Shakespeare's plays. Exhibitions were mounted; commemorative goods were produced; books were published. In 'Shakespeare Our Contemporary', the Polish critic and scholar, Jan Kott, argued that Shakespeare's plays should be interpreted alongside those of living playwrights such as Samuel Beckett and, in his preface to Kott's book, the theatre director Peter Brook pronounced: 'England in becoming Victorian lost almost all its Elizabethan characteristics'. Forty years on, Kott's appropriation (to use the currently fashionable term) of Shakespeare can be seen as essentially the same process as that which went on throughout the period of which Brook was so dismissive and has indeed gone on ever since Shakespeare's lifetime, as each age reinvents him in its own image.

The foundation upon which many a Victorian Shakespeare was erected was Thomas Carlyle's 'The Hero as Poet. Dante; Shakespeare', the third of his lectures 'On Heroes, Hero-Worship and the Heroic in History', which he delivered in May 1840. Carlyle memorably described Shakespeare as the 'free gift of nature', 'the chief of all poets hitherto', the product of the 'Elizabethan [Protestant] era', 'the grandest thing we have yet done' before going on to pose the question:

> For our honour among foreign nations, as an ornament to our English Household, what item is there that we would not surrender rather than him? Consider now, if they asked us, Will you give-up your Indian Empire, or your Shakspeare, you English?…Indian Empire will go, at any rate, some day; but this Shakespeare does not go, he lasts forever with us; we cannot give up our Shakespeare!

The extent to which Eliza Cook, the youngest of eleven children of a London brazier, takes up Carlyle's motifs over twenty years later is striking. In 'Shakspeare (Written on hearing of the tercentenary movement)' and her 'Tercentenary Ode: Written for the Working Men's Shakespeare Celebration April 23rd 1864' she identifies Shakespeare's origins in a modest 'English Household': "Shakspeare was born of 'England's Working Men.'"; elevates him to the highest pantheon : 'For Genius -simple, mighty, and sublime-/ Stamped him - the Priest and Poet for "All Time"' and celebrates him as an icon of Britain's superiority over other nations:

> Born 'neath the flag that never yields
> Sprung from a people proudly free;
> Whose arms have won unnumbered fields;
> Whose commerce spreads from sea to sea…

> Truth-teller! Whose illuminated page
> Has never yet been laid aside;
> Chief Prompter on Creation's stage,
> Our endless joy – our matchless pride.
>
> And
>
> Well may our foreheads flush -our hearts rejoice-
> Whilst the loud boast is heard from every voice;
> For all the tides of all the Caesar's blood
> Fade by the side of Avon's rippling flood:
> The heroes of Rome, Persia, Greece and Troy
> Must yield the palm to Stratford's peasant boy;
> And England's Princes bend with high regard
> To swell the homage paid to England's Bard.

Indeed whereas Carlyle saw Shakespeare as a unifying force internationally ('a Saxondom covering great spaces of the Globe…virtually one Nation' unified by 'King Shakespeare') Cook's outlook combined chauvinism with pride in Working Men.

The tercentenary celebrations of 1864 reflected these attitudes. Cook's 'Tercentenary Ode' was read aloud at an oak-planting ceremony on Primrose Hill, at the conclusion of which members of the Working Men's Garibaldi Association, of whom many belonged to the Working Men's Shakespeare Association, sought to turn the occasion into a protest against the (unscheduled) departure of the Italian patriot from England that morning. In Stratford-upon-Avon handbills appeared proclaiming:

'TIME! SHAKESPEARE THE POET OF THE PEOPLE' [protesting] 'you are promised something for yours after the swells have dined. Only wait until the next week, and see the dainty mess that shall be BREWED for you out of the cold "wittles".'

This referred to the virtual exclusion (by price) of the less well-off from the official (first) week of celebrations, at the beginning of which Edward Flower, as Mayor, had received a deputation from Germany representing the Hochstift, the organisation that had purchased Goethe's house. This ceremony was clearly in the best spirit of Carlyle. On the following day Richard Chenevix Trench, Archbishop of Dublin, delivered a sermon in Holy Trinity Church, which, as well as touching on various Carlylean themes -Shakespeare's Protestantism for instance- took the opportunity to uphold Shakespeare's opposition to evolutionary ideas:

> …on his [Shakespeare's] part there is no paltering with the everlasting ordinances on which the moral estate of man's life reposes, no challenging of the fitness of these, no summoning of God to answer for Himself at the bar of man for the world He has created.

The tercentenary of 1864 provides us with several Victorian Shakespeares: patriotic, chauvinist, diplomatic, Protestant, anti-evolutionary and Working Man.

It is not practical to follow in detail Shakespeare's fortunes through the intervening years to the tercentenary of his death, but the direction is clear enough. Progressively, Shakespeare became institutionalised. The vibrancy of the actor-manager system (Phelps, Charles Kean, Calvert, Irving, Benson, Tree and Martin-Harvey) meant that the movement to establish a National Theatre gained little momentum until the twentieth-century. Elaborate productions of Shakespeare were costly to mount and aimed at a mass audience, so Shakespeare's days as a genuinely popular playwright were prolonged until the ideas of Poel and Granville-Barker gained the ascendancy. In other spheres, principally education at all levels from the village school to the British Academy, Shakespeare took his place as part of the (often compulsory) curriculum.

Increasingly, Shakespeare was pressed into service for state occasions such as royal weddings and coronations. For Edward VII's coronation in 1902 both Irving and Tree lavished entertainment and hospitality on visiting dignitaries. After the performance of 'The Merry Wives of Windsor' at Tree's His Majesty's Theatre, he received his guests 'in the forest scene of Shakespeare's playful comedy'. In 1907 Tree took his company to Germany to perform five Shakespeare plays before the Kaiser. Germans were amazed that this was done without state aid; all Tree got was a knighthood. In 1911 Tree mounted the Coronation Gala on 27 June. The programme included several scenes from Shakespeare, notably the forum scene from Julius Caesar. A few nights earlier on 20 June the Coronation Shakespeare Ball, arranged by Mrs Cornwallis-West -Winston Churchill's mother-, had taken place at the Albert Hall, with members of the aristocracy and the theatrical profession (no longer

rogues and vagabonds) all dressed as Shakespearian characters. This was imperial display at its most ostentatious, almost flaunting the superiority of Shakespeare, and by implication Britain, in the faces of foreign visitors including the German royal family. The irony was that the event was intended to raise funds for a National Theatre, which Britain did not have, whereas Shakespeare featured prominently in Germany's numerous subsidised theatres, as he was to do even during the First World War.

As the tercentenary of Shakespeare's death approached, the campaign for a National Theatre gathered momentum. A debate was held in the House of Commons on 23 April 1913. The Deutsche Shakespeare-Gesellschaft stole a march by celebrating the 350th anniversary of Shakespeare's birth and its own golden jubilee in April 1914. King George V and Emperor Franz Josef both became members. The Kaiser already was of course. Any illusion that Shakespeare was furthering Carlyle's global 'Saxondom' was of course very soon to be shattered.

When April 1916 arrived, the British government's attempts to mark the occasion were limited by the institutions that existed. State education was pressed into service, but theatrical performances were dependent upon the efforts of actor-managers and Miss Baylis's (unsubsidised) Old Vic. Tree and Forbes-Robertson were performing in the United States where they seized every opportunity to encourage American support for the allies. Events in Ireland were not helpful, with the Easter Rising taking place on 24 April and as Tree put it subsequently 'measures taken towards the Irish rebels…alienating the sympathy of many Americans from the British cause'. Certainly the Memorial Meeting at the Mansion House on 1 May was overshadowed by the situation in Ireland, as well as the war itself, and the American ambassador was very circumspect in his remarks.

Nevertheless, on 2 May at Drury Lane, the theatrical profession gave expression to the nation's pride in Shakespeare with a performance of *Julius Caesar* and a Shakespeare Pageant before King George V and Queen Mary. Amongst the audience was the twelve-year old John Gielgud, who recalled that he and his parents sat 'this time in the Upper Circle…as the seats for such a grand occasion are very expensive'. Clearly the genuine popular involvement evident in the 1864 tercentenary no longer existed and in its place was a rather amateurish institutionalisation. This was evident during the interval when Frank Benson (the actor playing Julius Caesar), still wearing the half-bald wig and bloodstained costume, was summoned to the royal box where the king intended to knight him. By some oversight no one had brought a ceremonial blade to the theatre and an equerry was dispatched to find one and returned with 'a modern type with a khaki hilt'.

The Shakespeare who was summoned to the nation's cause in 1916 was clearly derived from earlier Victorian Shakespeares, in particular as a patriotic icon, but he differed significantly from them…his humble origins and associated popular appeal had faded away. Nevertheless as we conjure up that extraordinary image of George V, Rex and Imperator, knighting an actor dressed as Julius Caesar with a khaki-hilted sword at Drury Lane in the midst of the greatest conflict known to man and search for a suitable inscription let us invoke those words of Eliza Cook with which I began:

Our endless joy – our matchless pride

# ORWELL AND THE MINERS

## Professor Robert Colls, School of Historical Studies, University of Leicester

Lecture delivered on November29 2004

**On the morning of 23 February 1936 George Orwell met the miners and English history changed forever.**

The place was Wigan, in Lancashire, and Orwell had chosen to go there on the strength of an old music hall song about its pier. The mine was known locally as Crippen's - one of a number in and around the town. The journey had been taken at the request of Orwell's publisher, Victor Gollancz, who had asked him to go north and report on 'the unemployed'. Neither man knew anything about the unemployed, let alone the north of England, so Wigan and its miners seemed as good a place as any. The left-wing London literary journal The Adelphi had contacts in Manchester and Liverpool, and Orwell knew he could use his contacts with people on the journal to meet the people who could take him to meet the people he wanted to see.

This was his first visit to 'the industrial districts'. Orwell had never seen a factory chimney, or a grimy workshop, or a pit wheel. Nor had he talked to those who worked in such places, or been inside their homes, or sat at their tables, or, shared their firesides and plumbing. He was thirty-three years old. As a child he'd been told that workers were smelly. As a top-hatted public schoolboy he'd been taught that they were violent and had learned how to keep his distance accordingly. Brought up in Henley on Thames, and educated at Eton College, the young Orwell had served five years in the Indian Imperial Police in Burma before resigning his commission in 1927. He recalled that at that time he thought of the north of England as a 'smudge' on the horizon of an otherwise green and pleasant land. So, when he went to Wigan to see the unemployed he needed the contacts just as much as his publisher needed the book. Ready to launch a new sort of reading-club for revolutionaries, Gollancz wanted a northern potboiler to help him do it.

Orwell was his man. His latest novel, 'Keep the Aspidistra Flying' (1936), was an anti-capitalist rant. Its hero thought about 'the unemployed of Middlesbrough' almost as much as he thought about himself. Gordon Comstock was English fiction's first 'angry young man' - a warrior in the war against 'society'. Before that, Orwell's 'Burmese Days' (1935) had been so ferociously anti-British and anti-Empire that it was published first in the United States while Gollancz sweated over libel risks in Britain. In his 'The Clergyman's Daughter', which also came out in 1935, Orwell railed against English middle-class banality, especially the small town, threadbare, Anglican variety. And in his first published book, 'Down and Out in Paris and London' (1933), Orwell told you what it felt like to starve at the tables of the rich:

> There is no real need for gharries and rickshaws; they only exist because Orientals consider it vulgar to walk. They are luxuries and, as anyone who has ever ridden in them knows, very poor luxuries. They afford a small amount of convenience, which cannot possibly balance the suffering of the men and the animals…
>
> Similarly with the plongeur…He is the slave of a hotel or a restaurant, and his slavery is more or less useless. For, after all, where is the real need of big hotels and smart restaurants?…A slave, Marcus Cato said, should be working when he is not sleeping. It does not matter whether his work is needed or not, he must work, because work in itself is good – for slaves, at least. This sentiment still survives, and it has piled up mountains of useless drudgery.
>
> (Down and Out in Paris and London, 1933)

According to Comstock, capitalism (the 'money-stink', the 'money-sty', the 'money-code', the 'money-god'), fouled the land. If you didn't have money, nobody would like you, nobody would publish you, and nobody would sleep with you. Every human instinct was stained by it:

> For a moment he checked his step, even allowed himself to catch her eye. She looked up at him, ready to break out into her broad-lipped smile. Why not stop and talk to her? She

> looked as though she might understand him. But no! No money! He looked away and side-stepped her with the cold haste of a man whom poverty makes virtuous. How furious she'd be if he stopped and then she found he had no money! He pressed on. Even to talk costs money.
>
> But what of the real poor? What of the unemployed in Middlesbrough, seven in a room on twenty-five bob a week? When there are people living like that, how dare one walk the world with pound notes and chequebooks in one's pocket?
>
> (Keep the Aspidistra Flying 1936)

And yet, for all his political passion, and commitment, there was a curious abstraction in Orwell's fictional characters. In 'Down and Out' the observer is disconcertingly detached - a man freed from the burdens of a personality. Similarly with the spinster Dorothy who, as the clergyman's daughter, is a mere cipher for Orwell's thoughts - a woman to whom things happen. This book contains some spectacularly unsuccessful experimental writing. Orwell still wanted to be James Joyce, apparently. In 'Keep the Aspidistra Flying', as we have seen, the angry young Comstock is a parody of the avant-garde intellectual, while the best and most believable of all Orwell's characters, Flory, the timber merchant of Burmese Days, is a hopelessly forlorn figure. In the end he commits suicide.

So when Orwell went down the mine on that cold February morning in 1936 he went for a number of reasons. He went to reveal the iniquities of capitalism and the stupidities of the English ruling class, but he also went for literature, and to find respite from what he saw as his failures in writing fiction. Travelling at first by bus and on foot from Coventry to Birmingham, Orwell then went from Stafford to Hanley ("frightful", "beastly") and on to Manchester before reaching his destination on the 11th February where an unemployed miner and left activist called Paddy Grady found him lodgings.

He crammed a lot into his eighteen days in Wigan. After four days he left his lodgings with the Hornbys (72 Warrington Lane) for lodgings over a tripe shop with the Forrests (22 Darlington Street). Life at the Forrest's was disgusting, but provided rich pickings for his notebooks. He stayed there two weeks before a full chamber pot under the breakfast table drove him out. Or so he said. But he lost no time in using his contacts. On the 15th February he joined supporters of the National Unemployed Workers' Movement who were street-collecting - another good way to fill his notebooks, this time with details on housing conditions ('terrible'). On the 11th he had attended an NUWM meeting addressed by Wal Hannington1 ('though a Communist entirely a bourgeois'), and on the 19th he went to a fund-raising 'social' at the Coop Rooms ('six pence, meat pie, cup of tea, dancing and knitting'). The next day he watched unemployed men scrabbling across the heaps for coal off the 'dirt train' ('a most astonishing sight')[2]. And now on the 23rd February he had been down the mine:

> When finally you get back to the surface you have been perhaps three hours underground and travelled two miles, and you are more exhausted than you would be by a twenty-five mile walk above ground. For a week afterwards your thighs are so stiff that coming downstairs is quite a difficult feat; you have to work your way down in a peculiar sidelong manner, without bending your knees. Your miner friends notice the stiffness of your walk and chaff you about it. ('How'd ta like to work down pit, eh?' etc)…
>
> The miner does that journey to and fro, and sandwiched in between there are seven and a half hours of savage work. I have never travelled much more than a mile to the coalface; but often it is three miles, in which case I and most people other than coalminers would never get there at all…certainly it is not the same for them as it would be for you and me. They have done it since childhood, they have the right muscles hardened, and they can move to and fro underground with a startling and rather horrible agility. A miner puts his head down and runs, with a long swinging stride, through places where I can only stagger. At the workings you see them on all fours, skipping round the pit props almost like dogs. But it is quite a mistake to think that they enjoy it…
>
> (The Road to Wigan Pier, 1937)

Born Eric Blair in Bengal in 1903 but moving to Henley with his mother in 1904, Orwell described his upbringing in the manner of the English caste system: 'lower-upper-middle class'. Richard Blair, his

father, stayed behind as a sub deputy Opium Agent fourth grade. It's true that Mr Blair's income of £12 a week went a good way in Edwardian Henley, but on the other hand, after prep school and public school Eric saw himself as the victim of a class system that damaged even its own favoured sons.

He had come out of Eton, he said, 'an odious little snob' riddled with prejudices and difficulties. As for Burma, he was, he said, 'in the Indian Police five years, and by the end of that time I hated the imperialism I was serving with a bitterness which I probably cannot make clear'. Hating an Empire that his father had served for forty years, and hating his prestigious scholarship to the finest public school in the land, Orwell came to writing a good hater and a bad believer. But, if not England, where was he to live? And if not Englishness, what was he to believe? After years of trying to write his bitterness into something more positive but which, nevertheless, could be squared with his inherent honesty and intelligence, by a series of false starts and odd turnings Orwell found himself in Wigan.

After Burma, he had resolved 'to write' but had no real idea what he wanted to say. At first, he did what all those who wanted to write and could afford to be poor did: he went to Paris. His first published article was in French for Le Monde – on censorship in England. After Paris and trips back to his parents' home, now in Southwold, to recover, he moved into bed-sits in north and west London to live the life of a private school master by day, changing to bookshop assistant, and a Grub Street hack by night. As poor as a church mouse and against money and privilege but at the same time looking for a break in a world of money and privilege, Orwell knew what he was against, but what was he for?

Up to 1937 what passes for anti-capitalism in Orwell's writings could also pass for misanthropy and misogyny. Everyone comes under his glare. Only the utterly broken and subordinate find sympathy, and then not for long. Like many twentieth century intellectuals, Orwell had nothing but contempt for those he saw as 'the masses'. As a socialist he was on their side (how could he not be?) but he didn't trust them and he didn't like them and he certainly showed no signs of wanting to get to know them. He had all the guilt and all the pity and was developing into no mean writer, but, until he went down the mine, he had no real subject. In fact Orwell went down three mines - 'Crippen's Mine' in Wigan on the 23rd February, the 'Day Hole' in Barnsley on the 19th March, and Grimethorpe on the 21st – but he rolls the experience into the great and famous second chapter of 'Road to Wigan Pier':

> Even when you watch the process of coal extraction you probably only watch it or a short time, and it is not until you begin making a few calculations that you realize what a stupendous task the 'fillers' are performing. Normally each man has to clear a space four or five yards wide. The cutter has undermined the coal to a depth of five feet, so that if the seam of coal is three or four feet high, each man has to cut out, break up, and load onto the belt something between seven and twelve cubic yards of coal. This is to say, taking a cubic yard as twenty-seven hundredweight, that each man shifting coal at a speed approaching two tons an hour. I have just enough experience of pick and shovel work to be able to grasp what this means. When I am digging trenches in my garden, if I shift two tons of earth during the afternoon, I feel that I have earned my tea. But earth is tractable stuff compared with coal, and I don't have to work kneeling down, a thousand feet underground, in suffocating heat and swallowing coal dust with every breath that I take; nor do I have to walk a mile bent double before I begin…

After this discovery of an English he could admire, there would be no more whingeing from the corners of a bookshop and no more experimenting in writing consciousness. From now on, the Orwellian style would be to tell it like it was; in visions for sure, but only visions of what he had encountered. The 'Road to Wigan' was really the road to Damascus.

> But most of the time, of course, we should prefer to forget that they were doing it. It is so with all types of manual work; it keeps us alive, and we are oblivious of its existence. More than anyone else, perhaps, the miner can stand as the type of the manual worker, not only because his work is so exaggeratedly awful, but also because it is so vitally necessary and yet so remote from our experience, so invisible, as it were, that we are capable of forgetting it as we forget the blood in our veins. In a way it is even humiliating to watch coalminers working. It

> raises in you a momentary doubt about your own status as an 'intellectual' and a superior person generally. For it is brought home to you, at least while you are watching, that it is only because miners sweat their guts out that superior persons can remain superior. You and I and the editor of the Times Lit. Supp., and the Nancy poets and the Archbishop of Canterbury and Comrade X, author of 'Marxism for Infants' – all of us really owe the comparative decency of our lives to poor drudges underground, blackened to the eyes, with their throats full of coal dust, driving their shovels forward with arms and belly muscles of steel.
>
> (The Road to Wigan Pier)

Orwell's knowledge of the miners, and indeed his knowledge of working-class life in general, was very thin. He is not particularly insightful (or historical) about working-class institutions. In his Wigan diary he is characteristically misanthropic about his social evening in the Cooperative Rooms. The Cooperative Wholesale Society, after all, was one of the labour movement's greatest achievements and Lancashire was its home, but all Orwell sees that evening are young girls trying to dance and old women trying not to. Even the internationalism of the event - the raising of money for Ernst Thaelmann's defence fund[3] - seems lost on him. Still unable to see, he only looks on:

> Round the back a few aged miners sitting looking on benevolently, a lot of very young girls in front. Some dancing to the concertina (many of the girls confessed that they could not dance, which struck me as rather pathetic) and some excruciating singing. I suppose these people represent a fair cross section of the more revolutionary element in Wigan. If so, God help us. Exactly the same sheep-like crowd – gaping girls and shapeless middle-aged women dozing over their knitting – that you see everywhere else.[4]

It was the same with his day out at the Club and Institute Union delegate conference in Barnsley. He remembers the eating and drinking ('all busily tucking into beer and sandwiches, though it was only 4.30pm'), but not the scale and organization of the proceedings. He understands that alongside the CWS the CIU is another form of democratic collectivism, but he is brusque ('a sort of glorified cooperative'), and he doesn't understand the importance of the clubs. He even reckons that when the time came, they could be mobilized for neo-fascist purposes. Orwell is miles away. He doesn't understand what they were about (pleasure) and he might have been talking of a foreign country:

> It appears that these clubs were first started as a kind of charitable concern in the mid 19th century, and were, of course, Temperance. But they escaped by becoming financially self-supporting and have developed, as I say…[5]

Of the fifty-six days Orwell was away from London, only forty-six were spent living with working-class people and most of those were spent in cheap lodgings – certainly not typical arrangements. Indeed, Orwell spent only a fortnight living with a family where the father was in work and where lodgers were not the main form of income. Those days were spent with the Grey's at 4 Agnes Terrace, Barnsley, and it was here that Orwell's revelation was made complete. He knew as much about the history of working-class housing, or women, as he did about the history of working-class institutions, or coalminers: which is to say, very little. Yet if he felt inspired down the mine, he felt resolved in Agnes Terrace. At last, the odious little snob had found a home:

> In a working-class home – I am not thinking at the moment of the unemployed, but of comparatively prosperous homes – you breathe a warm, decent, deeply human atmosphere which it is not so easy to find elsewhere. I should say that a manual worker, if he is steady work and drawing good wages – an 'if' which gets bigger and bigger – has a better chance of being happy than an 'educated' man. His home life seems to fall more naturally into a sane and comely shape. I have often been struck by the peculiar easy completeness, the perfect symmetry as it were, of a working-class interior at its best. Especially on winter evenings after tea, when the fire glows in the open range and dances mirrored in the steel fender, when Father, in shirt sleeves, sits in the rocking chair at one side of the fire reading the racing finals, and Mother sits on the other with her sewing, and the children are happy with a pennorth of mint humbugs, and the dog lolls roasting himself on the rag mat – it is a good place to be in, provided that you can be not

only in it but sufficiently of it to be taken for granted…

Curiously enough it is not the triumphs of modern engineering, nor the radio, nor the cinematograph, nor the five thousand novels which are published yearly, nor the crowds at Ascot and the Eton and Harrow match, but the memory of working-class interiors…that reminds me that our age has not been altogether a bad one to live in.

(The Road to Wigan Pier)

The house was two up and two down with the front room turned into a bedroom to accommodate the family of four, plus lodgers. Out the back there was a full range, with sink, and copper; but no gas and an outside water closet. Mr Grey, age 50, was a 'filler': one of those Orwell had instinctively identified down the mine as the heart of modern Britain. 'A short, powerful man' with 'coarse features' and a 'very fatigued look', Mr Grey had been down the pit since he was ten and during the war he'd been in the army. He considered himself lucky to have been buried only once in a fall of stone (ten minutes to dig him out), and he had no wounds or injuries. Orwell would talk with him into the small hours by the fire. Grey earned 2s 2d per ton, which he shared with his mate. At the end of the week he brought home about £2 10s. Mrs Grey was twelve years younger than her husband, and Orwell reckoned her a clean and skilful housewife. Of an evening, their two daughters, Doreen (12), and Irene (10), would gather round the table to watch the gentleman type.

Although he'd never go back to Barnsley, and although he'd never seek to find out more about Wigan, Orwell had seen enough. Later, in a stream of brilliant and original essays based on what he'd learned from these two communities, Orwell would go on to invent new ways of thinking about the English. I hesitate to call this 'cultural studies' given what passes for that subject in universities these days, but cultural studies is what it was. Whether postcards, or comics, or food, or beer, or Charles Dickens or Rudyard Kipling, Orwell made the point that culture is ordinary and, far more importantly, that high culture is ordinary. During the war, he wrote about the English people in such a way that, through him, socialists found a way of being left wing and patriotic at the same time. In turn, this allowed the Left to lay claim to the nationalist high ground that did so much to build social democracy after the war.

Down the mine Orwell had found that he could see after all. For the first time in his life he felt he knew what he was to do, where he was to go, and who he would believe. At last he'd found his subject and his hope, which lay in the proles:

'If there is hope', wrote Winston, 'it lies in the proles'.

If there was hope, it must lie in the proles, because only there, in those swarming disregarded masses…could the force to destroy the Party ever be generated… They needed only to rise up and shake themselves like a horse shaking off flies. If they chose they could blow the Party to pieces tomorrow morning. Surely sooner or later it must occur to them to do it?

(Nineteen Eighty Four, 1949)

**Further reading:**

Gordon Bowker, George Orwell (Little, Brown 2003)

Robert Colls, Identity of England (Oxford University Press 2002)

Bernard Crick, George Orwell. A Life (Penguin 1980)

Christopher Hitchens, Orwell's Victory (Penguin 2002)

John Newsinger, Orwell's Politics (Macmillan 1999)

D J Taylor, Orwell.The Life (Chatto & Windus 2003)

1 Gollancz's Left Book Club published Hannington's The Problem of the Distressed Areas in the same year as Orwell's The Road to Wigan Pier. It's a dull dog. Though he was not politically correct, you can see why Gollancz needed Orwell.

2 Quotations in brackets from his Wigan Pier Diary: Collected Essays, Journalism and Letters of George Orwell: vol 1 An Age Like This 1920-1940, eds Sonia Orwell and Ian Angus (1970) p201-208

3 Thaelmann was a transport worker who became chairman of the German Communist party from 1925 until his arrest in 1933. He died in Buchenwald in August 1944.

4 Diary, Age Like This, p207.

5 Ibid p229

# KING JAMES VI AND I - MORE SINNED AGAINST THAN SINNING

## Colin Pendrill, Head of History Department, Oundle School

Lecture delivered on January 10 2005

**This lecture was based on a talk first given from the pulpit of Fotheringhay Church in Northamptonshire in 2003 to mark the 400th anniversary of King James' accession to the English throne, in the village where his mother, Mary, Queen of Scots was executed in 1587.**

This lecture attempts to challenge the long established, traditional view of King James which sees him at best, as a corrupt buffoon and figure of fun and, at worst, as the king who helped to put England on the High Road to Civil War in the 1640s.

**James' Reputation**

At first glance, it is easy to see why this particular monarch has enjoyed a poor reputation. Firstly, of course, he was a Scotsman, who became king of England. For years the two nations had enjoyed relations of fierce antagonism and general hostility, while most ruling class Englishmen seem to have had an inbuilt prejudice against their northern neighbours. Anthony Weldon, one of the king's fiercest and most influential critics, said this of his compatriots:

'For the country, it is too good for those that possess it and too bad for others to be at the charge of conquering it. The beasts be generally small, women only excepted, of which sort there are none greater in the whole world. There is a great deal of fowl too - as foul horses, foul sheets, foul linen, foul dishes and pots, foul trenchers and napkins.'

Weldon was foolish enough to write this down and to leave the manuscript lying around at Court. Unsurprisingly, King James dismissed him from his service.

James' nationality also meant that he brought many Scots friends and courtiers with him to England, where they apparently enjoyed themselves at the expense of the English and monopolised the king's favour and patronage. In particular James Hay and Robert Carr did well. Carr was ennobled as Earl of Somerset. In addition, it has been easy to claim that, as a Scotsman, James did not understand English institutions, especially Parliament, and that this led to a fractious and difficult reign in England.

Not only was James a Scotsman but he also had a rather 'dodgy' parentage. His father was the unstable and drunken Henry Darnley, who had got on very badly with James' mother, Mary, Queen of Scots, and hatched a plot to murder her Italian secretary David Rizzio in front of her eyes. This dreadful murder, while James was still in the womb, then led to his father being murdered at his mother's behest at Kirk O'Fields outside Edinburgh. Mary compounded her murderous revenge by running off with the assassin, Bothwell, thus making her guilt clear to everyone. And no Englishman could forget that Mary herself had been a powerfully Catholic and Scottish threat to her cousin Queen Elizabeth and had ended her days with ignominious execution at Fotheringhay as a traitor to the English Queen. With parents like these, James was bound to be viewed with some suspicion by his Protestant English subjects!

At the same time James was a Stuart and not a Tudor. As soon as Elizabeth died in 1603, the legend of Gloriana took flight. She was the English virgin queen who established and built up the Church of England and saw off the hated Spanish. At the same time, her Tudor forbears (apart from Catholic Mary I) could also be lauded as the dynasty that had brought stability and Protestantism to England after the disasters of the Wars of the Roses.

By contrast with the Tudors, James and his son Charles led England into Civil Wars much worse than the Wars of the Roses. The great Civil Wars of the 1640s ensured that historians ever afterwards looked long and hard to find the great causes of this unprecedented domestic conflict. Using hindsight it was easy for some to claim that all was going well until 1603 but that the rot set in with the advent of an

alien dynasty on the English throne. While Charles I was always given top billing amongst those responsible, his father soon came to play a major supporting part! Furthermore, none of the Stuart kings have been given much credit by historians. Charles II (1660-85) gave himself up to idleness, women and not going on his travels any more, while James II (1685-8) turned Catholic and was rightly booted off the throne by the 'Glorious Revolution' and Protestant King Billy.

In addition to all of this, it was argued that James was physically unprepossessing and a figure of fun at Court. He had 'spindly legs' and a curious gait; he feared assassin's, wearing extra padding against the assassins dagger. Apparently even the sight of a dagger would send him into a fainting fit. He also had a large tongue, which meant that he 'ate his drink'. He also had an inflated view of his intellectual abilities, loving to lecture those around him on matters of theology and the theoretical powers of monarchs such as himself. For this, the acid Weldon dubbed him 'the wisest fool in Christendom.' And it's clever tags like that which stick!

Moving further into the more murky areas of the Jacobean Court, it has also been claimed that James gave undue power to worthless favourites, that he was a homosexual and that he was soft on Catholics. All this is clearly a heady mixture of calumny and disdain, which has been lavished on the first Stuart king of England.

**More sinned against than sinning**

Overall then, this is a pretty damning picture of King James as sinner-in -chief and architect of his own problems. However, this view is almost entirely false and unfair. Far from being a great sinner, James was in fact a good and effective monarch. So why the confusion? The answer is simply that James was much sinned against, particularly at the time of the Civil War, and especially by three contemporary writers who had it in for the first Stuart king. Their accounts are all highly unreliable but have often been viewed as gospel truth. **Sir Anthony Weldon**, author of the Court and Character of King James, has already been met. His hostility to the Scots and his long nurtured sense of grievance against James for his abrupt dismissal from court, found vent in a work first published in 1650 in the wake of the execution of Charles I. Weldon had been a parliamentarian during the war and now saw an easy way to make his reputation as propagandist against his former employer. Bishop Goodman, who also knew James I, (he was chaplain to James' wife, Queen Anne) claimed of Weldon's book that he had never read "a more malicious minded author, nor any who had such poor and mean observations."

The second in the triumvirate of critics is Arthur Wilson. He served the puritan Earl of Warwick, who was no friend to James or his son. Once again, this work, The Life and Reign of James I was first published after the Civil War, when the authorities wanted political ammunition against the Stuarts.

Thirdly we have **Francis Osborne**. Again he was a parliamentarian and wrote his account of the causes of the Civil War at the time of the conflict. He traced many of Charles I's problems to his father and blamed James for being a spendthrift and for showering his Scots cronies with goodies.

Such critical writings of the royal Court were not particular to the reigns of the first two Stuarts. Sir Walter Raleigh and Sir Francis Bacon wrote similar diatribes against the court of Queen Elizabeth but luckily for the Virgin Queen, their private accounts remained private. For the early Stuarts there was no such hiding place. Defeat in Civil War led to the publication of nearly everything that could be found detrimental to King James. And so the traditional distorted picture of James emerged and has survived largely unscathed.

**James' achievements**

Leaving aside such sources as unreliable propaganda and refusing to be hoodwinked by hindsight, we can now see that the traditional 'sinning' picture is quite untenable. Instead it becomes clear that, given the multiplicity of problems he faced and the serious nature of those problems, James, as king of Scotland and as king of England did well. If we judge him according to the nature of his kingship and not the failings of his personality, we see reigns of solid achievement. In Scotland he increased royal authority. In England he was a shrewd politician. He did not over govern in the manner of his son. He was religiously pragmatic and astute while in foreign policy he was ahead of his time - and ahead of the prejudices of many of the political nation.

**King of Scotland 1567-1625**

As king of Scotland James increased the power of the monarchy, giving Scotland greater political stability at a time when the country was religiously divided. A brief glance at the fate of his four most recent predecessors indicates that he did well merely to survive as king until shuffling off this mortal coil through the agency of disease and old age. James III was murdered by a noble faction, including his own son. James IV was killed while on the losing side at Flodden Field against the English in 1513. James V died, we are told, of pure melancholy after losing to the English at Solway Moss in 1542, while Mary Queen of Scots was forced to abdicate, to suffer long term imprisonment and the ignominy of the executioner's block.

James' position as king of Scotland was also weak because he endured a 12-year minority as a political pawn amid the competing noble factions. Three regents were overthrown by violent means in the first 5 years of that minority. Even when he came of age, he faced a dangerous and divided nobility and a radical and self-confident Kirk. He was to survive two serious attempts on his life during the Ruthven Raid of 1582-3 and the Gowrie Conspiracy of 1600.

At the same time, James' authority was undermined by the fierce religious divisions in the kingdom after the Scots Reformation. As a result of this Reformation, there was a powerful Presbyterian Kirk which had little respect for James; a bench of bishops (mainly aristocrats) who did support the monarchy but were widely seen as corrupt and ineffectual and, mainly in the Highlands, Catholic survivalism, which didn't approve of the king's religion and hoped for reversion to the Old Faith.

Despite these serious problems, James coped very well politically. He learnt the art of compromise at an early age. When a favourite such as Esme Stuart became too unpopular with the nobility, he was ditched. Bothwell and Huntley were forgiven on numerous occasions, despite their disloyalty, because James was not strong enough to crush them and realized that he could not cope with the tribal/clannish backlash if he did. James did well because he realized that he could not afford a war, which might unite his disparate nobility.

In religion, he had a little more room for manoeuvre. He used parliament and the Black Acts of 1584 to muzzle Calvinist extremists and to increase the powers of the bishops. He ensured that General Assemblies of the Kirk met only with his permission and that King and Council had the final say on matters of religion. When Melville refused to recognize the king's authority over the church, he was forced to flee. James' moderate moves in religion continued with the 5 Articles of Perth in 1618, which brought more ceremonial back into religious services.

In addition, the king succeeded in the vitally important matter of providing heirs. He married Anne of Denmark and had 7 children by her, though 4 died young. When his heir, Prince Henry died in 1612 there was great lamentation but James had another son to put in his place.

Even as an absentee monarch, after 1603, James continued to take a real interest in Scottish affairs. He ruled the kingdom via the Scottish Privy Council and the main achievement was that Scotland remained calm, with rather less faction fighting than during James' younger days. This feature was especially commendable, when one remembers that James was the first king to rule Scotland from England!

**James as King of England**

In England too, James must be given great credit for taking on a tricky inheritance and achieving so much. Unlike every Tudor reign, there were no popular uprisings or noble revolts during James reign. Despite the terrible civil war, which would afflict the reign of his successor, there were no indications during James' reign of the storm to come.

**Relations with parliament**

His supposedly bad relations with English parliaments have been exaggerated to explain the Civil War. The House of Commons was rather less important than the House of Lords and met for only 3 years during the 22-year reign. All his parliaments voted him money when asked and this was parliament's main function. Between 1610 and 1621 there was only one very short parliament showing that these assemblies did not figure prominently on the political map. There were no serious disputes on

matters of constitutional principle. Everyone believed in divine right monarchy as the basis of the constitution. Under Elizabeth there were more serious disputes because there were serious concerns about the succession (puritan lords and MPs did not want Mary Queen of Scots to succeed) and about the country's religion (powerful puritan elements wanted to remodel the Church of England). There was no problem over either of these issues under James. Real problems between Crown and Parliament came under Charles I when that monarch raised a whole new series of problems and issues.

**Favourites and factions**

In terms of favourites and ministers, the calibre of James' advisers has consistently been underestimated. James had good ministers in the shape of Robert Cecil, Lionel Cranfield and Francis Bacon. Unlike Philip III of Spain and later, Louis XIII of France, James did not hand over control of the government to a favourite. James was serious about his authority and was determined to be seen to govern his realms in a serious manner. Less worthy favourites (in our eyes), like Carr and Buckingham, were the men James liked to have around him. No doubt they fed his vanity and like all men around the king they were anxious for wealth and power. None of these less worthy favourites ever altered James' policies to suit their own ends. James always governed in the nation's interests.

Of course there was trouble at court but there is always trouble at court. A closed male world where courtiers seek for power and patronage is bound to be a spawning ground for faction fighting and intrigue. Nonetheless, unlike the court of Henry VIII or indeed, Elizabeth I, this faction fighting rarely turned nasty. There were no politically motivated executions during the reign. Walter Raleigh, great Elizabethan seadog though he might appear, was executed because he was found guilty of treason. He plotted to deprive James of his throne by supporting Arabella Stuart. The murder of Thomas Overbury was nasty but the Duke of Somerset and his wife were found guilty and imprisoned.

**Royal Finances**

In the realm of royal finances, some historians have unduly upbraided James. The monarchy was seriously under funded by 1603 and James inherited debts from his predecessor. Worse still, his predecessor had introduced no serious financial reforms during her long reign, so the situation was deteriorating.

While royal debt did increase during James reign, so too did royal income and the scale of the debt was not insurmountable. By the end of the reign the debt stood at around £900,000 or two year's income. Monarchies are bound to be extravagant to buttress their political power and the key point is that James, unlike kings of Spain and France, never went bankrupt. The debt was manageable because people were still prepared to lend to the Crown.

At the same time, income was increased impressively. Despite a legal challenge, James significantly increased his income by using impositions - extra taxes on trade. This was a useful source of increased revenue since the Tudors had sold off Crown lands and Henry VIII had wasted the great opportunity, which arose from his brutal suppression of the monasteries.

James' extravagance befitted the king, especially one who had known hardship in Scotland. At the same time, he did attempt to cut back on expenditure - both Cecil and Cranfield initiated useful schemes of retrenchment. Another scheme to try to put the monarchy on a more stable financial footing in the long-term was the Great Contract of 1610. Drawn up by Cecil, this scheme to sell of some royal prerogative rights in return for a regular parliamentary income foundered on opposition from both James and parliament.

Parliamentary opposition also revealed how unrealistic they were about the costs of monarchical government. The Addled Parliament of 1614 offered James a one-off subsidy of £140,000 if he gave up impositions worth £70,000 a year and rising! In 1624, Parliament demanded that James go to war with Spain. They offered £300,000 and were upset when James told them that the cost of such a war would be at least £1 million!

**Tolerance in religion**

In religion, James' reign was a period of unofficial tolerance for Catholics and Puritans and contrasts favourably with the religious persecution witnessed

under Elizabeth I and Charles I. Though a sincere Calvinist, James was no zealot and he had all the right political instincts to defuse the religious divisions of this period. With the Hampton Court Conference, James showed that he was prepared to listen personally to Puritan grievances about the Church of England, while wisely referring most matters to a committee of bishops where they could be forgotten about. Despite the potential horror of the Gunpowder Plot, James was not deflected from his tolerance towards Catholicism. He rightly refused to see Catholics as a threat and while penalties against Catholics were increased they were rarely enforced. James' ecumenical attitude on religion is well summarised by his words about Catholics - 'I reverence their church as our mother church though clogged with infirmities.'

All the time, James was keen to defuse theological arguments and disputes. The canons of 1604 introduced by Archbishop Bancroft proclaimed that the contentious and rather terrifying Puritan doctrine of Predestination was to be debated in schools and universities not parish churches.

At the same time James was committed to the idea of raising the material standing of a church, which had been plundered, and increasingly controlled by laymen since the Reformation. He maintained a balanced bench of bishops in terms of theology and ensured that his bishops were well educated and dedicated to the task. He also commissioned the great Authorized Version of the Bible, which appeared in 1611. This was a tremendous and lasting achievement from James reign and particularly astonishing in that it was produced by a series of committees!

**James' peace policy**

James success in religion was mirrored and partly based on his success in Foreign Policy. In this area, James was ahead of his time as a king who, on principle, set his face against war. He gloried in being called Rex Pacificus and was distraught at the horror and waste of warfare. Religiously tolerant, he hoped that England could help to maintain the peace in Europe and thus avoid the horrors of religious war. In this aim he failed but it was a mission earnestly undertaken and, unlike Elizabeth and Charles, he kept his countries out of war. One of his first acts, in 1604, was to end the desultory and expensive war against Spain, which had been going on since 1585. He hoped to cement peace in Europe by marrying his daughter to the Calvinist Elector Palatine and his son to the Infanta of Spain. The failure of the latter marriage prospect, led to calls for war with Spain, which James wisely resisted. He knew that war was expensive and England's military potential on the Continent doubtful to say the least and he resisted enormous pressure to declare war on Spain after the outbreak of what became the Thirty Years' War in Europe in 1618. James' foreign policy was wise, far sighted and, of course, inexpensive. In the 1630s Englishmen would rejoice that they were living in peace, while much of Europe was consumed by war. For this state of affairs, they had reason to be grateful to James VI and I.

**Conclusions - James' success**

James can thus be given some credit for enjoying a relatively quiet reign. Religiously, it was a reign of toleration and an absence of persecution. In domestic politics there were no popular uprisings or rebellions, only one Gunpowder Plot that proved to be a damp squib. Royal finances remained under control and could have been much worse, if James had favoured a forward foreign policy. By 1637, Charles I was able to balance royal income and expenditure. Meanwhile, parliamentary relations were normal and only seriously worsened under Charles after 1625. Indeed by contrasting James reign to that of his son, we can fully appreciate James success. Charles was religiously partisan, wanted to enforce uniformity in religion and favoured the Arminian faction against the Puritans. The outcome was Civil War on a scale never before witnessed on these islands.

Lastly, James can be given lasting credit for the introduction of golf to England from Scotland and for his powerful opposition to smoking. Would that our own government could live up to James strictures on this terrible habit! In his 1604 Counterblast to Tobacco, he denounced 'the stinking suffumigation of tobacco smoking' and referred to smokers as people who 'imitate the barbarous and beastly manners of the wild, godless and slavish Indians'!

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# NATURE'S NANOTECHNOLOGY

## Professor Clive R. Bagshaw, Department of Biochemistry, University of Leicester

Royal Society of Chemistry Lecture delivered on January 24 2005

**Nanotechnology is the science of nanometre-sized objects (i.e. one thousand millionth of a metre). This scale presents new challenges and opportunities for engineering. The topic can be approached from a top-down direction (i.e. scaling down conventional technology) or a bottom-up direction (building up from individual atoms and molecules). The latter is the way living organisms have evolved to produce some remarkable machinery. This article will describe how our understanding of natural nanotechnological devices, called molecular motors, has developed over the last decade. Progress has depended on advances in physics, chemistry and biology in equal measure.**

Almost a century ago, Lord Rutherford exclaimed that science is either physics or stamp collecting. While the intended message was that the aim of science is to explain everything in terms of the unifying laws of physics, the statement is often quoted as a dig at the stereotype Victorian biologist - those who spent a lifetime collecting and classifying organisms, but not deducing any new scientific principles. Even today, much of biology involves collecting information that does not have immediate meaning, such as determining the structures of individual DNA molecules that make up the genome of each organism. However, from such information it has been possible to deduce structures and mechanisms of nature's nanotechnology that make man-made machinery look rather primitive. That said, it has taken cutting-edge physical and chemical methods to expose the secrets of these devices. Bionanotechnology is a field that brings scientists together from many disciplines who need to pool their expertise.

### The challenge of the nano-world

One immediate problem faces the investigation of nanotechnological devices. The wavelength of visible light of around 500 nanomicrometres limits the resolution of objects to about 250 nanometres. We therefore cannot see detail within nanoscale objects using a light microscope, no matter how much we enlarge the image. Using radiation of shorter wavelength (e.g. X-rays) solves this problem, but creates others. X-rays cannot be easily focused to make a practical X-ray microscope and the rays themselves are damaging. They destroy the very object we try to see. Nevertheless, X-rays are diffracted by atoms to give a pattern that, in favourable cases, can be interpreted in terms of molecular structure. The technique of X-ray crystallography has been particularly successful in revealing the detailed structures of proteins that make up the building blocks of Nature's nanotechnology. Electrons also have wave-like properties and they can be used to form high-resolution microscopic images. However, materials usually need staining to make them visible to electrons, which reduces the resolution of electron microscopy to tens of nanometres. Furthermore, the object has to be viewed in a vacuum, which rules out the study of living materials. Much of our knowledge of Nature's molecular motors has come about by piecing together information from the above techniques.

Nanotechnological devices, both natural and man-made, face problems of their own. As an object is scaled down in size, so the random motions of its atoms and surrounding solvent fail to average out. The phenomenon, termed Brownian motion, was first observed on micrometre–sized pollen grains suspended in water by the botanist, Robert Brown. This was one of first of several examples where physicists learned something rather fundamental from a sharp-eyed biologist engaged in stamp-collecting. What does Brownian motion mean to molecular motors? Well, for a typical biomotor operating near room temperature, the thermal energy, which drives the bombardment of water molecules, corresponds to about 1/10 the energy available from the fuel molecules. Progress can be made in the desired direction but the motor is in for a bumpy ride.

**Actomyosin in muscle**

One of the best-understood molecular motors comprises actomyosin from muscles. The mechanism of muscle contraction has been under scientific study for more than a century and the molecules involved were identified over 60 years ago. Actomyosin is made up of two filamentous proteins, actin and myosin, that slide over each other to cause net shortening of the array. In skeletal muscle, this filamentous array is highly ordered and shortening occurs in one direction. This arrangement provides many practical advantages in the elucidation of the mechanism because the regular structure allows X-ray diffraction methods and electron-microscope averaging techniques to be applied. It also caused some false starts in understanding the mechanism. Some scientists were struck by the precise order and proposed that increasing filament overlap, leading to net shortening, could arise simply from charge attraction between the actin and myosin filaments. It turns out that the myosin filament structure is incidental to the fundamental mechanism of movement but rather is an adaptation to give fast and efficient contraction in one direction. Smooth muscles that are engaged in "involuntary" contraction (i.e. not directly under our nervous control) lack this regular order yet they still contract by the same molecular mechanism. The final proof came from studies in which the tails of the myosin molecules that make up the filament backbone were removed by controlled proteolytic digestion. The remaining heads were shown to support sliding of actin in an "in vitro" motility assay. "In vitro" assays are a relatively new approach in biology and involve reconstituting a system from isolated purified proteins that can be seen to move under the light microscope on a glass slide. They represent the ultimate dream of biologists who can claim they understand a process if they can replicate it from known components. The problem then becomes one of chemistry and physics in sorting out the detailed mechanism.

How can protein molecules be seen under the light microscope if their dimensions are less than the 250 nanometre limit alluded to above? One trick is to label one or more proteins with fluorescent dyes (Fig. 1). The fluorescence from a single molecule gives a halo of light around the object with a diameter of about 250 nanometres. If the fluorescent dye molecules are sufficiently dilute so that their average spacing is greater than a few micrometres, then individual spots will be seen under the microscope, the centre of which defines the position of the dye molecule itself. Actin filaments comprise several hundred protein monomers which are readily labelled with a fluorescent dye. Myosin molecules are inherently sticky and will spontaneously bind to a glass slide. When labelled actin filaments are added, they bind to the myosin molecule and their fluorescence can be observed at the surface of the slide. Addition of the fuel molecule, adenosine triphosphate (ATP) causes the actin filament to slide over the myosin surface at a rate of several micrometres per second – a velocity that is comparable to the filament-sliding rate in intact muscle. In a variant of this in vitro assay, the actin filament is labelled with two micrometre-sized plastic beads at each end. The beads can be held and manipulated in a device known as an optical trap or optical tweezers. The trap is made by focusing an infrared laser beam to give a locally intense beam of light that causes the bead to levitate towards the point of maximum brightness. This new physics took only a decade to percolate through to such biological applications. When an actin filament, held by two traps, is lowered on to a single myosin molecule attached to a surface, the beads undergo a small deflection each time ATP is bound and hydrolysed. The movement is of the order of 10 nanometres, and can be determined with 1 nanometre precision by calculating the exact centre of the bead. The 10 nanometre deflection is satisfying close to the expected movement of the myosin head based on physiological studies of muscle fibres some 30 years earlier. Coupled with biochemical studies of the ATP hydrolysis reaction, the sequence of events of muscle contraction can be described is molecular detail. Actin and myosin form a strong interaction in the absence of ATP (as is evident from muscles in rigor mortis where the ATP supply has expired). ATP binds to a site on the myosin molecule and changes its shape slightly to weaken the interaction with actin. The myosin and actin molecules separate and now myosin catalyses the hydrolysis of ATP to yield adenosine diphosphate (ADP) and inorganic phosphate (Pi). The hydrolysis reaction is coupled to a major shape change in which the neck of the myosin molecule swings though some 70 degree angle relative to the head. The ADP and Pi products remain bound to the myosin until it encounters another actin molecule within the actin filament.

Actin binding displaces the products and once the Pi has left its binding site the neck region swings back by –70 degrees to its initial docking position. However, because this reaction occurs when the myosin head is bound to the actin, there is a relative displacement of the end of the myosin neck relative to the actin filament. If the myosin neck is attached to the rest of the tail (as it is in the intact filament system in muscle) then the filaments are displaced by about 10 nanometres for each round of ATP hydrolysis. Because the myosin heads are arranged in series within the muscle, these nanoscale movements add up to give the net movement of muscle that is evident in the macroscopic world.

Muscle myosin is only one class of myosins that are now known to exist in all cells more advanced than bacteria. Plant myosins cause cytoplasmic streaming which is important in transport of material within the cells. These myosins are amongst the fastest sliders known – ten times the speed of an athlete's muscle myosin. Within our own bodies myosins play a crucial role in hearing and vision, and genetic lesions in these myosins lead to deafness and blindness. Before the advent of molecular genetics and in vitro assays to characterise these myosin-like molecules, little progress was made in this area of molecular cell biology. Lord Rutherford should be proud of this synergy of physics and stamp collecting.

Actomyosin is a linear motor in that the interactions between molecules produces a net translational motion. Another important linear motor is based on microtubules that form the track on which other molecules such as kinesin and dynein slide. These motions drive the transport of chromosomes during cell division and the whip-like action of sperm flagella, amongst others. Their mechanisms have some parallels with actomyosin and contrast with another class of nanomachines known as rotary motors. The best understood of these is the bacterial flagellum.

**Bacterial flagellum – a rotary motor**

The bacterial flagellum differs from the flagellum of sperm in that the tail is rigid and driven by rotation of its base i.e. it acts more like a propeller than a whip. Mutant bacteria, which lack the flagellum protein, may still have a functional basal motor. This can be demonstrated by tethering the bacteria to a glass slide by their flagellum stumps and noting that the whole cell rotates about the tether point. Such tethered bacteria provide a useful test system because they are observed to rotate for a few seconds in one direction, then reverse for a few seconds. Addition of attractants (e.g. food) favour rotation in the anti-clockwise direction, while repellents (e.g. acid) favour movement in the opposite direction. What does this mean for the cell, which possesses several flagella on its surface? When the flagella rotate in the anti-clockwise direction they slip past one another to create a propulsive force and the cell moves in a straight line. Rotation in the opposite direction causes the flagella to tangle up and the cell tumbles around at random under the influence of Brownian motion. Another period of anti-clockwise rotation causes the cell to head off in a new direction. And so the bacterial cell makes progress in a way described as a biased random walk. When the cell detects attractant molecules it tends to swim straight, so eventually making its way towards the source. Repellents have the opposite effect so allowing the cell to change direction and escape. A biased random walk may sound a rather inefficient mechanism, but the concentration of attractant and repellent molecules are very low, so that the cell cannot detect a chemical gradient directly. It can only sample individual molecules. Detection of a single food molecule does not mean the bacterium is heading in the right direction, only that there is a better than evens probability that it is. By continuous sampling of the space around it, the bacterium gradually hones in on the food source.

The nature of the basal motor that drives the flagellum is now understood at a molecular level. Genetics has played an important part here because mutations in specific genes lead to absence of a specific protein and a motor that is defunct in some way. Electron microscopy may reveal the location of the missing component, and hence the structure-function relationship can be pieced together. Superficially, the structural organisation of the protein components looks remarkably like a conventional electric motor, with some components making up a central shaft that rotates and others surrounding it like the poles. The energy is supplied in the form of an electrochemical gradient of protons i.e. the pH is different either side of an insulating membrane that holds the motor.

Protons flow through the motor, down their concentration gradient, but the channel within the motor is not a direct route. The proton temporarily binds to the central shaft, which then rotates slightly to bring the proton in line with the exit channel, so it can escape to the low concentration side. By this mechanism, a chemical gradient is transduced into mechanical work.

Biological nanomachines will certainly inspire the construction of man-made devices out of shear curiosity and may be to solve technological problems. However, the extent to which man can achieve such exquisite assembly is questionable. Furthermore, these natural machines are designed to self-destruct after a predetermined period. The motors that drive our heart beat are traded in after a fortnight for new molecules, although the whole machine functions non-stop for many tens of years. We have a lot to learn.

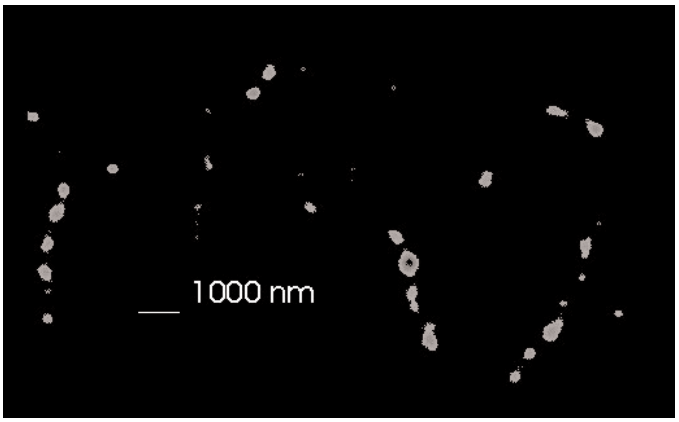


Figure 1: Single fluorescently-labelled myosin molecules attached to actin filaments seen under a light microscope (note the observed diameter of the molecules is limited by the wavelength of visible light to about 250 nanometres which is about one

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# SELF-REGULATION OF THE PRESS

## Tim Toulmin, Director of the Press Complaints Commission

Leicester Mercury Lecture delivered on February 7 2005

**The philosophical basis for self-regulation of the press is pretty straightforward. In modern democratic societies there will usually be sharply conflicting rights to freedom of expression and to freedom from intrusion. Neither right trumps the other. How are these rights to be balanced, if at all? There are three options. First – no regulation of the press. This would guarantee complete freedom of expression, with no right to individual privacy. Healthy for democracy, perhaps, but pretty brutal for most people with no claim to celebrity or power who could expect any aspect of their private lives – health, relationships, financial details and so on – to be published in newspapers for whatever reason. There would be no mechanism to complain.**

The second option is state regulation of the press, which would be the opposite extreme, with politicians writing the rules about what you can read. The free flow of information would be interrupted by a government body, which would undoubtedly stifle legitimate scrutiny and interfere with freedom of expression. Such bodies sadly exist in some countries, and there is no doubt that the result of the absence of a questioning and free press is a corrupt political establishment.

The third option for balancing the conflicting rights is self-regulation of the type that we enjoy. Newspapers accept that some regulation of its profession is necessary, voluntarily submit themselves to an agreed Code of Ethics, and agree to fund an independent third party organisation to investigate and adjudicate complaints made under that Code. Such a body is the Press Complaints Commission.

It is not perfect, but no western democracy that I am aware of has improved on this model of how to balance the right of the press to ask questions and to transmit information on the one hand, with the rights of the individual to protection from the excess of the press on the other. If this sounds like a boast, it is not meant to be, because the idea is not a British one. It is a Swedish concept which dates back to 1916. It is one of the myths about self-regulation of the press that it is a British cop-out. In fact, most countries in Western Europe have functioning Press Complaints Commissions. And many more are springing up in Eastern Europe, in countries that know a thing or two about how a muzzled press leads to corruption and oppression.

That, then, is the theory. How does it work, and why? The structure of self-regulation is more complicated than people normally imagine. Three separate bodies are actually involved. The first is of course the PCC itself, with its 13 full time staff and 17 members of the board. Then there is the Code of Practice Committee – a body of editors drawn from across the industry that writes and reviews the 16 point Code of Practice. Having the profession itself being responsible for the Code has two key advantages. First, self-imposed rules have a greater moral authority than externally-imposed ones. Second, no editor can challenge the rules on the basis that they are unrealistic. And because the Code is not a legal document, it can change at a moment's notice to take account of developments in the industry, changes in technology and so on.

Finally, there is the Press Standards Board of Finance, known as Pressbof. That is the organisation responsible for raising the funding for the system. It is based up in Edinburgh, and collects a levy from newspapers and magazines based on their circulations. Pressbof then funds the PCC. I like this neat arrangement. It has hallmarks of old-style liberalism. The system is efficient and no burden on the state. And it also means, of course, that the user does not pay for the service while all the time ensuring that the state has no role in controlling the content of the press.

Yet at this point our critics sometimes sense a chink in the armour. If you are funded by the industry, how can you be independent, they say? It is a fair question.

The answer is that our brand of independence is derived from a variety of sources. The funding is conducted at arm's length. The PCC never has to ask individual newspaper groups for money. We don't – contrary to the views of some – employ any journalists on the full time staff. It is not therefore a question of the newspaper industry sitting in judgement of itself. What's more, 60% of the members of the board have no connections with the newspaper industry at all. There are some editors on the Commission – but they are essential for ensuring that our decisions cannot be criticised as unrealistic and for ensuring that the 'professional foul' is spotted. Indeed, part of our authority is derived from their input into the decision-making process.

The bulk of the work is carried out by the Commission's full time staff of 13. Their job is to investigate and resolve any complaints that might raise a breach of the Code of Practice. The Code covers a whole variety of things such as the accuracy of reporting, intrusions into privacy, payments to criminals and witnesses in trials and so on. Crucially, it does not just relate to the published article. It also covers newsgathering – the behaviour of journalists researching stories. If people feel that they are being harassed by a journalist, they can telephone us at any time of the day or night and, if they provide us with some basic details, we can negotiate on their behalf with the newspaper concerned. The result of this negotiation is that the journalists almost always withdraw and do not bother people any further, although there may be exceptions if there is genuinely a public interest in them continuing to put questions to someone. Because the rules are not written into the law, we can proceed flexibly on the basis of common sense. You could not approach the broadcasting regulator – whose powers and responsibilities are written into law in the Communications Act – for similar help, no matter how deserving your case. It is not their fault. The problem is that it would need an Act of Parliament to give them this flexibility – ridiculous in this age of 24 hour media.

But surely, I am frequently asked, newspapers just ignore the Code if they have got a really juicy story that they know to be true. After all, isn't it just a voluntary system? Why should editors restrain themselves in these circumstances when they have their circulation figures to think about?

The truth is that self-regulation as a description is becoming less adequate. Critics focus too much on the 'self' and not the 'regulation'. We have more authority than people imagine. Compliance with the Code of Practice is written into the contracts of employment of the overwhelming majority of journalists and editors. This means that a breach of the Code – particularly a deliberate one – can and does result in disciplinary action. If this were not incentive enough to comply with the rules, there are now numerous references to the Code in legislation – in the Human Rights Act, the Data Protection Act, the Youth Justice Act, and in financial regulations. This means either that in some circumstances a breach of the Code may be a breach of the law, or that journalists can be exempted from the law if they comply with the Code. This gives the Code an almost judicial authority while preserving the newspaper industry's ownership of the Code.

Of course, things do go wrong. Lines are overstepped, reporters are too zealous. You can't have a free press without people trying to abuse that freedom – it is human nature. Deadlines are tight, mistakes get made, errors of judgement occur. That is why 3000 people complain to us every year. That sounds a lot – although only about a third of those raise possible issues under the Code, of which about half are possible breaches of it. In such cases, our job is to organise a suitable remedy to the complaint – prominent corrections and apologies, or the publication of follow up articles or letters from the complainant setting the record straight. The editor might offer to do something behind the scenes, such as tagging the electronic records with a legal warning making clear that the story is not to be repeated, or to destroy the offending material or write personal letters of apology to the people affected. There is one strong reason why editors offer to resolve over 95% of all complaints that raise a possible breach of the Code.

It is not because they will be fined if they don't – many editors tell me privately that they wouldn't necessarily mind such a system because it would keep their transgressions relatively private. It is because our main sanction is the public 'naming and shaming' that takes place when we publish a critical adjudication. This is where the Commission issues a ruling – in which it can be as critical as it likes of an editor – which the newspaper must publish in full,

without editing it or adding their own defence, in his or her own newspaper. This advertises to their readers, rivals and employers the fact that they have failed to live up to the professional standards to which they are publicly committed. This is a sanction with real bite, because it gets editors where it hurts – by wounding their professional pride.

Yet there is scepticism about the willingness of newspapers and magazines to publish corrections and apologies. Surely they just bury them away, people ask. They are never as prominent as the original article, and always appear on about page 94 under the racing results. Well, this is not really true. Of course, corrections and apologies are not the same size as the original article. But this is usually because the editor is not apologising for, or correcting, the whole article. It is normally just one bit of it that is wrong, or intrusive. And, particularly in the case of privacy intrusion, there are not all that many people who want the same prominence being afforded to the follow up. The whole point of complaining about privacy is that people don't like the attention in the first place. This is – incidentally – one reason why so few people are prepared to go to court to sue for intrusion into privacy, even though it is increasingly possible to do so. Naomi Campbell learned to her cost that all such hearings are conducted in public, where the newspaper's original allegations, and defence for them, can be published freely in newspapers and broadcast on the television. The PCC is far more discreet, with hearings not held in public for precisely that reason. We can even publish rulings anonymously if that is what people want – something that the courts cannot do.

But the point about the publication of corrections and apologies is that the prominence is normally agreed in advance between the PCC, the complainant and the newspaper. They frequently appear on pages 2 or 3 – and always, unless it is in a special corrections column – on a news page.

I would not want to leave you with the impression that everything in the garden is rosy. The PCC is not perfect: sometimes things take too long to sort out, sometimes our complainants probably want more than we can get for them. And the press is far from perfect: many of you may have your own examples of a time that you or someone you knew had a tough time with a newspaper. The feeling of injustice can linger for a long time. But the nature and the size of the press means that there will always be examples of journalists overstepping the mark, of being hostile, of getting things wrong. That is why there will always be a need for a quasi-independent body like the PCC to which people can turn when things go wrong.

# THE ANCIENT HUMAN OCCUPATION OF BRITAIN (AHOB) PROJECT

## Professor Chris Stringer, F.R.S., Department of Palaeontology, The Natural History Museum, London

Joint Lecture with the Geology Section Delivered on February 21 2005

**The Ancient Human Occupation of Britain (AHOB) project is investigating the nature and timing of human occupation of the British Isles during the Quaternary (the geological system that began about 1.8 million years ago). It is a collaborative effort involving archaeologists, palaeontologists and geologists at Institutes in Britain and Germany, including the Natural History Museum and British Museum. AHOB began in 2001 and is a five-year project, funded by a large grant from The Leverhulme Trust. Key questions being addressed include the environmental nature of the earliest human occupation of Britain, whether Levallois technology, which appeared at the beginning of the Middle Palaeolithic, was an exotic import or developed from local technologies, and whether Britain was truly abandoned by humans for major periods of time. Project activities include fieldwork to verify new information about old finds, geochronology (dating of sites and material), stable isotope analyses, new studies of the palaeoecology of human sites, faunal and archaeological studies, and mapping using geographic information systems (GIS).**

The central purpose of the programme is to provide a detailed settlement history of Britain over at least a 500,000 year period, revealing aspects of the technology and behaviour of its early inhabitants and exploring how and why these changed over time, reconstructing the environments in which they lived and the resources that these provided, and documenting the animals that shared their landscape. By taking this broad sweep in time, it is hoped to identify changing patterns of human social organisation, behaviour, technology, economies, habitat preferences and landscape use, against the backdrop of frequent ice-advance, sea-level fluctuations, and the effects of recurrent isolation from mainland Europe.

The aims of AHOB are being advanced through small-scale fieldwork projects that focus on high-resolution sampling for fauna, flora, environmental information and dating that can be integrated with ongoing documentation and research on existing archaeological and faunal collections. This multidisciplinary approach is using the Marine Isotope Stages (MIS) and substages as the yardsticks against which the fragmentary terrestrial record is correlated. Newly developed mammal-based biostratigraphies covering much of the last 700,000 years are currently being explored for still higher resolution, to build on the Mammal Assemblage-Zones (MAZ) that have been suggested for the last 400,000 years. Oxygen isotope analyses of materials such as mammalian teeth, molluscs and carbonates are being used to help link patterns of climate, environment and faunal change to human presence and absence. Carbon and nitrogen stable isotope analysis of fossil bone and teeth also provide some insight into changing climates, as well as tell us about the diets of past animals and humans. These analyses are being supplemented by sedimentological analyses and geomorphology, geochronology (AMS radiocarbon age determinations of bone, Mass Spectrometric Uranium-series (U-series), Optically Stimulated Luminescence (OSL), Electron Spin Resonance (ESR) and Amino Acid Racemisation), invertebrate biostratigraphy, taphonomy and palaeoecology. These data are integrated and assessed using Geographic Information System (GIS) technology.

**Key Research Questions**

The project identified seven principal research topics, each focussing on a major episode of this time period and each with its own set of specific research questions. Together, these form a coherent chronological framework for understanding the ancient human occupation of Britain. The key research areas, updated from the original project design, are as follows:

1. **700,000 - 500,000 years: The nature and timing of the first occupation of Britain.** When did humans first reach Britain and to what environments were they adapted? New analyses of faunal assemblages, and recent discoveries of stone tools within early Middle Pleistocene sediments have re-opened the debate over the earliest occupation of Britain. This focuses on the problem of the first archaeological occurrences within the 'Cromerian Complex', and their nature. Collaborative fieldwork has already taken place at sites such as Happisburgh (Norfolk), Pakefield (Suffolk), Norton Subcourse (Norfolk), Warren Hill (Suffolk) and High Lodge (Suffolk). Current research suggests that Boxgrove (~500 ka) is not the earliest record of human presence.

2. **400,000 years: The Hoxnian Interglacial.** What environments did humans target and in what environments are they absent? What chronological or spatial patterns are evident in the lithic records? This period contains the richest Palaeolithic record in Britain, and that record is amongst the best preserved in the world. This presents the possibility of fine-grained reconstructions of human habitat choice, landscape and resource use, and investigation of the still intriguing possibility of different populations and lithic technologies. This is being achieved through the integration of the wealth of existing data, and detailed environmental sampling at critical sites. Collaborative fieldwork has so far involved the sites of Hoxne and West Stow (Suffolk), Marks Tey (Essex) and West Cliffe (Kent). New finds and research highlight the continuing enigmas of the Clactonian-Acheulian dichotomy, and the mid-Hoxnian environmental crisis.

3. **300,000 - 180,000 years: The Lower-Middle Palaeolithic transition.** When is the appearance of Levallois, and can it be linked to any external environmental or habitat changes? Is there evidence of population decline? This is a period that has been largely ignored in past research, but seems increasingly to mark the introduction of a suite of new technologies that themselves might be linked to changes in hunting behaviour, habitat preference, landscape-use, and social organisation. These questions are being addressed, together with the problems of whether these changes are indigenous to Europe, the timing of the changes, and with which human population(s) they are associated. Fieldwork has taken place at a number of sites, including Purfleet and Grays (Essex) and Stoke Tunnel (Suffolk). Succeeding interglacials show declining human visibility – Pontnewydd (~230 ka) is one of the last definite records of human presence for over 150,000 years.

4. **180,000 - 60,000 years: Middle Palaeolithic population collapse.** Is the apparent absence of humans real or due to differential preservation, and what environmental and landscape changes may have led to Britain's depopulation? Increasing evidence points to a decline and disappearance of human populations during this episode - despite careful research, there is still no good archaeological evidence assignable to MIS stages 6-5 in mainland Britain, although Britain was an island for only part of this time. Research focuses on whether this apparent absence can be explained through differential preservation, or if not, the reasons why humans became extinct in Britain, and did not recolonise. Did the dual factors of climate and the insularity of Britain alone control occupation at this time, or were there important environmental factors? Fieldwork is taking place at sites in west London, the Mendips, and Gower.

5. **60,000 - 22,000 years: Repopulation at the end of the Middle Palaeolithic, and the transition to the early Upper Palaeolithic.** What is the dating and nature of Neanderthal recolonisation and was it continuous or sporadic? When did modern humans arrive, and with what technology are they associated? The nature of the archaeological record during this period is being reassessed, and in particular the dating of the apparent recolonisation during OIS 3 and the subsequent arrival of modern humans. Key questions are what environmental factors led to recolonisation, are there differences between Neanderthal and modern human habitats, and with what technologies are the modern humans associated (it is still unknown whether British leaf-point industries at ca.35 ka were made by late Neanderthals or early moderns). Fieldwork with the involvement of project members has taken place at Lynford (Norfolk), Whitemoor Haye (Staffordshire) and Kent's Cavern (Devon). Lynford (~60ka) provides an association of Mousterian handaxes and mammoth bones.

6. **22,000 - 13,000 radiocarbon years: Human absence: The Dimlington Stadial faunal interzone.** Were humans present in Britain at this time? Although this is the period of maximum ice advance, there are hints that the mammoth-steppe fauna of OIS 3 may have survived into MIS 2 – up to and beyond the last glacial maximum (LGM). The principal questions are whether humans were really absent at this time, if so at what stage did they disappear, and with what faunas are they associated? This will provide important information on the habitat tolerances of modern humans at this time. So far, new dating work confirms a dearth of fauna and archaeology at the LGM in Britain.

7. **13,000 - 10,000 radiocarbon years: Recolonisation after the last glacial maximum.** What drove the Late-Glacial recolonisation of Britain? What evidence is there for regionality in the archaeological and faunal record? The questions for this period focus on whether the recolonisation was punctuated or continuous, and if punctuated how this links to marked fluctuations in climate. Other questions include: were humans moving seasonally within the landscape? Is there regionality within the archaeological and faunal records? Work has so far concentrated on the previously excavated site of Gough's Cave (Somerset). There was a pulse of recolonisation at ~15 ka by groups producing "Creswellian" artefacts (and sometimes, cave art) at sites in the Midlands and West Country, 250 km apart.

## Publication and dissemination

The results of the research are being disseminated at different levels. Detailed research and site reports are published as contributions in academic journals and books (see bibliography below), while more generalised reports appear in popular sources and on the project's website http://www.nhm.ac.uk/hosted_sites/ahob. An overview of the results will appear as a monograph at the end of the project to coincide with a major conference in 2006/7, and there will also be a popular book about the Project.

**Acknowledgements.** I would like to credit the work of all my AHOB colleagues (see http://www.nhm.ac.uk/hosted_sites/ahob), and the Leverhulme Trust for its generous support of the project.

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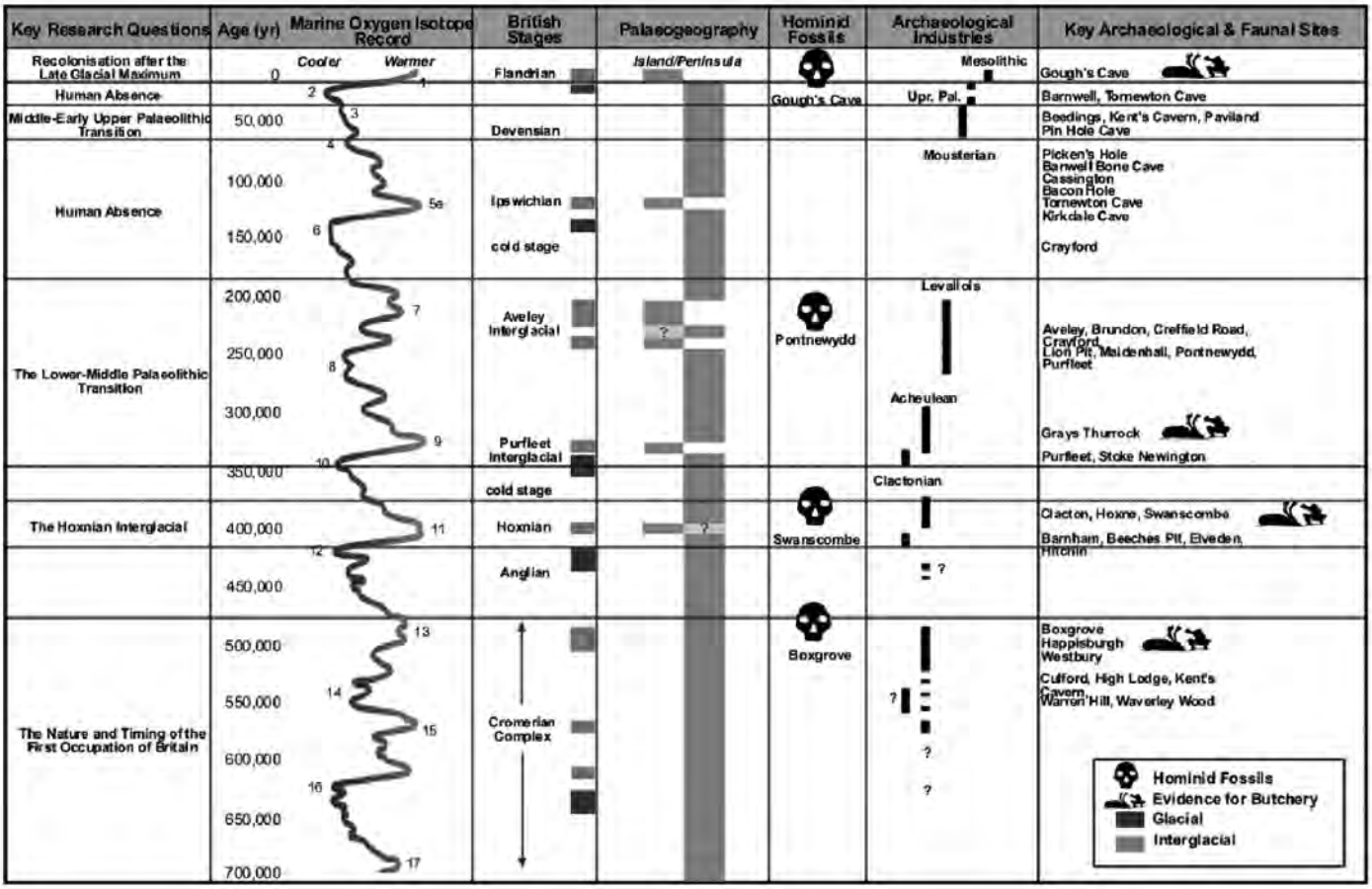



Figure 1. A summary chart for the AHOB Project listing the key research questions and the relevant time

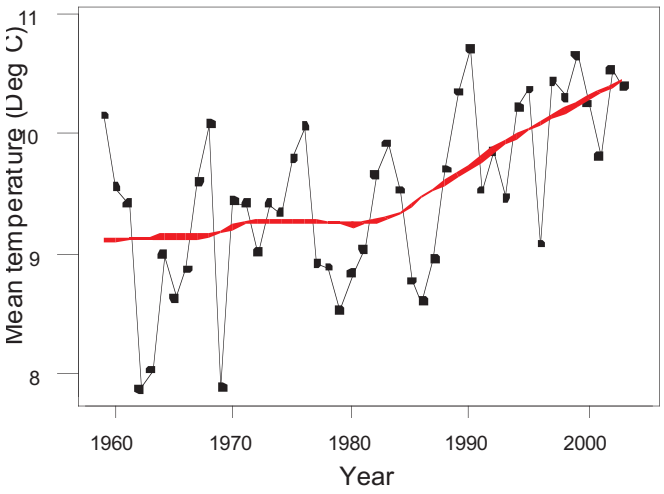
# IS SPRING GETTING EARLIER?

## Tim Sparks, Centre for Ecology and Hydrology, Monks Wood.

Joint Lecture with the Natural History Section delivered on March 7 2005

**Nine of the ten warmest years on record have occurred in the last decade. High latitude and high altitude ice is melting at increasing speed. The sea level around Britain is rising steadily. There is little doubt that the World's climate is warming, and there is little doubt that Man has contributed to this warming. Denying this evidence is becoming as unsustainable as denying the link between cigarette smoking and lung cancer. The governments of the world have acknowledged the warming, but there are huge political risks in implementing the inevitably unpopular policies that will be necessary to reduce carbon emissions and limit climatic change in the 21st century. A cursory examination of data from a nearby met station (Sutton Bonington) shows clear evidence for warming at the local level, below.**

Source: Met Office




To win over politicians and public alike it is necessary to demonstrate, in an easily understood way, that change is already having an effect. Phenology is the study of the timing of natural events. The timings of many species, particularly events that occur in spring, closely reflect weather conditions, especially temperature, preceding the event. We know this because Britain has a legacy of phenological recording that we can use to examine the phenology-temperature relationships of many species. From this work we know that events such as the flowering of hawthorn and horse chestnut, the leafing of oak, and the appearance of the orange tip butterfly respond very well to changing temperatures. Because such events are sensitive and because they are relatively easy to observe, they are likely to be better early warning systems that trying, for example, to detect change in a species' distribution or population size.

But before we consider the present, or even the future, let us briefly look back to the past. The British have long been collectors of information, be that rainfall or cricket statistics, locomotive numbers or, as concerns us here, phenology. The diaries of a Rutland squire, Thomas Barker have been published by the Rutland Record Society (Kington, 1988). He was brother-in-law of and correspondent of Gilbert White. His diaries contain many examples of the first events of the year. We do not consider this to be unusual and believe that many of the landed gentry at the time were keeping similar records. But we have not been very good at preventing such information from being destroyed or lost on the death of the recorder.

Local phenological records have been collated in the past by schemes run by the Royal Meteorological Society (1875-1948) and the British Naturalists' Association (1905-). More recently, considerable numbers of Leicestershire recorders have contributed to the UK Phenology Network (www.phenology.org.uk) run jointly by the Woodland Trust and the Centre for Ecology and Hydrology. In addition to current records the UKPN is keen to locate older records to add to its database. One example of this is the beekeeping records of William Coates of South Kilworth who between 1941 and 1969 maintained the usual beekeeping records of yield and so on, but also flowering dates of crocus and white clover.

Having established that phenology is sensitive to temperature we must now ask whether we have evidence for a changing phenology to confirm recent warm years? The answer to this is emphatically 'yes'. Our long term recorders can demonstrate clear advances in the flowering of spring flowers, the leafing of trees, grass cutting, frog spawning and the appearance of insects. If we expand our enquiry to include official and semi-official recording schemes there is ample evidence of advances in butterfly

| First flowers | RMS no. of years | UKPN no. of years | RMS mean | UKPN mean | days earlier |
|---|---|---|---|---|---|
| Snowdrop | 11 | 6 | Feb-06 | Jan-31 | 6 |
| Lesser celandine | 11 | 6 | Mar-17 | Mar-08 | 9 |
| Blackthorn | 52 | 6 | Apr-11 | Mar-20 | 32 |
| Garlic mustard | 53 | 6 | Apr-26 | Apr-21 | 5 |
| Purple lilac | 11 | 6 | May-05 | Apr-28 | 7 |
| Horse chestnut | 56 | 5 | May-10 | May-01 | 9 |
| Hawthorn | 56 | 6 | May-13 | Apr-29 | 14 |
| Ox eye daisy | 51 | 7 | Jun-02 | May-16 | 17 |
| Elder | 11 | 5 | Jun-04 | May-23 | 12 |
| Dog rose | 56 | 5 | Jun-10 | May-30 | 11 |
| | | | | average | 12 |

| First Insects | RMS no. of years | UKPN no. of years | RMS mean | UKPN mean | days earlier |
|---|---|---|---|---|---|
| Queen wasp | 26 | 6 | Apr-08 | Apr-03 | 5 |
| Bumblebee | 5 | 6 | Apr-18 | Mar-20 | 29 |
| Small white | 34 | 6 | Apr-23 | Apr-22 | 1 |
| Orange tip | 30 | 6 | May-16 | Apr-28 | 18 |
| | | | | average | 13 |

| First Migrant Birds | RMS no. of years | UKPN no. of years | RMS mean | UKPN mean | days earlier |
|---|---|---|---|---|---|
| Chiffchaff | 15 | 6 | Apr-09 | Apr-06 | 3 |
| Willow warbler | 16 | 6 | Apr-14 | Apr-14 | 0 |
| Swallow | 48 | 6 | Apr-20 | Apr-22 | -2 |
| Sand martin | 8 | 4 | Apr-21 | Apr-11 | 10 |
| House martin | 19 | 6 | Apr-29 | Apr-28 | 1 |
| Swift | 18 | 7 | May-09 | May-05 | 4 |
| | | | | average | 3 |

activity and emergence, bird migration and breeding, aphid activity, algal blooms, toad migration, and fruit ripening. Expanding even further, there is clear evidence of advancement of events in North America, throughout continental Europe and in Japan – in fact, wherever it has been recorded. Taken together there is irrefutable evidence that spring is advancing. In the table above, some preliminary analysis has been undertaken comparing phenological records in the East Midlands between the RMS and UKPN schemes. Years with less than five observations were ignored, significant changes are emboldened.

Is there any reason to be concerned about these changes, surely we should be delighted if winter becomes shorter? Well we do have serious reservations for a number of reasons. Firstly mild winters will not kill as many pests as hitherto, and we are unsure what the consequence of a shift in balance to more rats, aphids and other pests will be. Secondly it is now quite clear that not all species are responding at the same rate. The table above shows this with an apparent greater change in invertebrates and flowering plants than in migrant birds. As a further example, the leafing of oak trees appears to be twice as responsive as that of ash trees. This must cause problems for species which exist in competitive communities, or that synchronise with one another, or where different aspects of life cycles will change differentially. Quite what all these may be it is too soon to tell. Nature is a very complex beast and she hides many secrets. However, it is quite clear that phenological recording will help us to predict the consequences of a changing climate in the 21st century.

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# ROTWANG AND SONS – THE STORY OF A DESIGN IDEA

## Professor Sir Christopher Frayling, Rector, Royal College of Art, London

The Harry Hardy Peach Memorial Lecture delivered in the Lecture Theatre, Ken Edwards Building, University of Leicester, on March 9 2005

The lecture brought together a tight-knit series of films about the city, explored the debate between them, and then related them to a "public battle over the very soul of the designer in the twentieth century". The films were Fritz Lang's 'Metropolis' (1926), the same director's 'Woman in the Moon' (1927), the Hollywood reply to 'Metropolis' called 'Just Imagine' (1930), the British reply in the form of HG Wells' 'Things to Come' (1936) and in a postscript Walt Disney's 'Man in Space' (1955) and Stanley Kubrick's 'Dr Strangelove' (1962). 'Rotwang and Sons' took the audience on a illustrated journey through these films – focusing on the image of designers, from the evil Dr Rotwang in 'Metropolis' to the even more evil Dr Strangelove, the future of the city and design ethics – and explored in parallel the career of the rocket-scientist Wernher von Braun. Surprising and little-known historical connections were made, between the reception of Fritz Lang's films, the rise of rocket-science in Germany, and the A-4/V2 supersonic ballistic missile research programme at Peenemünde. After the Second World War, von Braun promoted his expensive researches – by this time in the civilian sphere – through work with Walt Disney on the ABC television series 'Man in Space' (which he wrote and presented) and through advising on the 'Trip to the Moon' ride at the then new Disneyland in Anaheim, California. The title character of Kubrick's 'Dr Strangelove' was a bizarre mixture of Rotwang from 'Metropolis' and the real-life Wernher von Braun. As author Peter George's version of the screenplay put it: "Doctor Strangelove . . . had long exerted an influence on United States defence policy. He was a recluse and perhaps had been made so by the effects of the British bombing of Peenemünde, where he was working on the German V2 rocket. His black-gloved right hand was a memento of this. He was not sure whether he disliked the British more than the Russians . . .". The design of the Pentagon war-room in 'Dr Strangelove' was itself based on memories of 'Metropolis'. So the continuation of the dynasty of Rotwang and Sons was assured, and the dark heart of the city had defeated the light one.

Harry Peach – through his work with Dryad Handicrafts and later the Dryad Furniture Company, through his long-term membership of the Fabian Society and study of Ruskin and Morris, through his pamphlets and through his deep involvement in the Design and Industries Association from 1915 onwards promoting " a new spirit in design" – combined a strong social conscience with an equally strong commitment to design, design education and design management. Harry Peach and the DIA were at their most active in the 1920s and early 1930s. He was a great supporter of the Deutsche Werkbund, and the Bauhaus, even advising the Prime Minister of the day on educational and design developments in Germany but he also lived long enough to see the emergence of a very different design philosophy there. Hence the choice of 'Rotwang and Sons' as the theme of this year's Peach Memorial Lecture, a theme which did indeed begin in Germany in the mid 1920s.

Are there any lessons for today? Well, the great design theorist Victor Papanek once gave a lecture called 'Design Ethics' – based upon his many taped conversations with the architect and propaganda expert Albert Speer. The lecture was about that moment when Speer, as an ambitious young architect with a family, decided to join the Nazi party and become their visualiser. Times were hard, he said, in late Weimar Germany. And the party offered some very grand opportunities. Papanek, who as a child had amazingly appeared in 'Things to Come', as a schoolboy shouting "here comes the Boss",

concluded with the thoughts: one – that the history of modernism wasn't all sweetness and light; two – that an overemphasis on corporate imaging in design had its dangers; three – that politics and the arts should always stay well apart; four – that designers should think hard about the ethical consequences of their decisions; five – that there was a job of work to be done, to improve the image of the architect and the designer in the public domain; six – that design ethics were not a fashionable subject, with the decline of the arts and crafts philosophy, but there were still a timely one. Harry Peach spent much of his life arguing for similar things. There is still work to be done.

# EARTH SYSTEMS SCIENCE: ARE WE PUSHING GAIA TOO HARD?

## Crispin Tickell

46th Annual Bennett Lecture for the 50th Anniversary of the Geology Department at the University of Leicester

Earth system science is both very old and very new. It goes back to before science as such was defined, and goes forward to illuminate how the living and physical elements on the surface of the Earth work together. It is now the subject of a Special Interest Group at the Geological Society in London.

It has also been called Gaia, whose living parts have three main characteristics: descent from a single source; complex mutual dependence; and a measure of self regulation. In the words of the Amsterdam Declaration on Global Climate Change of July 2001, the earth system 'behaves as a single, self-regulating system, comprised of physical, chemical, biological and human components'.

Over three billion years of Earth history, Gaia has developed, changed in myriad ways, withstood violent shocks, and reacted to new circumstances but, through a complex system of feedbacks, it has promoted and maintained the biosphere. Gaia has no particular tenderness for humans. Yet humans, through their current impacts on land, ocean, atmosphere and other living creatures, are profoundly changing the natural environment in ways we do not fully understand and with effects we cannot yet foresee. Are we pushing Gaia too hard? What could be the result, not only for our own species but for the system as a whole?

# COSMIC FINGERPRINTING: THE KEY TO UNDERSTANDING THE UNIVERSE

## Professor Martin Barstow, Department of Physics & Astronomy, University of Leicester

British Association for the Advancement of Science Lecture delivered on March 21 2005

**Spectacular astronomical images such as those obtained by the Hubble Space Telescope (HST) often appear in the news. Amazing detail is revealed and the light and shadow give the 2-dimensional image an almost 3-dimensional quality. However, in creating the image important information is being discarded that could be used to give a deeper insight into the physical processes at work in the object. This paper will outline how astronomers use the technique of spectroscopy to dig out this information, applying a range of the fundamental physical principles to interpret their data. Some specific examples of how spectroscopy is applied to understanding the Universe are presented.**

### The nature of light

Isaac Newton was the first person to demonstrate what we now know, that white light is not a pure and indivisible form of radiation. We most often experience this fact when viewing the colours of a rainbow, produced by refraction of light in water droplets in the atmosphere, but we can also recreate the effect artificially by passing white light through a prism. As Newton noted, when the light is passed through a second prism no further dispersion of the light is seen and recombined, with a lens, the individual colours produce white light.

All Newton's studies were applied to visible light. However, in 1800, Sir William Herschel (better known for his discovery of Uranus) carried out further experiments on sunlight. He was interested in how much heat passed through different coloured filters and set up an experiment to measure this, directing sunlight through a glass prism to create a spectrum. He then measured the temperature of each colour using a thermometer, placing two others beyond the spectrum as control samples. Measuring the temperatures from violet through to red he noticed that temperature increased towards the red end of the spectrum. He then decided to measure the temperature just outside the red portion of the spectrum, in a region apparently devoid of sunlight, and obtained an even higher temperature. With further experiments Herschel found that these "calorific rays" were refracted and reflected exactly like visible light. He had discovered infra-red radiation and established that the spectrum extended beyond the range of the human eye.

In the late 19th century, James Clerk Maxwell's theory of "Electricity and Magnetism" (published in 1873), proposed that light is an electromagnetic (wave) phenomenon and that visible light formed only a small part of the entire spectrum possible. Before the end of the 19th century, other forms of electromagnetic radiation (X-rays and radio waves) had been discovered and astronomers have now detected and regularly use "light" that spans around 18 factors of 10 in wavelength (see figure 1).

Even in Newton's time there was considerable debate about the nature of light, whether it existed as a wave or a "corpuscle" (=particle, Newton's view), and this continued for several centuries until the twentieth century and the birth of quantum theory. Even so, we have not decided between these two choices, but arrived at a kind of compromise, which is called wave-particle duality, where light can be represented by either or both descriptions. Hence, we can consider that light has the properties of both a wave and a particle, called a photon.

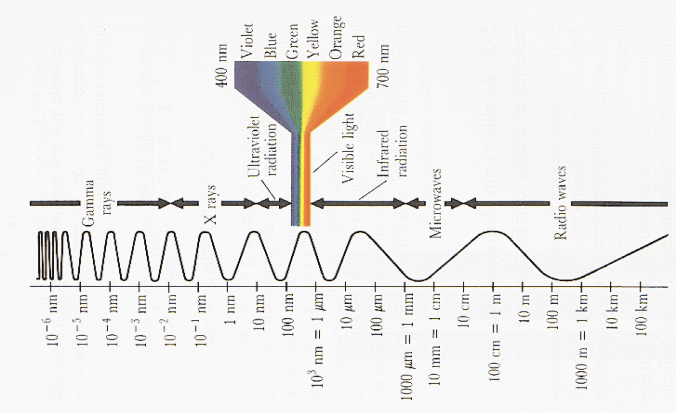



Figure 1. Schematic diagram of the electromagnetic spectrum showing the main distinct ranges and their wavelengths.

## "Fingerprints" of the elements

At first sight a spectrum appears to convey little information. However, even in the basic "rainbow" we get from sunlight, we can see that the light is most intense in the central green/yellow colours and fainter in both the red and blue/violet regions. This is related directly to the 5,800K surface temperature of the Sun. We can simply estimate the temperatures of other stars by looking to see where in their spectra, the brightness peaks.

If we examine a spectrum of the Sun more closely, however, we will see much more information in the form of dark "bands" and "lines" at particular wavelengths, where there is little or no light present. For example, figure 2 shows a small section of the solar spectrum covering blue, green and yellow light, wavelengths from 4700Å to 5100Å. These features were first studied definitively in 1814, by Joseph von Fraunhofer. Not understanding their origin he labelled them with letter names, but he did notice the wavelength coincidence between his D line and a prominent line in a laboratory flame spectrum (now known to be due to sodium).

From work on flame spectra it was eventually realised that individual lines or groups of lines were associated with specific elements and that the dark (absorption) lines in the solar spectrum were due to the presence of such elements in the Sun's atmosphere. Thus the main constituents of the Sun, and eventually other stars, could be identified. Indeed, the element helium was first found in the Sun, rather than on Earth, through several unidentified lines in the spectrum.

This "stamp collecting" approach to identifying absorption lines can only get us so far. An understanding of the physics underlying the line identifications was developed through the ideas of quantum theory, in the early part of the 20th century, and in which the idea of the particle nature of light is crucial. The basic ideas are encapsulated in the nuclear model of the atom, visualised to have a central nucleus with one or more electrons "in orbit" around it. However, the electrons bound in an atom can only have certain energies, which are known as electronic energy levels. Transitions between these levels lead to emission (electron moves from a higher to a lower level) or absorption of photons (electron moves from a lower to a higher level).

Containing just one electron, hydrogen is the simplest element and its line spectrum is the easiest to calculate. Some of the calculated energy levels,

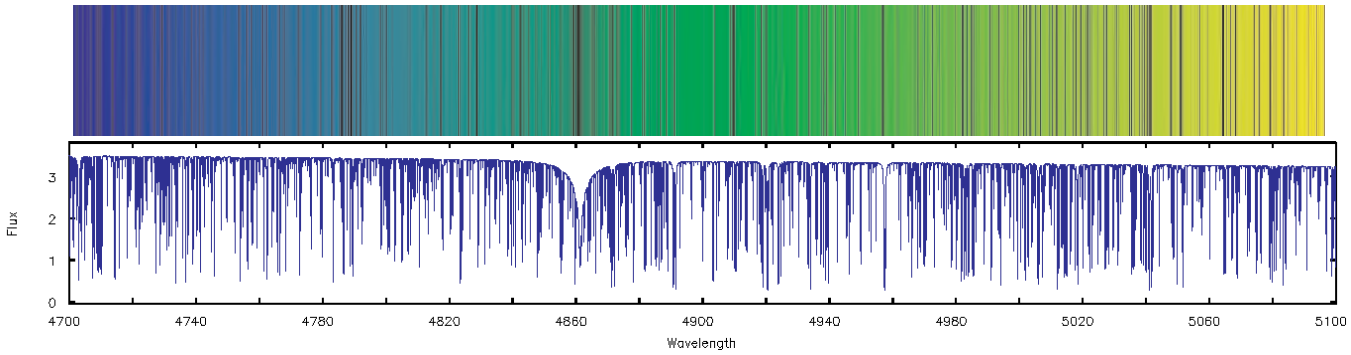



Figure 2. Part of the Solar spectrum, covering blue, green and yellow regions of the visible band, from 4700Å to 5100Å. The information is displayed a (top) a colour coded section of a rainbow, with the dark lines indicating the absorption lines present and (bottom) as a graph of the measured brightness of the Sun at each wavelength. It can be seen that the dips in the flux correspond to the dark lines. The broad absorption

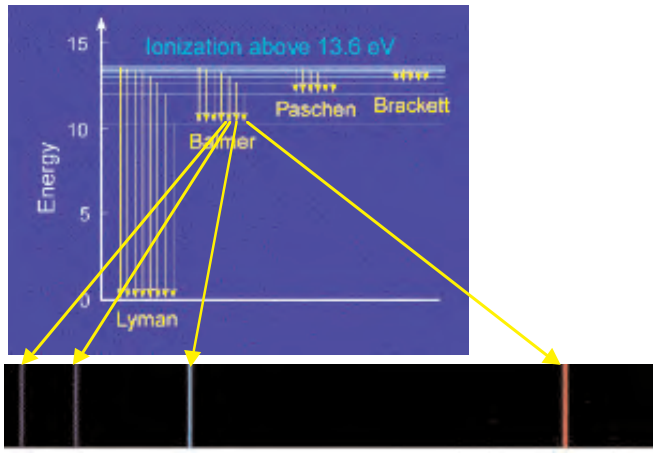


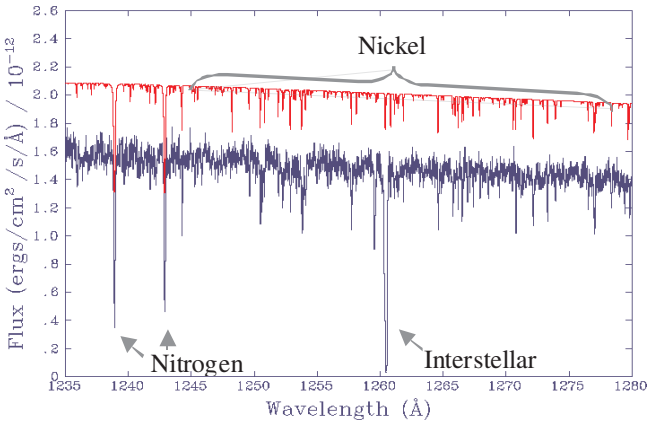

Figure 3. (Top) Energy level diagram of the hydrogen atom, showing some of the possible transitions that can take place between levels. (Bottom) The distinctive pattern of the hydrogen emission lines

some possible transitions and an example spectrum are shown in figure 3. The more complex the atom (i.e. the more electrons it has), the more energy levels are available and, therefore, a greater variety of transitions can take place. So, while we see only a few spectral lines associated with hydrogen, we see many more for complex atoms such as iron. These patterns of lines are a unique "cosmic fingerprint", from which we can identify each element.

## White dwarfs and interstellar space

White dwarf stars are the end stage of the life cycles of most stars. They are the remnant cores of stars that were once like the Sun and have collapsed to become extremely compact, typically around the same radius as the Earth, and very dense (108 kg m-3, compared to 5,400 kg m-3 for the Earth). Study of these stars allows us to observe matter under conditions that cannot be reproduced on Earth. White dwarfs are also among the oldest objects in the galaxy. As the nuclear reactions that powered the original star have ended, their temperature is determined entirely by their cooling, which takes billions of years. Measuring the temperature of the coolest white dwarfs can give us an estimate of the age of the galaxy and a limit on the age of the Universe. In addition, the production of white dwarfs gives rise to a large fraction of the dust and gas present in interstellar space, from which our own solar system formed.

To understand white dwarfs, we need to make measurements of their temperature, density and composition. This information can only be obtained from spectroscopy of these stars. Young white dwarfs are very hot and emit most of their light in the X-ray and ultraviolet regions of the electromagnetic spectrum. Apart from studying the stars themselves, they are also useful probes of the gas in interstellar space. For example, figure 4 shows the ultraviolet spectrum of a typical hot white dwarf. Almost all the weak absorption lines seen are produced by nickel in the atmosphere of the star. Three strong lines are also present. Two of these are from stellar nitrogen but the




third is from interstellar silicon.

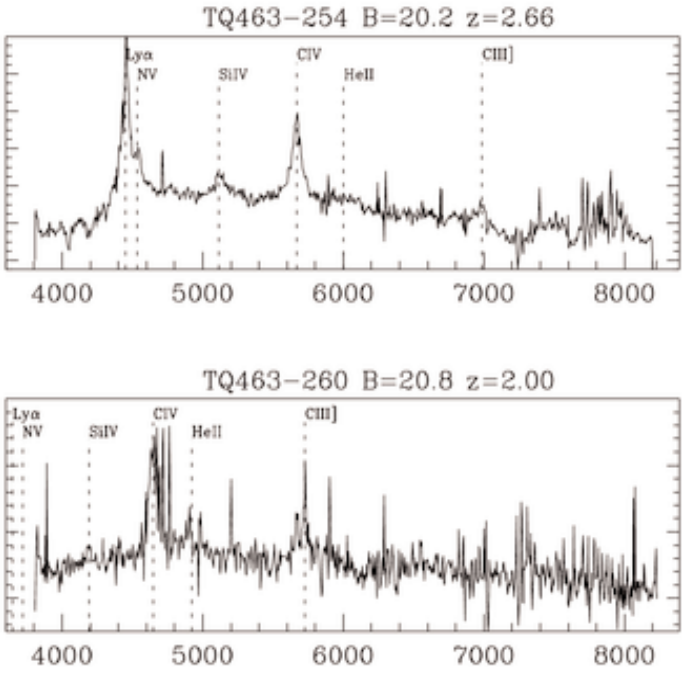
Figure 4. Ultraviolet spectrum of a white dwarf star (blue) compared to a theoretical calculation of the expected appearance (red). Most of the weak absorption lines are from nickel present in the white dwarf atmosphere. The two strong lines at 1238Å and 1243Å are from nitrogen, also in the star, while the strong line at 1261Å is from silicon gas in interstellar space.

## The fate of the Universe

The ability to recognise patterns of lines from a particular element is crucial to our understanding of the history and possible future of the Universe. In the 1920s and 1930s, the American astronomer Edwin Hubble used the 100 inch telescope on Mount Wilson (the largest in the world at the time) to record the spectra of distant galaxies. He noted that, while the spectra were generally similar to those of nearby galaxies, the spectral lines he observed did not appear at the expected wavelengths but were shifted towards the red end of the spectrum. Hubble interpreted this "red shift" as a Doppler shift of the light emitted due to the more distant galaxies moving

away from us. He also realised that the size of the red shift, and the implied speed, increased with the estimated galaxy distance – Hubble's Law, providing the first evidence for the expansion of the Universe and its origin in the Big Bang.

Figure 5 shows modern spectra of two distant galaxies with red shifts of 2.0 and 2.66, showing emission lines that appear in the UV, rather than the visible band, when the red shift is zero. Large scale surveys of the sky are discovering ever more distant objects and the current record for a measured red shift is around 7. However, the most distant galaxies do not behave as expected. The most recent results indicate that the expansion of the Universe is not slowing down, as would be expected if gravity is the dominant force, but accelerating. This has led astronomers to propose the existence of "dark




energy" which produces a repulsive force opposing gravity. The nature of the "dark energy" and whether or not it really exists has still to be determined.

Figure 5. Spectra of two distant galaxies with red shifts of 2.66 (top) and 2.0 (bottom), showing emission lines from hydrogen, helium, carbon, nitrogen and silicon, shifted from ultraviolet wavelengths.

## Conclusion

Spectroscopy is one of the most important techniques of astrophysics. If a picture is worth 1000 words, then a spectrum is worth 1000 pictures. Spectroscopy allows us to make important measurements of the fundamental properties of stars and galaxies and helps us understand the important physics of the Universe. It is an essential tool for astronomers to discover where we came from and what our ultimate fate will be

## Further information

A colour version of this paper and slides from the lecture can be viewed on-line at http://www.star.le.ac.uk/~mab, by following the Education and Outreach link from the home page.

# BENNETT FUND FOR RESEARCH: REPORTS OF BENEFICIARIES.

## The Lodestone

### Project Leader: Dr Allan Mills

The lodestone is a piece of magnetite that, unlike most examples of this rich iron ore, is a natural permanent magnet. It therefore attracts metallic iron. The Chinese made the vital discovery that a freely-suspended elongated lodestone pointed north-south, so that this 'compass' was a valuable aid to navigation. They also found that a strip of hardened steel stroked with a loadstone became a permanent magnet too, and behaved similarly to give the 'compass needle'.

The first scientific treatise on the lodestone was published by William Gilbert in 1600 A.D. He established that the 'magnetic virtue' of every lodestone appeared to be concentrated near the ends of the specimen, producing north and south 'poles'. Like poles repelled one another, but unlike attracted. He also drew attention to the fact that the strength of a lodestone could be improved by fitting it with soft iron pole-pieces or 'armatures', producing the so-called 'armed' lodestones. Examples of these from various museums have been quantitatively examined, and their magnetic moments assessed.

The origin of lodestones has been identified with lightning striking exposures rich in magnetite, the large transient currents disrupting the rock and inducing permanent magnetism within some of the ejected fragments. A natural lodestone collected comparatively recently at Magnet Cove, Arkansas, is tentatively suggested to have been formed in this way about 3500 years ago.

Details of the study entitled 'The Lodestone: History, Physics, and Formation' by Allan Mills has been published in ANNALS OF SCIENCE, Volume 61, 2004, Pages 273-319 in which the support by the Bennett Fund is gratefully acknowledged.

Allan Mills, Department of Physics and Astronomy, University of Leicester. 11.02.05.

## Microfossils associated with the giant fossil fish Leedsichthys found at Star Pit, Whittlesey

### Project leader: Andrew Swift

In 2003 a project was proposed to investigate the microfauna associated with a fossil of the giant Jurassic fish Leedsichthys, discovered at Star Pit, Whittlesey, near Peterborough. The idea was to see if any of this microfauna could reveal more information on the age of the Oxford Clay deposit in which the fossil was found, and also whether anything could be gleaned from the microfossils about the environment the fish inhabited.

Initial work involved the collection of a series of raw rock samples from around the horizon on which the giant fish sat. These were then broken down in the Palaeobiology laboratory in the Geology Department at Leicester University to liberate the microfossils contained within each sample. The microfossils were then manually picked from the residues. A long process of classifying the microfossils followed, during which they were sorted into categories and the best specimens photographed on the scanning electron microscope.

The final stages of the project involve detailed identification of the fauna, comparison and correlation with similar fossils of known date from elsewhere, and the bringing together of all the information for publication in a professional geological journal. It will be necessary to liaise with specialists on the various microfossil groups represented.

The financial assistance from the Leicester Literary & Philosophical Society is gratefully acknowledged. The money was chiefly used to fund the fieldwork.

Andrew Swift, Palaeobiology Group, Department of Geology, University of Leicester. 20.6.05.

# LIT & PHIL AGM 2005-04-25: PRESIDENT'S REPORT

Dear Colleagues, Council Members, Officers of the Society, Members and Guests. That was a formal way of addressing you all. What I really want to say is, dear friends, thank you for making my Presidential Year a memorable one, not just for me but also for the Society. I owe a deep gratitude to all of you.

I wish to thank our Life Vice President Dr Trevor Ford and Vice Presidents for their wise counsel – and the Council itself for its contribution in running the Society and providing lively debate.

This year we changed the style of the Council meetings by having two day-time meetings of over two hours each so that we could thrash out some of the complex issues and spend more time with members and guests at our regular meetings.

The Constitution has been brought up to date. In particular, we have reduced the number of Ordinary Members of Council from 36 to 24 maximum and extended the period of appointment of Members of Council from 2 to 3 Years. This should lead to more continuity and stability.

The chief authors of this were Dr David Bethel, Michael Kirk and Dr Mary Hamill our Hon. Secretary. The Constitution is published in full in this issue of the Transactions. Also, in the interest of being more open and accountable, our Hon. Secretary always has the Minute Book which members can view if they so wish.

I wish to warmly thank our Treasurer Mr David Beeson for his financial acumen in keeping us viable and the Independent Examiners of Accounts, Messrs. K Smithson and P. Fuchs.

Words cannot express my sentiments regarding Mrs Hillary Lewis, & Dr Geoff Lewis our Programme Secretaries, for putting together such a marvellous series of talks. Members mentioned that they wished to have more literary topics and that is, indeed, what we have achieved. On that theme, I wish to thank our sponsors – De Montfort University, the University of Leicester Bookshop, the Leicester Mercury, the Royal Society of Chemistry and the British Association for the Advancement of Science.

I would also like to thank - the Geology Section and the Natural History Section - for their contributions.

I wish to record my special thanks to our Honorary Secretary who has not only kept the minutes but has also been innovative in producing electronic minutes. She has also conducted the member's survey, to gain your views, so that we can be as democratic as possible. (A summary is published in this TRANSACTIONS). Dr. Hamill has a way of coming up with wonderful suggestions and making me feel as if they were my own ideas.

As regards some of the highlights this year:

A special thanks for the Peach Lecture delivered by Sir Christopher Frayling, Rector, Royal College of Art and Chairman of the Arts Council. I am grateful to Mrs Dean and Mrs Lewis for organising the evening and to Dr Bethel for liaising with the speaker. Mrs. Lewis also organised a very successful Schools lecture – "A 'Swift' Tour of the Universe" by Dr. Graham Wynn – a very topical theme.

The first three lectures were held at Leicester General Hospital Education Centre due to museum refurbishments and I appreciate their hospitality in accommodating us at no cost. Members delighted in Sir Vivian Fuchs Transantarctic Expedition lecture by Peter Fuchs, despite the contrast of the frozen landscape he described and a baking-oven atmosphere in the lecture theatre due to failure of the air conditioning!

There are many other people who make a contribution in their own quiet way:

Mrs. Silver, our Honorary Membership Secretary, who also greets you all; Professor Aftab Khan, former President and Editor of Transactions, who is initiating the development of a Society website.

Two awards have been made from the Bennett Fund for Research – I am grateful to Dr. Bethel and his

Committee regarding this. Research reports are included in this issue of the TRANSACTIONS.

I must thank Simon Gilroy and the Museum Team for all their support during the past year. Simon was fortunate to escape the Tsunami Disaster. In that connection, we had a nice card from our former President, Lord Attenborough, acknowledging the Society's condolences on his personal loss.

There are two further tasks which give me enormous pleasure to perform:

The Council and members wish to congratulate Dr Trevor Ford our Life Vice President on his 80th birthday. Dr Ford came to Leicester in 1952 to work in the Geology Department. He joined the Geology Section of the Lit & Phil at that time, serving as Chairman, and now Honorary Vice-President. He has been a member of the parent body Lit & Phil since 1963 and was made a Life Vice-President in 1994 in recognition of his exceptional service to the Society. Dr Ford edited the Transactions for 18 years and contributed papers to it. We all wish to congratulate and thank Dr Ford for his hard work and contribution.

It gives me great pleasure to announce that the Council and Vice Presidents have unanimously proposed Mrs. Hillary Lewis, for the honour of Life Vice President. Mrs Lewis has been a member of the Lit & Phil since mid 1970s. She has been the Joint Honorary Programme Secretary since 1992 and was President in 2001. She played a key role in the transfer of the Peach Fund and Revival of the Bennett Fund. As far as the Lit & Phil is concerned Mrs Lewis is the fount of all knowledge on all matters appertaining to the Society, as well as recruiting and nurturing new members, and employing diplomatic skills that an ambassador would be proud to have. Hilary, thanks to you and many congratulations on being our 2nd Life Vice-President.

I am sure the Society will continue to prosper in the capable hands of your future President, Dr. Michael Crowe. My apologies if I have missed any colleague from due recognition and, rest assured in the words of Milton, 'They also serve who stand and wait.'

Finally, our intention is to have fun and after the business meeting we will indulge in refreshments which you all must partake and then enjoy the Unipart Recital. I would like to finish using the title from our Shakespearean Talk by Prof Richard Foulkes – which sums up what I feel about the Lit & Phil 'Our Endless Joy – Our Matchless Pride'. Thank You.

# PROGRAMME FOR THE 2004-2005 SEASON

Except where indicated all lectures were held in the Art Gallery of the New Walk Museum, Leicester, on Mondays at 7:30 pm

**October 4th 2004**
**SKETCHES OF LITERARY MEDICAL MEN**
President's Address
Open meeting followed by a social gathering
The Lord Mayor was present.

**October 18TH 2004**
**DANGEROUS DECISIONS? THE PAROLE BOARD AND LIFE SENTENCED PRISONERS**
Judith Pitchers (Lady Pitchers)
Criminologist and Parole Board member
(Sponsored by De Montfort University)

**November 1st 2004 (in Clinical Education Centre, Leicester General Hospital)**
**SIR VIVIAN FUCHS – TRANSANTARCTIC EXPEDITION**
Peter Fuchs
Retired Scientist

**November 15th 2004 (in Clinical Education Centre, Leicester General Hospital)**
**OUR ENDLESS JOY – OUR MATCHLESS PRIDE: THE VICTORIAN SHAKESPEARE**
Professor Richard Foulkes
Professor of Theatre History, University of Leicester

**November 29th 2004 (in Clinical Education Centre, Leicester General Hospital)**
**ORWELL AND THE MINERS**
Professor Robert Colls
School of Historical Studies, University of Leicester
(Sponsored by University of Leicester Bookshop)

**December 15th 2004 (Wednesday)**
**LECTURE FOR SCHOOLS**
**A "SWIFT" Tour of the Universe**
Dr Graham Wynn, Dept of Physics and Astronomy, University of Leicester. Held in Rattray Lecture Theatre.
(Sponsored by Leicester Mercury)

**January 10th 2005**
**JAMES V1 AND 1 – MORE SINNED AGAINST THAN SINNING**
Colin Pendrill, Head of History Dept., Oundle School

**January 24th 2005**
**NATURE'S NANOTECHNOLOGY**
Professor Clive Bagshaw
Dept of Biochemistry, University of Leicester
(Sponsored by The Royal Society of Chemistry)

**February 7th 2005**
**THE LEICESTER MERCURY LECTURE**
**Self-Regulation of the Press**
Tim Toulmin, Director of Press Complaints Commission
(Sponsored by the Leicester Mercury)

**February 21st 2005**
**THE ANCIENT HUMAN OCCUPATION OF BRITAIN (AHOB) PROJECT**
Professor Chris Stringer
Palaeontology Dept, Natural History Museum, London
(Joint Lecture with the Geology Section)

**March 7th 2005**
**IS SPRING GETTING EARLIER?**
Dr Tim Sparks
Centre for Ecology and Hydrology, Monks Wood
(Joint Lecture with the Natural History Section)

**March 9th 2005**
**THE PEACH LECTURE**
**ROTWANG AND SONS – THE STORY OF A DESIGN IDEA**
Professor Sir Christopher Frayling
Rector, Royal College of Art
Lecture Theatre, Ken Edwards Building, University of Leicester
Followed by a reception in the Charles Wilson Building

**March 21st 2005**
**COSMIC FINGERPRINTING**
Professor Martin Barstow
Professor of Astrophysics and Space Science, University of Leicester
(Sponsored by the British Association for the Advancement of Science)

**April 25th 2005 (7.00 p.m. start)**
**ANNUAL GENERAL MEETING**
Followed by a recital by UNIPART
(Wine was served in the interval)

# ANNUAL REPORT OF THE GEOLOGY SECTION

**Officers 2004/2005**

| | |
|---|---|
| Honorary Life President: | Dr Bob King |
| Honorary Life Vice-President: O.B.E | Dr Trevor Ford |
| Chairman: | Andrew Swift |
| Vice-Chairman: | Mark Evans |
| Secretary: | Joanne Norris |
| Treasurer: | Eileen Johnson |
| Field Secretary: | Dennis Gamble |
| Publicity Officer: | Dr Mark Purnell |
| 'Charnia' Editor: | Graham Stocks |
| Student Representative: | Kay Hawkins |

**Committee**

Dennis McVey

**Co-opted:**

| | |
|---|---|
| Robert Tripp | Helen Jones |
| Dr Roy Clements | Margaret East |
| Doug Lazenbury | |

At the risk of sounding annually repetitive, 2004-5 was another very successful year for the Geology Section. We had our problems but nothing that wasn't overcome, and again we enjoyed excellent summer and winter programmes. Beginning the field programme on May 15th we visited two sand and gravel quarries in Oxfordshire with Neville Hollingworth, where the worked deposits were underlain by Oxford Clay and older Jurassic beds. Our weekend trip this session to Builth Wells, was another great success and, as ever, when the time came to break up on the Sunday, much regret was felt – a sure sign of a good trip. On June 13th we visited Slip Inn Quarry near Dunton Bassett with Jan Zalasiewicz to inspect Wolstonian glacial related deposits, and also to observe auguring at first hand. On July 11th we mixed a little archaeology and architecture with our geology on a trip to Northamptonshire with Diana Sutherland to view Jurassic building stones, from point of extraction to finished (and unfinished) buildings. The trip to our old stamping ground of Blockley Quarry on Sunday August 22nd was well run and enjoyed by the small but select party.

As regards the winter programme, the big change for the Section in 2004-5 was our enforced departure from the Geology Department of Leicester University after eight happy years. At first sight that looked like a serious blow for the Section and strenuous efforts were made to reverse the University's decision to remove us, but in the end we were obliged to decamp to the University's Ken Edwards Building for our lecture programme, as required by the University. And a very pleasant surprise that was. Instead of it being a retrograde step we soon appreciated that the facilities there were excellent and indeed superior to those in the Geology Department. As the indoor programme proceeded we appreciated more and more that the move was not in any way detrimental to the Section but, indeed, the very opposite. We have come out on the other side of the problem with more independence and a stronger base than ever. Unfortunately the Chairman was ill during the summer and early autumn and missed overseeing the first three talks, but Secretary Joanne Norris and Vice-Chairman Mark Evans filled the breach admirably. The talks, as usual, ranged all over the geological column and through several disciplines, from mantle plumes to the Pleistocene of the Midlands via American dinosaurs, the nature of caves, the geology of New Zealand, carboniferous coal swamps, the problems of building stones, interaction of clay minerals and the earth's crust, and the causes of mass extinctions. The standard throughout the indoor season was very high, and several talks ranked with the best we've heard, but undoubtedly the highlight of the season was the Saturday School on March 5th. After many years of niggling problems regarding our liaison with the Institute of Lifelong Learning, we finally severed ties with that institution and went it alone for the 2005 seminar. The University was happy for us to hold the meeting in our new home in the Ken Edwards Building and we booked a 250 seater lecture theatre. It was very much a plunge into the unknown but the efforts of the organising sub-committee led by Mark Purnell and Joanne Norris ensured that the day went (almost) like clockwork and was supported by over 100 participants. The talks on the theme of earth and life interactions were of a quality that few meetings, professional or otherwise, could match. It will indeed be difficult to live up to such a standard in 2006.

We enjoyed a first class Parent Body lecture in February and were fortunate to secure the services of the UK's leading hominid researcher, Professor Chris

Stringer, as speaker. I believe that again we broke attendance records for his excellent discourse on early hominids in Britain. The other two meetings which we base at the Museum were also very successful, and a healthy throng again supported the Members' Evening in February. However, the Christmas Meeting on December 15th was not quite so well attended, despite an excellent spread donated by members, and a diverting series of entertainments. We may always struggle to attract a large audience to that meeting unless it is moved to earlier in December.

Our newsletter, Charnia, ran to its normal three issues and contained many interesting articles and editorials, and it is hoped that, in the future, it will continue to flourish and indeed evolve into an even better production. Our internet website www.charnia.org.uk continues to be the great undiscovered jewel in Section C's crown. It is as good a website as that of any geological society in the country and much better than most. But for all its excellence and the dedication of webmaster, Dennis McVey, it seems to pass almost unremarked upon by members. The archive alone has assumed historical proportions and would reward anyone's study, so all members and others with internet access are urged to log in and enjoy!

Andrew Swift

## Summer Programme 2004

**Saturday May 15th.**

**Latton and Kent End Quarries, near Cirencester. Quaternary, Kimmeridge Clay and Oxford Clay.**

Leader: Dr Neville Hollingworth (NERC, Swindon)

**Friday May 21st**

**Sunday May 23rd. Weekend field trip to the Lower Palaeozoic of the Builth Wells area. Based at Pencerrig Gardens Hotel, Builth Wells.**

Leaders: Dr Gary Mullins and Andrew Swift (both Dept of Geology, Leicester University)

**Sunday June 13th.**

**Slip Inn Quarry, Dunton Bassett. Pleistocene glacial deposits.**

Leader: Dr Jan Zalasiewicz (Dept of Geology, Leicester University)

**Sunday July 11th.**

**Northamptonshire building stones as seen in quarries, buildings and villages.**

Leader: Dr Diana Sutherland (Mears Ashby, Northampton)

**Sunday August 22nd.**

**Blockley Station Quarry, near Moreton-in-Marsh. Lower Jurassic.**

Leader: Dr Mike Howe (BGS, Keyworth)

## Winter Programme 2004 – 2005

## 2004

**Wednesday October 6th**

Professor Andy Saunders (Dept of Geology, University of Leicester) – '**Mantle plumes and volcanoes'**

**Wednesday October 20th**

Sue Beardmore (ex-Utah Museum of Natural History, USA) – **'Letters from America: fossil excavations in Utah, USA'**

**Wednesday November 3rd**

Professor Ian Fairchild (School of Geography, Earth and Environmental Sciences, University of Birmingham) - **'Underground secrets'**

**Wednesday November 17th**

Dr Ian Sutton (School of Continuing Education, University of Nottingham) - **'Aspects of New Zealand geology'**

**Wednesday December 1st**

Dr Jason Hilton (School of Geography, Earth and Environmental Sciences, University of Birmingham) – **'Carboniferous coal swamp extinction: an alternative hypothesis from China**

**Wednesday December 15th**

**Christmas meeting, held at the New Walk Museum, Leicester**

## 2005

**Wednesday January 12th**

Barry Hunt (IBIS Ltd., London) – **'Building stone pathology'**

**Wednesday January 26th**

Professor Dick Merriman (British Geological Survey, Keyworth) - **'The role of clay minerals in recycling crustal rocks'**

**Wednesday February 9th**

**Members evening, held at the New Walk Museum, Leicester**

**Monday February 21st**

Parent Body Lecture, held at New Walk Museum, Leicester. Professor Chris Stringer (Natural History Museum, London) – **'The Ancient Human Occupation of Britain (AHOB) Project'**

**Wednesday February 23rd**

Dr Rosalind White (Leicester) – **'Volcanism, impact and mass extinctions: incredible or credible coincidences?'**

**Saturday March 5th (whole day)**

Saturday School, LT1, Ken Edwards Building, University of Leicester. 9.30 am - 5.00 pm. **'Earth, Life and Climate: 3 billion years of interaction'**

**Wednesday March 9th**

Dr Simon Lewis (Queen Mary College, London) – **'Middle Pleistocene glaciations in the English Midlands'**

**Wednesday March 23rd**

AGM and Chairman's Address - Andrew Swift (Department of Geology, Leicester University) – **'Eight years in the trenches – a Chairman's Tale'**

# ANNUAL REPORT OF THE NATURAL HISTORY

**Officers 2004/2005**

President: Miss J.E.Dawson, M.A., A.M.A.
Chairman: Mr. R.Iliffe, B.A.
Vice-Chairman: Mrs. E.J.Harris
Hon. Treasurer: Mr. P.Thompson, B.Sc.
Hon. Secretary: Mrs. G.M.Ball, B.A.
Hon. Minutes Secretary: Mrs. D.Thompson, B.Sc.
Hon. Winter Programme Secretary: Miss J.E.Dawson
Hon Editor: Mrs. D.Thompson

**Committee**

Dr. R.Ellis; Co-opted: Dr. A Bevington as Webmaster
Mrs.M.Gillham Miss D.Phillips, B.Sc., C.Phys. as Projects team Leader
Mrs. E.J.Harris
Mrs. E.Penn-Smith
Miss A.Pinnock
Mrs. R.Smith
Mr. P.Tyler
Mrs S.Walton

There was good attendance at the two Section Committee meetings held this year. With regard to the Parent Body, Jean Cooper is our representative on Council.

Thanks are due to Jan Dawson for a very worthwhile Winter Programme of talks held at the New Walk Museum.

The Summer programme was devised by a sub-Committee of Gill Ball, Maggie Frankum, Jenny Harris, Richard Iliffe, Doreen Thompson and Sue Walton who provided us with some interesting venues. Joint meetings were held with the Leicestershire and Rutland Bat Group, the British Plant Gall Society and the Leicestershire Fungi Study Group.

The fieldwork project surveying Croft Pasture for the Wildlife Trust was set up by Dorothy Phillips with the help of Ann Pinnock, Sue Walton and other members with specialist knowledge.

The new sound system has been in operation and proved a great success but it would be helpful if more members would volunteer to learn how to use it.

The Newsletter has been published twice this year and was given the thumbs-up by our former President, Ian Evans. Doreen Thompson is planning to hand over the editorship of the Newsletter at the

2005 A.G.M. She has done a wonderful job since 1982! Our thanks are due to her for her enthusiastic and consistent hard work in this respect and also for her reliable minute taking at every winter meeting, almost always in total darkness!

The difficulty in assessing our website and the question of how we might best up-date it with our current programmes has been discussed.

Thanks are due to Pat Heighway and Alison Gregory for the provision of coffee and biscuits, which is so valuable for the social side of our Section meetings, and also to Jean Cooper for the delicious cheese and wine buffet she organizes after the A.G.M.

**Winter Meetings, with an average attendance of 36, were held at fortnightly intervals to hear the following speakers:-**

**January 7th**
**The Weird and Wonderful Wildlife of Australia**
Martin Withers

**January 21st**
**How Pondweeds Get Themselves About**
Dr. Richard Gornall

**February 4th**
**Inter-relationships Between Insects and the Lower Plants**
Dr Tony Fletcher

**February 18th**
**Landscape and Wildlife-the Changing Scene**
Tony Squires

**March 3rd**
**Life in the Darkness**
John Jones

**March 17th**
**Bats-What's New**
Jenny Harris

**March 22nd**
**Joint Meeting with the Parent Body; Farming and Wildlife**
Nicholas Watts

**March 31st**
**A.G.M.; Natural History Forum and Social Evening**

**The Summer Programme of Outdoor Meetings was as follows:-**

**May 8th**
**Barnack Hills and Holes, Cambridgeshire**
Chris Gardiner

**May22nd**
**Charnwood Lodge**
Steve Woodward

**June 5th**
**Lyndon Reserve, Rutland Water-Ospreys**
Jenny Harris

**June 19th**
**Kelham Bridge**
Sue Walton

**July 7th**
**Lea Meadows**
Sue Walton

**July 17th**
**North Farm, Shenton**
Steve & Ros Smith

**July 31st**
**Ashby Canal-Otter Signs**
Alan Bevington

**August 14th**
**Gumley & Foxton Churchyards-Lichens**
Ivan Pedley

**August 20th**
**Foxton Locks-Bat Walk (cancelled)**
Karen Letten

**September 19th**
**Collyweston Great Wood-Galls**
Chris Gardiner

**October 17th**
**New Lount Reserve-Fungus Foray**
Richard Iliffe

**Winter Meetings, with an average attendance of 31, began on September 29th with a Members' Slide and Exhibition Evening. Speakers at the other meetings were as follows:-**

**October 13th**
**Moths, Myths, Mysteries and Melanism**
Dr Michael Majerus

**October 27th**

**The Natural History of the Sea Shore**

David Goldsmith

**November 10th**

**Where have all the Sparrows Gone?**

Kate Vincent

**November 24th**

**Thirty-second Sowter Memorial Lecture.**

**Churchyard Lichens; Sanctuary, Resurrection and Hope**

Ivan Pedley

**December 8th**

**Slugs and Snails**

Brian Eversham

**Mrs. G.Ball, Secretary, and Mrs. D.Thompson, Minutes Secretary.**

# LITERARY AND PHILOSOPHICAL SOCIETY SURVEY 2004: SUMMARY

In the summer of 2004, as part of a review of the Society, a survey was conducted to seek members' views about the Society's activities, their ideas for its development, and measures to recruit new members and increase attendance at lectures.

Approximately 165 questionnaires to 210 members were sent, and we received 54 responses (32.7%). The findings, summarised below, act as a guide to those members' views, but absolute statistical accuracy and significance cannot be claimed because of problems relating to the distribution and to membership size.

Programme subject matter, range of topics, speakers. The majority, 63%, was positive, rating it from good to excellent. A minority, 22%, commented on imbalance in the programme, citing a perceived dominance of science over literature and the arts.

Many respondents asked for more emphasis on literature, authors, biographers, literary journalists, reviewers, and novelists. Theatre and cinema, music, architectural subjects, archaeology, history of individual countries as a theme, Islam, China as a developing economic power also featured, as did current issues in science, crime, and sociology.

Some respondents provided suggestions and details of speakers, and these were forwarded to the Programme Secretary.

Location, accessibility, ambience of venue. Almost all, 76%, were positive, with typical comments such as "fine" "ideal", as well as an acknowledgment of the help given to disabled members. There was no interest in car-sharing projects.

Current timing of the meetings was favoured by 87% of respondents.

Problems of acoustics and audibility. Almost 40% commented on this, the majority adversely. Half of those responding negatively attributed the problem to the audio system, half to the speakers, with a further group blaming a mixture of both. A small number commented positively, that the "sound system has improved";

Importance of refreshments. Respondents were divided equally in how important they perceived post-meeting refreshments to be and this was reflected in their take up. Many valued the opportunity to meet the speaker, discuss the subject, chat and socialise.

Attendance: 52% attended 7 or more lectures, 22% attending all. Of the 48% attending less than 7, attendance was not specifically related to transport or timing of the meetings. The majority cited personal reasons, and a minority cited reservations about the programme.

Recruitment: 60% would personally recruit new members, 50% would distribute leaflets, and 40% would talk to other groups about the Society.

Respondents offered numerous ideas about methods, people, places and organisations likely to be helpful in publicising the Society. Some commented positively on the Society e. g. "very worthwhile attending", but other comments in this area touched on a perceived lack of openness of the Society and of the role and working of the Council, while a few comments indicated a sense of lack of welcome and friendliness.

Conclusion: The survey reflected the views of the 33% of members who responded. Many useful ideas and suggestions were offered. The opinions and issues raised, especially where expanded in comments on the programme, audibility, participation and recruitment, were particularly useful to Council in its discussion.

**Follow up**

Council met to discuss the findings and to make and implement recommendations, some of which were referred to by the President in his report. This process is ongoing.

The speakers' attention has been drawn to using the microphone optimally and to repeat questions, and regular liaison was made with the Museum staff to ensure that the sound system is used to maximum capacity. Some positive feedback has been received.

Literary and Sociological lectures were included in the 2004-05 programme, and many members expressed their enjoyment of the lectures on Orwell, The Victorian Shakespeare, and on Criminology. The Programme Secretary has approached some of the speakers suggested by respondents, either directly or through the personal contact of members and reminded us that the latter approach was often the most successful way to get "big-name speakers". Numerous ideas for programme building were explored. Council also emphasised the importance of maintaining the Society's tradition of keeping the membership informed of new scientific developments, especially those which impact on the community e.g. hazards, atmospheric pollution, nuclear energy, space science.

Council recommended giving more information about its activities at meetings, making Council meeting minutes available to all members on application to the Secretary, and further encouraging members to bring their ideas to Council. A publicity leaflet is being produced and work has started on the development of a website. The size of the Council has been reduced and duration of service extended.

The remedy for the lack of openness or friendliness of the Society perceived by some involves the larger membership. The improved ambience of the newly decorated side room for post lecture refreshments facilitates circulation and many members commented on their enjoyment of the social occasions which took place throughout the season.

**The process of reform continues.**

A copy of the full report is available from the Secretary on request

Council is very appreciative of the care respondents took in completing the questionnaires and for the helpful information, observations and suggestions made, and offers a sincere thank you to all those who responded. It is clear the Society is valued highly and that there is a will to support and improve it.

Please feel free to let us know of any further ideas that you have!

Mary Hamill, Hon Secretary

# LEICESTER LITERARY AND PHILOSOPHICAL SOCIETY

## Founded 1835

## CONSTITUTION AND RULES (Revised 2005)

### 1. OBJECTS OF THE SOCIETY

(i) The advancement of education in Literature, Science and Art.

(ii) The provision of lectures and discussions; the publication of reports, papers and proceedings; the support of the City Museum or the Museum of the Society under the terms of its presentation to the City Council; and by any other means that may from time to time appear to the Council to be desirable.

### 2. MANAGEMENT

The management of the Society shall be vested in a Council consisting of: a President, four Vice-Presidents, Life Vice-Presidents appointed under Rule 8, a Treasurer, Secretary, Membership Secretary, Programme Secretary, and an Editor of the Transactions, all of whom shall be nominated annually by Council for election at an Annual General Meeting; and not fewer than twelve and not more than twenty-four Members, who shall be appointed for three years.

Annually one-third of the ordinary members of Council, or the nearest to one third, shall retire from office, those retiring being longest in office, but shall be eligible for re-appointment.

Council will also include one member nominated and elected annually by each Section of the Society, if desired by the Section, such election to be made before 31st October in each year and to be certified in writing by the Chairman of the Section at the date of the election.

A quorum shall consist of five members of the Council.

All members of the Council must be current members of the Society.

Members who persistently fail to attend Council meetings without reasonable cause shall be deemed to have resigned from Council.

### 3. ANNUAL GENERAL MEETING

A general meeting of the Society shall be held each year, at a time and place appointed by the Council, for the presentation of reports and the transaction of the general business of the Society. At this meeting the Vice-Presidents, Treasurer, Secretaries, Editor, two Independent Examiners, and Members of the Council shall be chosen in the manner hereinafter mentioned. All questions proposed at the meeting, except those that involve an alteration of the Rules, shall be decided by the majority vote of the members present, the President having a vote, and, in case of equality, a casting vote.

### 4. ORDINARY MEETINGS (lectures)

The Council shall appoint the times and venues of the Societies ordinary meetings, and shall determine the business to be transacted at the meeting, in conformity with Rule 1. The advocacy of sectarian, religious, or party political views, either by lectures or by speakers, shall be excluded.

### 5. SPECIAL GENERAL MEETINGS

Special general meetings shall be called at the discretion of the Council, or on the requisition of eight members addressed to the Secretary, who shall give previous notice of such meeting to every member.

### 6. QUORUM AT GENERAL MEETINGS

At any general meeting each member present in person shall have one vote. Ten members present shall be a quorum. If a quorum is not present within fifteen minutes of the time appointed for the meeting the meeting shall be dissolved.

### 7. ELECTION OF OFFICERS OF THE SOCIETY AND MEMBERS OF COUNCIL.

The Council shall elect the President at least one month before the Annual General Meeting. The retiring President shall retain office until the incoming President's inaugural address has been delivered.

At the last two lectures of each session notice shall be given of the date, time and place of the Annual General Meeting, which has also been published in the lecture programme.

Each member present and voting at the Annual General Meeting shall receive a list of nominees, and shall, in the case of voting, put a mark against the names of those for whom he or she votes. The Chairman shall appoint scrutineers to cast up the votes. The scrutineers shall present a list of the persons voted for in order of majority of votes, and shall hand over the voting papers to the Chairman. The election shall fall on those who have a majority of votes, and in the case of equality the election shall be decided by lot. Lists containing more names marked than the number required shall be rejected. At the conclusion of the Election, the voting papers will be destroyed.

The Council shall fill vacancies in any of the offices arising from any cause. When there is a vacancy on the Council there must be a nomination at one meeting and election at the next meeting.

### 8 LIFE VICE-PRESIDENTS

Any member of the Council who has rendered conspicuous service to the Society may, on the recommendation of the Council to the Annual general meeting, be elected a Life Vice-President of the Society, and

permanent member of the Council, provided he or she remains a member of the Society

**9. SECTIONS**

The Council of the Society may from time to time appoint Sections for the pursuit of particular branches of Science, Literature and Art, and make bye-laws regulating the constitution, organisation and management of such Sections. The Council may also from time to time extinguish any Section or amalgamate any two or more Sections. The Society may, if it thinks fit, make provision for the appointment of persons, not members of the Society, as members of the Sections, provided that all acts and proceedings of such Sections shall be fully and promptly reported back to the Council

**10. ADMISSION OF MEMBERS**

Each application for membership shall be made in writing to the Secretary and submitted for the information of Council at its next meeting or as soon afterwards as possible.

**11. MEMBERS**

Each member shall pay an annual subscription as determined from time to time by the Council. This will entitle him or her to i) a Member's Ticket, not transferable, ii) one copy of the Transactions per household. Second members of the same household shall pay an annual subscription determined by the Council which shall entitle them to a Members Ticket.

**12. PAYMENT OF SUBSCRIPTIONS**

The first annual subscription shall be payable at the time of election to membership and thereafter before the first lecture. Members whose subscriptions are unpaid by 31st March, after reminder, shall be deemed to have resigned.

**13. HONORARY MEMBERS**

Honorary Members of the Society shall be nominated and elected by the Council and shall have the same privileges as members of the Society.

**14. ADMISSION OF NON-MEMBERS TO MEETINGS**

Non-members may attend individual lectures on payment of such fee as Council shall from time to time determine. The Council shall have power to make from time to time such other special regulations for the admission of visitors as may appear necessary.

**15. RESIGNATIONS**

Members intending to resign should notify their intention to the secretary before 31st May

**16. APPLICATION OF FUNDS**

After payment of the expenses of the Society, any surplus funds may be disposed of in the manner that the Council may consider most conducive to the advancement of the objects of the Society.

If the council decides that it is necessary or advisable to dissolve the Society it shall call a meeting of all members of the Society, giving not less than 21 days notice and stating the terms of the resolution to be proposed. If the proposal is confirmed by a two-thirds majority of those present and voting the Council shall have the power to realize any assets held by or on behalf of the Society. Any assets remaining after the satisfaction of any proper debts and liabilities shall be given or transferred to such other charitable institution or institutions having objects similar to the objects of the Society as the members of the Society may determine, or, failing that, shall be applied for some other charitable purpose. A copy of the statement of accounts, or accounts and statement, for the final accounting period of the Society must be sent to the Charity Commissioners.

**17. RECEPTS AND EXPENDITURE**

i) The funds of the Society, including all donations contributions and bequests, shall be paid into an account operated by the Council in the name of the Society at such bank as the council shall from time to time decide. All cheques drawn on the account must be signed by at least two members of the Council.

ii) The funds belonging to the Society shall be applied only in furthering its objects.

**ACCOUNTS**

The Council shall comply with their obligations under the Charities Act 1992 (or any statutory re-enactment or modification of that act) with regard to:

i) The keeping of accounting records of the Society;

ii) The preparation of annual statements of account for the Society;

iii) The auditing or independent examination of the statements of account of the Society;

iv) The transmission of the statements of account of the Society to the Charity Commissioners

**18. ALTERATION OF RULES**

i) Subject to the following provisions of this clause the Constitution may be altered by a resolution passed by not less than two thirds of the members present and voting at a general meeting. The notice of the general meeting must include notice of the resolution, setting out the terms of the alteration proposed.

ii) No amendment may be made to the name of the Society, the objects clause, the dissolution clause or this clause without the prior written consent of the Charity Commissioners.

iii) No amendment may be made which would have the effect of making the Society cease to be a charity in law.

iv)The Council should promptly send to the Charity Commissioners a copy of any amendment made under this clause.

**19. COUNCIL TO MAKE BYE-LAWS**

The Council shall have the power to make Bye-laws and Regulations not inconsistent with the foregoing rules.

# TTHE LEICESTER LITERARY & PHILOSOPHICAL SOCIETY

## Founded in 1835

### OFFICERS AND COUNCIL

**President: D.P.S. Sandhu, M.D., F.R.C.S. (Ed. UROL), F.R.C.S (Glas)**

**Life Vice-President: Dr T.D. Ford, O.B.E., Ph.D., B.Sc., F.G.S.**

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Mrs H.A.E. Lewis, J.P., M.A.

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**Hon. Membership Secretary:** Mrs P.L. Silver
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**Hon. Programme Secretaries:** Dr D.G. Lewis, M.A., M.D., F.R.C.A. and Mrs H.A.E. Lewis J.P.,M.A.,
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P. Fuchs

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The Vice Chancellor of the University of Leicester
The Vice Chancellor of De Montfort University
One representative of the Geology Section
One representative of the Natural History Section

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