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Please check that the authors' initials are correct and note that although et al. may be used in the body of the text, all authors should be named in the list of references.

Book reviews, reminiscences, obituaries or appreciations of prominent current or past members should be up to 800 words in length.

Articles will be refereed and a report sent to the author(s).

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Professor Sir Netar Mallick

President 2014-2016

President's Report

During the session Council has considered a number of issues which impact on how the Society works. This will include changes proposed in the booking system and revised subscription rates, including a contribution by guests and the general public. We also are exploring how guests, while always welcome, might in future make a contribution. In addition during the forthcoming year we will also be investigating more innovative ways in which we can generate income to match increasing costs. These financial adjustments will gradually rebalance the budget, so that the Society is less dependent on investment income for its day-to-day running expenses.

Council has also considered making it easier for new members to feel at home in the Society. Each of us knows that it can be difficult to join a group which seems fully at ease with itself; some of our new members have gently commented on the matter. We hope to provide a one to one welcome for each new member so that information about the Society on the one hand - and equally importantly about the interests and expertise of each new member - can be readily exchanged.

We considered how we can improve our interaction with members. The website is the obvious portal for this and once the database and booking system is fully embedded, the website will be gradually developed and become more interactive. And there will shortly be a regular electronic newsletter.

The programme for the session was very well supported but could not have been put together without the efforts of our Section Officers and Committees whose knowledge and enthusiasm are the source of so many of the Society's events. Vice-President Constance Holland has supported me on Section matters and is fully involved in our communication strategy. The organisation of Council-supported lectures and events has been the particular remit of our Secretary; for the coming session Vice-President Diana Leitch has at my request taken a particular interest in the speakers and organisation of these events together with the Secretary.

We have been informed by MMU, who have over the years kindly hosted our administrative office, that they now need to demolish and rebuild the Mabel Tylecote building. We will therefore be moving shortly probably to temporary premises while we secure a more permanent home. We do however need to seek a stable base, which is accessible to members and from which we can hold smaller functions as well as our normal Council and Section Meetings. We would however publicly like to record our appreciation of the support we have received from the University over the past years and are hopeful that this association, albeit of a somewhat different nature, will continue in the future.

Professor Sir Netar Mallick
President

Duets in Verdi Operas

KENNETH M LETHERMAN

23 September 2014

Introduction

The practice of staging opera in Italy in the 19th Century was very different from that of today. Nowadays we have a largely static repertoire of only about 25 - 30 works, given by almost all commercial opera companies. Opera is expensive to put on, and so must command a large audience if possible. Almost all the works presented now are familiar to the audience, in the same way as Shakespeare plays are today, many of which the members of the audience will have seen repeatedly. In the 19th century, each opera was a new experience for the audience.

In 19th-century Italy new operas were produced frequently by composers, ran for perhaps a dozen or so performances in one of the many small opera houses in Italian provincial towns, and were then taken off, to be replaced by the next production. Only the most successful works were taken up by the big opera houses in Milan, Rome or Venice, and were perhaps performed outside Italy. So there was a constant demand for new works, and from his mid-twenties to his late forties Verdi wrote a succession of operas, most of which are now very rarely performed. He was one of the most prolific and successful composers of opera of the 19th century, composing 28 operas in all. In his early career (1839 to 1850) he wrote 16 operas, (a rate of about one every eight months!), but this was in his 'galley years', when he was learning his trade and refining his technique. In his later career he had the experience to allow him to take a close and expert interest in every detail of the libretto and of the casting and staging of each new opera, writing repeatedly to his librettists demanding wording which fitted his dramatic and musical intentions.

It is tempting to think that Verdi was not a very successful composer, and was saved by the success of *Rigoletto*, but this not the case. His early operas were mostly very well received and were financially profitable – he could have given up composing and retired on the proceeds of the 16 works he produced to 1850. But in 1851 he wrote *Rigoletto*, the subject of our first example, and this was an instant huge success, being performed all over Europe and beyond. The story of the aria *La Donna e Mobile* is well known, that he had to rehearse it with the tenor in secret – if the melody got out before the premiere it would have become so well known that it would have lost its impact.

Verdi paid the closest possible attention to the logic and credibility of his plots, and since, from his middle years, he was the prime opera composer of Italy, he was able to shape the plot according to his experience of what was needed for success. In a number of his later works there is a point at which a conversation between

two characters determines the whole outcome of the rest of the work. This paper describes and illustrates four cases where this plot device is used.

Rigoletto (1851)

The opera *Rigoletto* was based on Victor Hugo's 1832 play *Le Roi S'Amuse*, and was first performed at the Teatro la Fenice in Venice in March 1851, to great acclaim. In order to avoid the attentions of the censor, it was set in Mantua in the 16th century. It instantly joined the international repertoire, where it has remained for over 150 years. Many people consider it to be Verdi's greatest opera. It tells the story of Rigoletto, court jester to the philandering Duke of Mantua. Rigoletto's encouragement of the Duke's immorality leads to his being cursed by the father of one of the Duke's conquests, and in the action of the opera we see the curse being worked out. Rigoletto has a daughter, Gilda, whom the Duke pursues, representing himself as a poor student. When the Duke succeeds in seducing her, Rigoletto hires a professional assassin to kill the Duke, but in fact it is Gilda who is killed, showing the working of the curse.

The duet is in the first Act, between Rigoletto, walking home from the court one evening, and Sparafucile the assassin, who accosts Rigoletto and offers his services. It is remarkable that the dark atmosphere of the piece is set and maintained by the spare writing of the accompaniment to the conversation between the two. Initially Rigoletto thinks Sparafucile's occupation is of no interest to him, but later in the opera, when his daughter has been raped by the Duke, he has the idea of hiring Sparafucile to kill the Duke. In fact it comes about that it is Gilda who is killed, the Duke survives in triumph, and so the tragic working of the curse is demonstrated.

Excerpt from *Rigoletto*, Act 1

Recorded at The Royal Opera House, Covent Garden, 1996

Rigoletto: Paolo Gavanelli, Sparafucile: Eric Halfvarson

Conductor: Edward Downes

La Traviata (1853)

La Traviata (the strayed one or fallen woman) is based on the 1848 novel *La Dame aux Camellias* by Alexandre Dumas, and was first performed in March 1853 at the Teatro la Fenice. Violetta is a Parisian courtesan who loves Alfredo Germont, a young man from the provinces, and leaves her idle life of pleasure in Paris to live with him in the country. In 1853 this was very scandalous, and would be regarded as reflecting great shame on the Germont family.

In Act II, Violetta is visited by Alfredo's father, Giorgio Germont, come to demand that she gives up her liaison with Alfredo so that his young sister can make a respectable marriage. Initially he enters as the figure of authority, determined to make Violetta agree to his demands, but he is impressed and affected by her dignity and initial refusal to renounce Alfredo. She eventually gives in to his appeals, and agrees to abandon her life with Alfredo. Their conversation is relatively lightly scored, and the poignant effect comes largely from the power of the

music and the opportunity for the acting of the principals to make its effect. She undertakes to renounce Alfredo, but realises that she must abandon him immediately, as he will not believe that she no longer loves him. She returns to her dissolute life in Paris, but dies in the last Act from the tuberculosis from which she has suffered since Act I.

Excerpt from *La Traviata*, Act 2

Recorded at The Royal Opera House, Covent Garden, 1994

Violetta: Angela Georghiu, Germont: Leo Nucci

Conductor: Sir Georg Solti

Aida (1871)

This opera was intended for the opening of the newly-built Cairo opera house as part of the festivities celebrating the opening of the Suez Canal, although in the event the opera house was inaugurated by a performance of *Rigoletto*, as the composition of *Aida* was not completed in time. The opera is set in Egypt in Pharaonic times. Egypt is at war with Ethiopia, and Aida, the daughter of Amonasro, the King of Ethiopia, is in love with Radames, Captain of the Egyptian Guards. The Egyptian army is due to mount an attack on the Ethiopian forces.

Amonasro has entered the palace in disguise and in this duet with Aida he argues that she must persuade Radames to tell her the route by which the Egyptians will march in their attack on Ethiopia. She is torn by conflicting loyalties, but eventually agrees to find out from Radames where he plans to attack. Radames enters and Amonasro hides to overhear their conversation. She persuades Radames to tell her the plan, which Amonasro overhears, and exults that he can now mount an ambush on the Egyptians. He tries to persuade Radames to desert to the Ethiopian side, but they are discovered, captured, and sentenced to death by being entombed.

Excerpt from *Aida*, Act 3

Recorded at The Metropolitan Opera, New York, 1989

Aida: Aprile Millo, Radames: Placido Domingo, Amonasro: Sherrill Milnes

Conductor: James Levine

Otello (1887)

Verdi regarded Shakespeare's plays as ideal subjects for opera, and for many years he hoped to set *King Lear* as an opera. His last two operas, written in his old age, are settings of *Othello* and *The Merry Wives of Windsor* (Falstaff). In the last scene of Act II of *Otello*, Iago uses his conversation with Otello to tell him of witnessing Cassio asleep, dreaming of a liaison with Desdemona in which he curses the cruel fate that gave her to the Moor. He also describes seeing a handkerchief of Desdemona's in Cassio's hand and he cunningly goads Otello to break out into a passionate condemnation of Cassio, swearing to kill him. The whole duet is superbly scored and structured, entirely different from the old-fashioned

world of recitative and aria seen in earlier works. When Iago describes Cassio's dream, he is supported by a muted dreamlike melodic style with (apparently) very simple instrumental forces. It then develops into a grand full-orchestral finale of the Act, with Iago swearing to assist Otello in destroying Cassio.

Excerpt from *Otello*, Act 2

Recorded at The Metropolitan Opera, New York, 1996

Otello: Placido Domingo, Iago: James Morris

Conductor: James Levine

Summary

Verdi was the major influence on the development of Italian Opera in the 19th century. At the start of his career, in the 1840s, the 'bel canto' tradition of Opera as a showcase for the voices of individual singers was waning. From about 1850, he introduced a new emphasis on dramatic values, while still giving the singers and the audiences melody and brilliance in performance. He always stressed that the drama of his works emerged from the interaction of people in striking, usually dire, situations, characterised unforgettably by his music. No opera composer has ever assembled a more varied and vivid portrait gallery: Rigoletto, evil jester and loving father, the self-sacrificing Violetta of *La Traviata*, Aida, caught between love and duty, and, most powerful of all, the tormented Otello, are only a few of these. Generations of listeners have loved his melodies, capturing his characters' emotions with a warmth and directness achieved by few, if any, other composers.

Acknowledgements

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Further Reading

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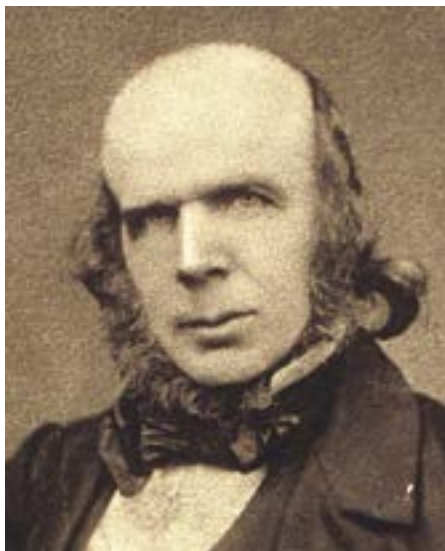
*Robert Angus Smith (1817–1884):
Acid Rain and the ‘Monster Nuisance of All’*

PETER REED

1 October 2014

Introduction

Robert Angus Smith was born in Pollockshaws (near Glasgow) in 1817, the seventh son and twelfth child of John and Janet Smith. Family life was dictated by strict observance of Calvinism and there was always an expectation that Smith would pursue a career in the church. Nevertheless, Smith decided to study with the influential German chemist and educationalist Justus Liebig in Giessen during 1840–41 and was awarded a PhD for his work. The decision to become a chemist and not a minister in the church would haunt Smith for the rest of his life. In 1842 Smith was invited by Lyon Playfair, a fellow student at Giessen and recently appointed professor of chemistry at the Royal Manchester Institution, to become his assistant and he readily accepted. This appointment began the close-connection between Smith and Manchester that was to span just over forty years.



*Figure 1: Robert Angus Smith (1817–1884)
(Reproduced courtesy of the Library of The Royal Society of Chemistry.)*

Manchester was at the centre of a mass industrialization that many refer to as the industrial revolution but it was also a major commercial centre. The town became Smith's home, his work base (initially as a consulting analytical chemist and later while Chief Inspector of the Alkali Inspectorate) but more importantly his 'field laboratory' as his attention focussed on the appalling insanitary living conditions characterized by the palls of dense black smoke that pervaded the air. From his studies of the air in Manchester, Smith in 1859 became the first person to use the term 'acid rain'. His further investigations into air quality led to his appointment as Inspector (later Chief Inspector) of the Alkali Inspectorate in 1864 but Smith resisted a move to London and retained his base in Manchester.

Probably under Playfair's influence, Smith became a member of the Manchester Literary and Philosophical Society in 1842. The Society was to become Smith's intellectual centre; he was a prolific contributor to the Society's *Proceedings* and *Memoirs* and was an officer of the Society on many occasions including President during 1864–65. This article explores the many facets of Smith's professional work and personal interests that connect him with Manchester.

Early Years in Manchester

Smith arrived in Manchester in 1842 to take up his appointment as assistant to Lyon Playfair at the Royal Manchester Institution. While initially focused on his work for Playfair, Smith was also determined to explore the cultural life of the town, and quite early on was elected to the Manchester Literary and Philosophical Society. This not only allowed him to attend lectures by some of the most eminent men of the times who were attracted to work and develop their businesses in a striving industrial and commercial Manchester, but also to develop friendships and work-related contacts that would prove important for his later consultancy work as an analytical chemist.

Playfair left the Royal Manchester Institution in 1845 to take up an appointment as Chemist to the Geological Survey but not before he had influenced Smith's future commitment to a cause of national importance - sanitary science. In 1843, following Edwin Chadwick's influential report, *The Sanitary Condition of the Labouring Population*, the Royal Commission on the Health of Towns was established and Playfair was appointed one of the commissioners, taking responsibility for a special study of the large towns of Lancashire of which Manchester was the most important. Smith was approached by Playfair about becoming an assistant commissioner and he accepted. Although increasingly familiar with the sanitary issues affecting Manchester, Smith's work with Playfair confirmed the scale of the health issues affecting most towns and not just the larger ones. It was through this work that Smith met Edwin Chadwick and a lifelong friendship developed.

Playfair's departure for London in 1845 left Smith again in a quandary about his future; the thought of pursuing a career in the church was probably still playing on his mind. Finally, Smith decided to remain in Manchester and become a consulting and analytical chemist.

Manchester as a Laboratory

Smith had become increasingly aware of the very poor air and water quality in Manchester and how these affected the health of the different communities. In October 1844 Smith had been so shocked by the pall of black smoke hanging over Manchester as he walked into town that he wrote a letter to the editor of the *Manchester Guardian*:

‘The Air of Manchester’

Sir – coming in from the country last week on a beautiful morning, when the air was unusually clear and fresh, I was surprised to find that Manchester was enjoying the atmosphere of a dark December day. This is not seldom the case; we see the town filled with a dense vapour and we persist in calling it fog; we see that the atmosphere of our streets in winter is frequently of the deepest black, such as the eyes cannot penetrate above a few hundred yards, and we persist in supposing that it is necessarily connected with the season, and with it only. But no such atmospheres are to be found far from large towns. There are times when the smoke ascends easily, and a slight breeze removes in an instant the accumulation of carbon over the town, when in fact no amount of smoke seems capable of greatly injuring the air; but such is the rare exception, and the rule is the thorough saturation of every street and house with produce of our coal pits and furnaces.¹

But it was not just the poor air quality. Smith lived in Chorlton-on-Medlock and so was very well aware of the insanitary condition of the River Medlock, one of the main water arteries for Manchester. Two later reports by Smith record the state of the river:

If one takes the trouble to look at the Medlock, about Hulme-street, a number of dead dogs and cats may constantly be seen in the several stages of decomposition; ...bubbles of gas, chiefly light carburetted hydrogen, rise to the surface, and although offensive smells are met with at all times, they are the more annoying. Sulphuretted hydrogen is the gas which chiefly causes the odour, although doubtless phosphoretted hydrogen gas assists in some measure.²

The water of the Medlock, as is well known, is of a dark bluish tinge, somewhat resembling ink at a distance, and ceasing to be transparent when more than an inch deep.³

By the mid-1850s Smith had achieved both a national and international reputation for his investigations of air and water quality and it was for this work that he was elected a Fellow of the Royal Society in 1857. In 1872 Smith brought together his research over many years and his report to the Royal Commissions on Mines (1864) in his book, *Air and Rain, The Beginnings of a Chemical Climatology*.

Acid Rain

During his investigations, Smith had observed that the building stone (as well as the mortar) of many of the major buildings in Manchester was being attacked leaving the often spectacular facade disfigured. He suspected that the pervasive black smoke from burning coal might be responsible; it was estimated that by the late 1850s some two million tons of coal were burned annually in Manchester.

He began analysing samples of the different coals that were being burned in large quantities. In the end he analysed 71 samples. While the average sulphur content was about 1.4 per cent, some samples contained as much as 6–7 per cent. When coal is burned the sulphur is converted into sulphur dioxide which when released into the atmosphere is converted into sulphur acids (sulphurous and sulphuric acids). Smith had referred to acid components in the air in a number of journal articles but it was his article, 'On the Air of Towns', published in *Quarterly Journal of the Chemical Society* in 1859 that included the term 'acid rain' for the first time:

It has often been observed that the stones and bricks of buildings, especially under projecting parts, crumble more readily in large towns where much coal is burnt than elsewhere. Although this is not sufficient to prove an evil of the highest magnitude, it is still worthy of observation, first as a fact, and next as affecting the value of property. I was led to attribute this effect to the slow but constant action of acid rain. If it affects substances with so great an excess of silica, it is not to be expected that calcareous substances will resist it long, and one of the greatest evils in old buildings in Manchester is the deterioration of the mortar.⁴

Manchester Lit and Phil

Smith was elected a member of the Manchester Lit and Phil on 29 April 1845, probably at the suggestion of Lyon Playfair, who had become a member on 25 January 1842 (and was elected an honorary member in 1851 probably to mark his outstanding contribution alongside the Prince Consort to the Great Exhibition of the same year). For Smith, the Lit and Phil became his cultural and intellectual centre as it was for the many prominent people drawn to Manchester at this time. This is a reflection of the important standing of Manchester, not only a pre-eminent industrial and commercial town but also as a centre of political agitation and culture.

Smith resisted the many attempts made to persuade him to move to London particularly after his appointment to the Alkali Inspectorate, and as a further mark of this resistance he was elected an officer of the Society on several occasions and was a prolific contributor to the Society's publications over many years. Smith was Secretary of the Lit and Phil between 1852 and 1856 (jointly with Edward Schunck in 1856), Vice-President between 1859 and 1878 (often jointly with Schunck) and President for 1864–5. It was while Smith was Vice-President that Thomas Graham (professor of chemistry at University College London and

later Master of the Mint) who had influenced his early interest in chemistry in Glasgow, and Wilhelm Hofmann (Director of the Royal College of Chemistry in London) were elected honorary members. During his Vice-Presidency in 1863 Smith was drawn into a disruptive episode involving the election of a new member that threatened the survival of the Society. The dispute led to an acrimonious debate within the Society over whether it should retain its focus on science and literature or have a wider public appeal. It ended with Society retaining its existing interests and status.

Smith wrote 66 articles for the Society's *Memoirs* and *Proceedings*.⁵ It is an eclectic mix that reflects his wide intellectual and cultural interests: air and water quality, antiquarian researches and investigations in science. His most extensive article is 'A Centenary of Science in Manchester, for the 100th Year of the Literary and Philosophical Society of Manchester', which was published in the *Memoirs* in 1883.⁶

Manchester and Salford Sanitary Association

The Manchester Lit and Phil brought together many prominent people who were also deeply concerned about the insanitary conditions that existed in Manchester. These included: William Fairbairn, Joseph Whitworth, Frederick Crace-Calvert, Alexander McDougall, Edward Frankland, together with Smith. Many were active in setting up the Manchester and Salford Sanitary Association in 1852 with the aim of supporting the statutory bodies (Salford Town Council and Manchester Town Council) and working with local communities on public health issues because it was believed that every person had a role to play in improving hygiene.

Smith was a very active member of the Association, carrying out several investigations and giving many talks in the local community. In one of the investigations Smith, Frederick Crace-Calvert and Daniel Stone (a local consulting chemist) investigated the state of water supplied by the Manchester Water Works and fortunately it was found to be of good quality. A second investigation into 'a Method of Purifying the River Medlock and the Bridgewater Canal' was carried out by Smith and Alexander McDougall (of the flour milling family). This focused on the use of lime to treat and deposit all 'the carbonic acid, organic matter and other substances held in solution and suspension in the water'.⁷ The study concluded that using lime was not a suitable method because of the amount required and the cost.

Programmes of talks in the local communities formed another important part of the Association's work. Smith as Chairman of the Chorlton District Committee gave many talks including: 'Atmospheric Air, its Uses, the Sources of its Deterioration, and subsequent Prejudicial Effects', 'Air, pure and impure, and its relation to Health', 'Food, and the Changes it undergoes in the Digestive Organs, and how Health is secured or Disease Engendered by Food and Drink' and 'The Economy of Cooking'.⁸ The local committees also carried out regular surveys of the houses, courts and streets in their area so dangerous situations and episodes were reported to the statutory authorities as quickly as possible.

Patent for Disinfectant Powder

From about 1847 Smith and Alexander McDougall investigated the potential use of human sewage as fertilizer for the land because of its abundance of organic constituents. This led them to develop a disinfectant powder for treating the human sewage that was a major pollutant of water. Probably through the Manchester Lit and Phil, Smith and McDougall initially discussed with Frederick Crace-Calvert the use of carbolic acid (phenol) for treating sewage since Crace-Calvert had developed an interest in carbolic acid and its disinfectant qualities while studying in France. At this time it was thought disease was caused by 'bad airs' or miasmas, and efforts to treat these miasmas used deodorants; Pasteur's germ theory of disease only emerged during the 1860s. From their investigations Smith and McDougall prepared a disinfectant powder containing magnesian limestone with some carbolic acid that worked so effectively that it was patented in their joint names in 1854 (B.P. 1854/142). McDougall took over the manufacture and commercial exploitation of the powder with Smith's agreement.

The powder was found to work effectively by several independent users including the stables at the Manchester Horse Barracks of the 3rd Light Dragoons that later led the Secretary of War to recommend its use for all horse transport to the Crimea War. Smith retained an interest in the powder and took every opportunity to promote its disinfectant qualities. This did, however, cause him some difficulties at times. When giving evidence to the Royal Commission on Cattle Plague in 1866 he declared no financial interest when recommending the powder, but he got into trouble 'when appearing to indirectly promote the benefits of the powder during a talk to the Manchester Lit and Phil where promotion of any product in which the person had an interest was prohibited'.⁹ The report Smith submitted to the Cattle Plague Commission was incorporated into his later book, *Disinfectants and Disinfection* (1869).

Smith's work on water quality and disinfectants brought him into correspondence with Florence Nightingale, the hospital and public health reformer, who wanted to understand the latest advances in public health in Britain in her quest to improve sanitary conditions in India. Their collaboration focused on an easy method of measuring water quality that could be recommended to the public health authorities in India for its fight against insanitary conditions.¹⁰

Robert Angus Smith as a Civil Scientist with the Alkali Inspectorate and the Rivers Pollution Inspectorate

By 1850 British society was experiencing dramatic change driven by the mass industrialisation and expansion of commercial enterprise that had begun in the previous century. Most of the population were facing great hardships associated with health, housing, and provision of food. Writers such as Charles Dickens, Henry Mayhew, George Eliot and Friedrich Engels drew attention to the daily hardships alongside radical reformers, and through the second half of the nineteenth century the state was forced to implement reforming parliamentary Acts, as Simon Heffer's book *High Minds, The Victorians and the Birth of Modern Britain* so excellently records.¹¹

As the reforming legislation steadily embraced factories, railways, mines, health and later different sectors of manufacturing industry, it evolved into a standard model that more often than not contained regulations. To ensure compliance the state appointed inspectors with appropriate knowledge and experience; this often included scientists who historians now refer to as 'civil scientists'.¹²

The role of scientists was enhanced by professionalization of science and scientists during the nineteenth century.¹³ This period saw the foundation of organisations promoting the benefits of science, such as the British Association for the Advancement of Science (1831) and organisations advancing professionalization of scientists such as the Chemical Society (1841). Later, societies were formed to reflect greater specialization, as with the Institute of Chemistry (1877) for those active in analytical chemistry and the Society of Chemical Industry (1881) for those working in the chemical industry. Scientists were increasingly called to give evidence in court cases where scientific evidence might resolve a legal claim, and they regularly provided evidence to parliamentary enquiries as with Lyon Playfair and Robert Angus Smith to the Royal Commission on the Health of Towns.

Robert Angus Smith was appointed to two civil scientist posts: Chief Inspector of the Alkali Inspectorate (1864–84) and Joint Inspector of the Rivers Pollution Inspectorate (1876–84).

Alkali Inspectorate and the 'Monster Nuisance of All'

In 1864 Smith began work as Inspector (later Chief Inspector) of the Alkali Inspectorate which had been set up after Parliament approved the Alkali Act 1863 to control the hydrogen chloride gas release by alkali works adopting the Leblanc process to produce alkali (sodium carbonate) from salt. This process had been introduced into Britain from France in 1814 to meet the increasing demand of soap boilers for alkali that the natural sources of soda (seaweed and barilla) could not meet.

By 1850 about 400,000 tons of salt were decomposed annually in Britain, accompanied by the release of hydrogen chloride gas (acid gas as it was also known) from tall chimneys - some as high as 450 feet - with the gas wreaking havoc and destroying vegetation across the surrounding area. Lyon Playfair called the gas the 'monster nuisance of all' in view of the scale of damage inflicted.¹⁴ Courts found it almost impossible to get guilty verdicts because of difficulties attributing the damage to acid gas (when other harmful gases were also present) and attributing responsibility to a particular works when several alkali works were clustered together or individual works were surrounded by other manufactories such as tanyards, gas works and glue works with their own rich aroma of obnoxious vapours.

As the alkali industry expanded so the amount of acid gas grew and the damage increased. It was only when the wealthy landowners found the value of their land and woodlands was depressed that a serious campaign against the industry started. It led Lord Derby to get approval from the House of Lords in May 1862 for the Select Committee on Injury from Noxious Vapours to investigate the situation and what could be done to control the injuring gas.¹⁵ While giving evidence,

William Gossage, an alkali manufacturer from Stoke Prior (Worcestershire), revealed his development (and patenting) of an 'acid tower' in which it was possible to condense the acid gas in water. He had found a derelict windmill close to his works, closed all the openings, packed the inside with inert materials such as bracken and twigs, passed water and the injurious gas in at the top and found that nearly 100 per cent of the gas was absorbed in the water. A patent was taken out in 1836, yet few manufacturers adopted it. Why? Manufacturers believed it was the bulk of water that determined the amount of gas condensed and so the very large quantity of gas would require a very large volume of water. But this was not the case. We now know that when the water percolates down the acid tower it spreads out over the packing materials to create a large surface area of contact with the gas and it is this factor that is responsible for the high level of absorption; this process benefits from the fact that hydrogen chloride gas is very soluble in water. With this effective acid tower it was possible to legislate to make manufacturers condense at least 95 per cent of their gas and this formed the backbone of the Alkali Act 1863. If this limit was not met then proceedings would commence in the County Court.

The legislation came into effect on 1 January 1864 and established the Alkali Inspectorate with Robert Angus Smith as Inspector (later Chief Inspector) and a team of four Sub-Inspectors, each covering a division of the United Kingdom. Many manufacturers were against the legislation and its interference in the workings of industry. They wanted to retain the *laissez-faire* approach rather than the new interventionist one. Smith's first task was to establish the inspection procedures and he was adamant from the start about analytical chemistry forming the basis of inspections since robust information would be required should court proceedings prove necessary. But he also had to overcome the manufacturers' resistance and find ways of working cooperatively with them. Because the industry employed very few chemists until the 1870s the inspectors became peripatetic consultants, advising on the best way of ensuring the manufacturers met the 95 per cent limit while not providing any commercial advantage. This proved a very difficult tightrope at times.

With the Inspectorate's success, changes were made to the terms of the legislation in 1868, 1874 and 1881, to enable other harmful gases to be put under control. Many of the principles Smith put in place remained until the 1990s and today the Inspectorate operates as H.M. Inspectorate of Pollution as part of the Environment Agency.

Rivers Pollution Inspectorate

With the pace of industrialization, by the 1850s concerns were being expressed about the conditions of many rivers, but especially those in the north of England such as the River Mersey and River Irwell. Waste from manufactories such as alkali works, dye-works and paper mills were adding to the human sewage polluting so many rivers. However, unlike the fairly rapid progress under the Alkali Act, controlling industrial effluent into rivers proved much more challenging. Discernible progress would take many years because industrial effluent

required careful treatment on site before the water was discharged into adjoining rivers, canals or streams and most works lacked adequate space for such plant. With his success at the Alkali Inspectorate, it surprised few that when the Rivers Pollution Act 1876 was approved Smith was appointed Joint-Inspector with Robert Rawlinson. This appointment added to his existing demanding work-load and although his health began to suffer Smith never complained to his employer, the Local Government Board.

Antiquarian Interests

Smith found it very difficult to take any time out from his professional work but from about 1867 he developed a keen interest in antiquarian research. This may have originated during a visit to Oban and while exploring the site of a vitrified fort at Dun MacUisneachan. On the few occasions that time allowed, he would readily join his close friend, James Young (of paraffin fame) on his yacht *The Nyanza* for an extended voyage, whether to Iceland or to the Scottish islands, to pursue his antiquarian interests. These trips produced several books, including *To Iceland in a Yacht* (1873), *Loch Etive and the Sons of Uisnach* (1879) and *Visit to St. Kilda in the 'The Nyanza'* (1879). Smith was a Fellow of the Society of Antiquaries of Scotland and published several articles in its Proceedings. He was also Vice-President of the Lancashire and Cheshire Antiquarian Society.

Library

Smith was a keen collector of books and when he died in 1884 his library comprised some 3,946 books. It included his personal books as well as those relating to his professional work but unfortunately not the journals that would have allowed a better insight into their role in his work. Unlike many scientists of the period, Smith did not have an institutional affiliation to provide his library needs (except for a short period working at the Royal Manchester Institution) and therefore relied on his own books for professional and antiquarian work.

In most cases such libraries are disposed of in an ad hoc manner by the executors of the person's estate when they die but this did not happen with Smith's library. When Smith died a small group of friends including James Joule and Edward Schunck formed a committee to raise funds to purchase the library 'so it was not lost to the city and would act as a permanent memorial to his service to Manchester'.¹⁶ Having purchased the library, the committee offered it to Owens College and the offer was readily accepted. In due course each book carried a book plate: Manchester Owens College/Presented by/The Angus Smith Memorial Committee/1884. Although the College's original intention was to include the library in its printed catalogue, this was never completed in full although some parts were produced. With Owens College becoming an institutional part of the Victoria University (1880), Victoria University of Manchester (1903) and University of Manchester (2004) after the amalgamation with UMIST, the library now forms part of the University of Manchester Library. Unfortunately, the current online catalogue does not allow searches on 'field notes' where reference is made to Smith's library, and the only way to find a book is to go back to the old card index system which fortunately still survives.

Atlases 3	Natural philosophy 129
Fine arts 7	Chemistry 358
Theology 150	Metallurgy 105
Philology (general) 133	Natural history 39
Philology (classical) 213	Medicine 97
Mental and moral sciences 95	Poetry 125
Political sciences 26	Novels 99
Sanitary 210	Drama 15
History (general) 244	Miscellaneous 136
History (Scottish) 333	Parliamentary papers 22
History (Irish) 60	Alkali papers 29
History (Celtic) 84	Bibliographical 5
Occult science 89	Italian Statistical Society 83
Mixed science 122	Guidebooks 47

Figure 2: List of books in broad headings in the Robert Angus Smith Library

One very interesting feature of this list is Smith's interest in occult science, including spiritualism.¹⁷ While many prominent scientists such as Thomas Huxley and Michael Faraday expressed strong views against the validity of such occurrences, several others including the spectroscopist William Crookes thought they were sufficiently intriguing to merit scientific investigation under the rigour of laboratory conditions. There is some evidence that it was Smith who introduced Crookes to spiritualism after Crookes's younger brother died. Smith and the naturalist and evolutionary theorist Alfred Russel Wallace are known to have attended a séance by Daniel Home at Crookes's London home. While Crookes went on to write about his investigations, Smith remained 'under cover' and avoided any public communication probably because of the sensitivity of his position as a government employee; he could not afford to be associated with any controversy that might threaten to undermine the professional relationship with parliamentarians, civil servants and industrial manufacturers on which he relied so heavily.

Concluding Remarks

When Smith accepted the position of assistant to Playfair at the Royal Manchester Institution in 1842, he was unaware of the central part Manchester would come to play in his personal and professional life. His work for the Royal Commission on the Health of Towns alongside Playfair, coupled with his later work for the Manchester and Salford Sanitary Association, focused his attention and professional curiosity on air and water quality. The Manchester Lit and Phil became his intellectual centre where the results of his professional investigations (as well as his wider intellectual interests) were communicated to a wide audience. Remaining in

Manchester, Smith provided leadership and direction to the Alkali Inspectorate and for a shorter time to the Rivers Pollution Inspectorate but the work-loads and responsibilities attached to these posts gradually took their toll on his health. He died on 12 May 1884 while convalescing at Glynwood in Colwyn Bay, North Wales and the death certificate records his death as due to anaemia and exhaustion. He had served science and public health well but as a loyal Mancunian.

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THE WILDE LECTURE
Siegfried Sassoon's Wars

MAX EGREMONT

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Almost all of us have an idea of Siegfried Sassoon. When we hear his name, we think of a shy, modest young man in uniform, an officer, someone of sensibility and courage, the soldier-poet. We think of him against that familiar First War lunar landscape of craters and a bare earth – the world of dawn attacks across No Man's Land, of badly-planned, bloody offensives, of bodies impaled upon barbed wire, of mud-clogged trenches: then of a brave protest against such folly.



Figure 1: Siegfried Sassoon, the soldier-poet.

All good writers make their worlds – and this is Siegfried Sassoon's. He moves in it as an Englishman of a certain type, implying that he's a bit of an amateur, even that familiar English figure 'the clumsy clot', not much good at what he does – before giving a glimpse of some incident to show that actually he's very good at what he does: a good rider, a good officer, a good poet, a good man.

So here is the first of Sassoon's wars: that between the way he shows himself to us in his books – and these books (both poetry and prose) are often autobiographical – and what he really was. Over it all hangs his idea of someone of instinct

and emotion, rather than of rational intelligence, someone whose work was a kind of magic, inexplicable because it came from some mysterious source. In the last decade of his life, Sassoon found in his conversion to Roman Catholicism a mysticism that echoed this. He did not want his religion to be explained in terms of dogma or reason. Instead he emphasised, to the occasional despair of those who helped with his conversion, the cherubs and quivering crosses that he saw as visions while praying by himself.

Intellect, intelligence and experiment were not what Sassoon admired in art or in life. This was one of the problems that he found in some of his contemporaries or those of the next generation: T.S. Eliot, James Joyce, Ezra Pound, then W.H. Auden and the political poets of the 1930s. E.M. Forster's novels, for instance, he felt were bloodless, with too much arch humour. Sassoon declared, "I am not sure that dear E.M.F. wouldn't have done better work if he's been less acutely intelligent! Compare him with Fitz and you will see what I mean." Fitz was Edward Fitzgerald, the 19th century translator of Omar Khayyam whose letters give a charming picture of mid-Victorian Suffolk life. Charm was what Siegfried Sassoon loved in writing. His prose is some of the most charming prose of the twentieth century.

So this became another of Sassoon's wars: a war with his literary contemporaries that contributed to his disenchantment. Because of it, he turned to nostalgia, to the past: not always to the true past but to a place of mythical enchantment, what he called 'that illusory paradise, where Time has edited itself into tranquillity and proportion....' He liked this not only for the way it could smooth out the challenges of the present but because he could make it beautiful. Sassoon was an aesthete, a man of the 1890s who, as a friend said, loved beauty almost more than anything else. And he looked back to childhood innocence as the best, the most beautiful years, even though his own childhood had been far from happy.

'We are all children, in the long run,' he wrote. He liked to recall how the poet Ralph Hodgson had told him that 'One of the sad things in life is, when simplicity changes to shrewdness...' Sassoon liked the 'immortal simple souls' of literature, childlike figures. He wrote, 'How I love these simpletons! The world always gets the better of them, and they emerge as simple as ever, and as likeable...' He went on to name, amongst others, Pickwick, Mr Pooter, Colonel Newcome, Kipps and Don Quixote.

From his birth in 1886, the son of a Jewish father and an English mother, Siegfried Sassoon entered a conflict: that of his parents' unhappy marriage. He was born also to the tension between his mother's wish to bring her sons up as Englishmen and his father's foreignness, the conflict between insularity and sophistication.

The Sassoons were so rich that when Siegfried's father Alfred showed promise as a violinist, his mother gave him two Stradivariuses. Then, when Alfred Sassoon announced that he wished to marry a gentile – Theresa Thornycroft, Siegfried's mother – the orthodox Jewish Mrs Sassoon, Alfred's mother, cut Alfred out of her life. The Thornycrofts – sculptors and artists from Cheshire farming stock – responded with Victorian materialism. They inspected a Sassoon will at Somerset

House, one of them reporting, "I saw Sassoon's father's will (or rather an epitome of it) this morning and all seems right and the youth is free. He will be very well off."

After their marriage, these two young people bought what must be one of the ugliest houses in England. The site of this monster (called Weirleigh) is in the Weald of Kent, near the village of Matfield – and it was here that Siegfried grew up. The house is a Victorian suburban-gothic dream of a medieval fairy land, designed by a writer of children's books as the lodge to a larger residence that was never built. When he began, through fox-hunting, to move among the local gentry, Siegfried Sassoon felt ashamed of Weirleigh, dreaming of life in 'a mellow old mansion in an ancestral park'.

There was one compensation: Weirleigh had a large garden - Theresa Sassoon's delight - and a view across the weald of Kent. All his life Siegfried dreamt of this landscape where he began, at an early age, to write poetry. In this he was encouraged by his mother who, for his third birthday, gave him a copy of Coleridge's *Lectures on Shakespeare*.

Siegfried Sassoon's childhood was clouded by conflict. His father Alfred left Theresa for the American novelist Constance Fletcher when Siegfried was only five years old. Constance Fletcher wrote epigrammatic stories, had lived in Venice and known Oscar Wilde and Henry James. Alfred's preference for Constance Fletcher shows how country life with Theresa had not suited him. Alfred knew continental Europe, particularly Paris where he had pursued the actress Sarah Bernhardt. Theresa painted romantic pictures, influenced by her friend G.M. Watts's style of 'painted poetry': yearning and melancholy in atmosphere, often, especially when featuring children, heavy and sweet.

She believed that there was something tarnishing about the big city, something dark and artificial, preferring what she saw as the simplicities of country life. She distrusted sophistication and artistic experiment, thinking, later, that even tame modernists such as the Sitwells or Epstein were dangerous, possibly mad, 'consumed with conceit' to go against tradition. The most tremendous Tory, she was shocked when her son Siegfried showed her a gently mocking Max Beerbohm cartoon of the Prime Minister Lord Salisbury.

When Alfred Sassoon left, it was torture for his wife who, as an abandoned woman, felt humiliated in the strict male-orientated late Victorian world. With her three sons, she behaved nobly, never criticizing their father although showing a silent agony during his visits to Weirleigh. Soon Constance Fletcher left Alfred reputedly in disappointment at finding that he was only quite rich. Then, when Siegfried was only nine, his father died of tuberculosis. Theresa would not let the young Siegfried go to Alfred's funeral, thinking him too sensitive. His brothers brought back stories of an exotic ceremony at the Jewish cemetery in the Mile End Road.

Theresa took a subtle revenge on her husband. She brought her three sons up to be little English boys, in the Anglican faith, completely apart from their Jewish roots. In the autobiographical novel, *Memoirs of a Fox-Hunting Man*, Sassoon's narrator, George Sherston – based on himself – is English to the bone, with no

hint of Jewishness. Siegfried saw himself as a Thornycroft much more than a Sassoon; others went along with this, T.E. Lawrence describing him once as 'the ideal Englishman'. Paradoxically it was not until the last decade of his life, after his conversion to Roman Catholicism, that Siegfried Sassoon turned to his Jewish roots and began to think how these had shaped him.

The reason I have dwelt on this early life is to show that Sassoon's wars began a long time before August 1914. They began with the conflict at home, his unresolved personal life, his confusion about how to face his homosexuality, his wish both to escape from his conventional Kent upbringing and to please his mother whose favourite son he knew he was. Above all this came the ambition to be a great poet. By 1914 this had still not been fulfilled.

Much of the pre-First War poetry is in what Sassoon called his 'lutes and nightingales' style: lush, over-romantic, dreamy stuff. Only in his parody of John Masefield, 'The Daffodil Murderer', does the verse come to life. Even early on, there is nostalgia, a longing for some golden past. His long poem 'The Old Huntsman', written before he went to the front and a distinct advance, has a sense already of a lost world, of memories more real and more satisfactory than the present.

For Siegfried Sassoon, the First World War brought inactivity interspersed with great danger. It is significant that he joined up immediately, as a trooper in the Sussex Yeomanry, at first refusing to try for an officer's commission. His pre-war life had seemed to him to be so unsatisfactory that, in the previous year, he had thought of enlisting in the cavalry. Training and a fall from a horse when he broke his arm kept Sassoon from the front until November 1915 when he arrived in France as a subaltern in the Royal Welch Fusiliers.

In March 1916, a close friend whom he had loved was killed, which, together with other experiences of war, turned Sassoon into a warrior and a realist about the trenches. He won the Military Cross for rescuing a wounded soldier (who later died) after a raid on the German line in May 1916.

During the battle of the Somme, in the summer of 1916, he was much of the time in reserve but single-handedly took a German trench, later hearing, in a false rumour, that another friend, the poet Robert Graves, had been killed. Towards the end of July he went down with fever and was sent home. He stayed in England until February 1917, thus missing many of his regiment's bloodiest engagements about which he felt guilty. He also came under the influence of the Morrells' pacifist circle at Garsington.

In April 1917 Sassoon took part in the battle of Arras, was wounded and again sent back to England, to hospital and convalescence. Now his protest against the war took shape, formed partly by a wish to be heroic, again influenced by the Garsington pacifists such as Bertrand Russell. He had also become repelled by the jingoistic, armchair patriotism of the home front, by the ignorance of those who had never known the trenches.

As a political document, the statement of June 1917 in protest against the continuation of the war is naive. It's worth looking at this in some detail for it is the most famous incident in Siegfried Sassoon's life.

Sassoon wrote that the war had become 'one of aggression and conquest' (perhaps words heard from Bertrand Russell) rather than that of 'defence and liberation' which he could support. The troops were suffering for 'evil and unjust ends and there should be peace negotiations. He loathed 'the callous complacency with which the majority of those at home regard the continuance of agonies which they do not share, and which they have not sufficient imagination to realise.'

This seems muddled. Certainly the British had made secret treaties with their allies, to add to their colonies after victory; but this stayed secret until the Bolsheviks revealed it after October 1917. Nor was it a reason for the Allies continuing the war; the Germans, after all, still occupied neutral Belgium (the reason for Britain's involvement in the conflict) and much of northern France. In December 1916, the German Chancellor, Bethmann Hollweg, had called for peace, partly to curb the Supreme Command's influence over the Kaiser. But there was no mention of abandoning conquered territory and the Allies rejected his offer. President Wilson's Peace Note of the same month, which ignored the German statement, superseded this. Then in January 1917 the Kaiser's proclamation of unrestricted submarine warfare showed Germany to be fighting with renewed ruthlessness.

In July 1917, the Socialist and Centre parties in the Reichstag carried a demand for peace without annexations or indemnities. Bethmann Hollweg, caught between the resolution and its opponents, resigned, to be replaced by a nominee of the Supreme Command; the Generals ignored the Reichstag. The High Command was still dominant in Germany, especially since the upheavals in Russia and victories on the Eastern Front. It was determined to give a knockout blow before American troops arrived in large numbers. The ascendance of Hindenburg and Ludendorff over their 'supreme' ruler, the Kaiser, continued.

Under these circumstances, the jingoistic patriotism of the home front, however brash, was quite sensible. In the summer of 1917, defeatism meant negotiating from weakness after the failed Nivelle offensive and French mutinies. British shipping was still menaced by U-boats. The Americans were sceptical of their new allies, Britain and France: imperial powers historically distrusted in the United States.

Against this background, Sassoon's well-meaning and heroic protest appears naive. He seems to have made it from emotion, compassion, vanity and guilt. Overwhelmed for the first time by a sense of his own powers, he had felt surprised, and disappointed, that his poems and strong feelings (near to hysteria after the trenches) seemed, in the summer of 1917, to be having little effect. Now, away from the war and the suffering of his beloved men, he could perhaps point to its horrors and be a public martyr as well.

The military authorities denied Sassoon martyrdom. They shunted him off, after a public diagnosis of shell-shock, to Craiglockhart, what he called 'Dottyville', a huge sanatorium on the outskirts of Edinburgh used as a treatment centre for those suffering from neurasthenia.

At Craiglockhart, Sassoon met the younger poet Wilfred Owen, a fellow patient, and was treated by Dr Rivers, who persuaded him to return to the army,

for which Sassoon was grateful. He may have hated the war but to go back proved that he had not collapsed, that he could take it, that he was a man. Sassoon was often doubtful of his masculinity.

So in November 1917 he went with his regiment to Ireland: then in February to Egypt and Palestine. In April, in the aftermath of the German offensive on the western front, he returned to France. Here, in July 1918, he was wounded, this time accidentally by one of his own men, and sent to hospital in London. He spent the rest of the war away from the front. On Armistice Day, November 11 1918, Siegfried Sassoon was at Garsington, staying with the Morrells, when he heard the church bells ring for victory. That afternoon he went to London, where the celebrations angered him. It was, he thought, "a loathsome end to a loathsome four years".

Loathsome they may have been but they made him as a writer. This was another source of conflict, for, while liking to have his work acclaimed, he disliked the connection with the First World War which he could not shake off.

Yet he went on writing about it; Sassoon's war must be one of the most fully documented in history. His wartime personality of the brave, sensitive, rebellious young officer has inspired not only his best poetry and prose but other novels, plays, films and, above all, a view of the war. The people involved are unforgettable: the young innocents whose deaths changed Sassoon into an angry poet, Dr Rivers, the guzzling staff officers, Owen, the château-bound Generals, Robert Graves. At the story's centre is Sassoon himself who in his transformation from patriotic enthusiasm to bitterness reflects the changes in how the First War was seen after 1918, particularly in the image of the Generals.



Figure 2: First War Generals

We know those First War Generals from their photographs – or how we choose to see these photographs: almost always moustachioed, small, choleric and heavy

like Sir John French or unnaturally trim like Sir Douglas Haig. How spick and span they seem, their shiny boots free of Flanders mud, their often truculent faces faintly absurd, victims of years of debunking and class warfare. But this view came later. After 1918, honours were showered upon Haig, the British commander-in-chief: a generous pension, an Earldom, a country estate in the Borders. The war still seemed a noble, if terrible, struggle, fought with tenacity and skill; to think otherwise at that time would be to traduce not only the veterans but the dead. Sassoon's more bitter poems seemed out of place, like someone talking at a funeral. A selection of them, published in October 1919, did not sell as well as he had hoped.

So, in the post-war years, Siegfried Sassoon searched for new subjects. His satires, blunted by affection, became weaker, the humour gentle, coming to life only occasionally, often when he looked back to the war. Even the socialist diatribes, although sometimes starting fiercely, as in "I hate the rich...", are seldom sustained. The love poems seem awkward, sometimes embarrassed, reflecting Sassoon's confusion about his homosexuality. Occasionally a beautiful lyric breaks through but during the post 1918 decade his poetry reverts often to the tentativeness of his early work. This marks another of Sassoon's wars: one between himself and his times. Paradoxically, although he had hated the First War, Sassoon's writing created one of the most lasting perceptions of it. There is, in his war, a sense of work in harmony with reality.

There was, in the decade after 1918, a hope that this might have been 'the war to end wars'. In 1922, the Washington Conference led to agreement on arms control and disarmament; the Locarno Treaty of 1925 brought security to Western Europe's frontiers; in 1926 Germany joined the League of Nations; in 1928 the Kellogg-Briand pact outlawed war. British Defence plans after 1919 predicted no major war for at least ten years.

But it seemed as if Siegfried Sassoon couldn't leave the trenches. In 1920, when he went on a lecture tour of the United States, billed as 'England's soldier poet', what people wanted to hear were his war poems and his memories of the war. His account of the tour, written some twenty years later in the last of his published autobiographies, *Siegfried's Journey*, has the usual Sassoon tone: charming, mellifluous in style, the hint of melancholy, the general kindness towards almost everyone. As usual he is the innocent who knocks flower pots off balconies, breaks a window in a taxi while stretching out his long legs, almost drowns while going for a dip.

There is no mention of an unhappy love affair, of women almost hysterical in pursuit of him, of sleeplessness, of doubts about what he would do when he got back to England. "I suppose," he wrote of the American tour later in his diary, "it was one of the most interesting things I have ever done" without enthusiasm for the memory. An American critic was sharper, writing of the book's bland tone. But when *Siegfried's Journey* was written, towards the end of the Second World War, this was what its author wanted: a good alternative to a disappointing present.

The decade after 1918 was hard. Sassoon tried politics, even thinking once while speaking for a Labour candidate that he might make a great leader of the working

classes. He supported striking miners, he visited Glasgow and south Wales, he wrote for the *New Statesman* and the *Daily Herald*, he felt roused enough during the General Strike of 1926 to lecture the editor of the *Daily Express* who thought Sassoon a 'gallant eccentric'.

Social yet anti-social, Sassoon entered the world of the 1920s Bright Young Things through his affair with Stephen Tennant. Yet these people hurt his puritan nature, which conflicted with sexual desire. Towards the end of the decade, his ideal of what a politician should be was Lord Grey, Stephen Tennant's step-father. Grey had been Foreign Secretary for some eight years before the crisis of 1914. As one of the promoters of secret pre-war co-operation with France without enough commitment or military preparation, Grey could be said to have some responsibility for the slaughter. But Sassoon adored this tweedy countryman, a character suited to the *Memoirs of a Fox-Hunting Man* who had entered politics from a sense of duty when he would rather have been watching birds or catching fish.

Then literature moved on to the new poetry of T.S. Eliot and Pound. The critics started to be less kind, less interested in what Sassoon was doing. Often, also, there were visits to the depressing Weirleigh and his adored mother who loathed some of his new friends like the Sitwells and Stephen Tennant. One liberation was his car in which he drove miles through an unspoiled southern England, knocking over sheep and shepherds, tyres blowing out, a petrol tank bursting into flames as he peered into it with a match to see if it was empty. On such trips Sassoon felt out of the modern world, away from its barbarism.

Gradually, perceptions of the war changed. Politicians and pundits wrote memoirs and criticisms of the war's High Command and towards the end of the 1920s the writers had their say. Sassoon's first contribution – *Memoirs of a Fox-Hunting Man* – came out in 1928. It began as the fictional autobiography of a retired sporting Colonel living in Cheltenham, partly designed as an antidote to its author's melancholy and sexual frustration. Then it became the story of his own life as a fox-hunter, cricketer and young officer at the front.

The book is a sanitized account, with nothing about some of the most important aspects of Sassoon's life such as his Jewish ancestry, his homosexuality and his poetry. Its power lies, I think, in the sense of innocence traduced, of youth and hope ending in the mud and slaughter of the western front. The *Fox-Hunting Man* and its successor, *Memoirs of an Infantry Officer* (published two years later) coincided with two other brilliant war memoirs: Graves's *Goodbye to All That* and Edmund Blunden's *Undertones of War*. The most complete edition yet of *The Poems of Wilfred Owen*, which Blunden had been persuaded to edit by Siegfried Sassoon, came out in 1931.

Gradually the dominant literary version of the war became one of 'lions led by donkeys' or of brave innocence, of tarnished beauty. This version grew during the thirties, a more terrifying decade. Hope dissolved into economic crisis, unemployment, the failure of the League of Nations, re-armament, wars in the Far-East and Abyssinia and Hitler's coming to power.

It's been said that poets like Sassoon – through their unforgettable rendering of the hell of war – contributed to the climate of appeasement in 1930s Britain.

Certainly what some historians have seen as the nobler aspects of appeasement are in the spirit of the *Memoirs of a Fox-Hunting Man*: a sense of fair play towards the Germans, a wish to restrain the vengeful French and treat Hitler and the Nazi leaders as gentlemen. But as the second of Siegfried Sassoon's great wars approached, how did he view the political and international landscapes?

Sassoon was not interested in politics or politicians unless caught up in an emotional turmoil, as with the General Strike or the shock of the western front. The 1930s prompted similar reactions – against re-armament, against Churchill (whom Sassoon thought a warmonger), yet also shock at reports of Nazi treatment of the Jews.

His poetry, briefly, took a political turn again; the collection *The Road to Ruin* published in 1933, depicts bombed cities, catastrophe, the triumph of the 'Prince of Darkness'. At first he felt sure that to campaign for peace was right and that 'ordinary' Germans must feel the same, if only they could be reached. Sassoon spoke at meetings of Canon Dick Sheppard's Peace Movement and wrote to Archbishop William Temple to challenge the idea of a just war. But, as the decade wore on, he began to see that there had to be confrontation. When war broke out in 1939 he thought that it had become inevitable.



Figure 3: Hester Gatty in 1933

The depressing international scene seemed reflected in Sassoon's own life. His poetry fell further from critical favour and his dream of a happy family life failed at Heytesbury, the Wiltshire country house that he had bought after marrying Hester Gatty in 1933. At least he had one comfort: a brilliant and loving son, George, his only child who had been born in 1936.

Sassoon was irritated by his wife or guests wanting to listen often to the news. But the war affected him, through evacuees being sent to Heytesbury, soldiers

camping in his park, the difficulty of travel that added to his isolation. Although mixing little with the county gentry, Sassoon became a literary squire, tending his trees, clearing scrub, riding round his property, delighting in the rustic wisdom of those who worked for him: a figure of affectionate amusement to the villagers who called him the Captain and tolerated his walking back to the house while supposed to be fielding during cricket matches; after all, he did own the pitch.

One of his few contributions to the war effort was to publish some uninspiring propaganda poems, called 'Silent Service' and 'The English Spirit'. Sassoon did not put himself forward for war service, hoping secretly that he might be asked to do something.

No approach came, another sign, he thought, of his irrelevance. The success of his three volumes of 'straight' autobiography that had begun with the publication of *The Old Century* in 1938 pleased rather than delighted him. What he had always wanted to be was a lyric poet: not a satirist or writer of prose or linked irrevocably to the western front. This conflict with the modern age seemed doomed to end in defeat. Then in 1957, after dark years, Sassoon converted to Roman Catholicism, guided by a nun who had written to him about the religious yearning in his poetry. At last he found peace.

In *Siegfried's Journey* – the last volume of his autobiography, published in 1945 – Sassoon recanted his 1917 protest, writing that he now thought it had been necessary to defeat of the enemy. But these paragraphs in a book that sold far less well than his earlier work lacked the resonance of the war poems or the Sherston memoirs. The man became a myth, inspiring not only novels and plays but an idea of the trenches.

Siegfried Sassoon's war has been often explained. Other literary memorials loom beside it – Owen's preface about the poetry being in the pity, Blunden's and Graves's memoirs, most of the war poets who are in anthologies. It leaves a sense, strong in the 1930s, that another war must be prevented: that this had been the worst ever war. For the British in the Second World War, the fighting in the Far Eastern jungles, in Normandy in 1944, or in the Italian campaign were ordeals as great as those in the trenches, although involving fewer troops. But there is none of the sense of exploited innocence which induces anger over the Somme or Passchendaele. Sometimes it seems as if there is a national need for a view of exhausted soldiers coping with horror, the British equivalent of the Russians at Stalingrad or the Americans fighting the Japanese in the Pacific, yet more helpless, more overwhelmed. The First World War is Britain's national epic.

Over the last thirty years, historians have pointed another way: that the British army stuck it out, evolving from the small force that landed on mainland Europe in 1914, to enforce treaty obligations to neutral Belgium: that it became the main component of victory in 1918 without mutiny, recovering from terrible battles to defeat its supposedly invincible opponents: that the war was necessary to stop the domination of Europe by a militaristic regime and its unstable "supreme warlord", the Kaiser. Then a new novel or film comes out, read or watched by thousands, even millions, and it seems as if the historians might as well have stayed silent.

A friend's remark about Siegfried Sassoon being 'a First War man' is right. Those four years shaped him forever: not surprising when he entered the army as a fastidious, young idealist anxious to conform to a background that repressed what made him different: his Jewishness and his homosexuality. But Sassoon's war experiences were restricted to bad times. He missed the triumphant last battles of 1918 when Wilfred Owen wrote from the front line that there was no place he would rather be.

Out of this, and the years that followed, Siegfried Sassoon made something different from historical truth. He transformed his own turbulence into anger, satire and beauty, into a nostalgic search for a utopia that, eventually, he found in faith. In a sense he rises above facts or reality. Sassoon evokes an imagined, lost England. In his version of the First World War, he created a myth that is perhaps more honourable than most myths by which nations live. The writings of Siegfried Sassoon have helped it to endure.

Max Wyndham, 2nd Baron Egremont studied Modern History at Oxford University. He has written a number of biographies including those of Arthur Balfour, Major General Sir Edward Spears as well as that of Siegfried Sassoon (first published in 2006 by Picador). He has also written four novels. His most recent books include Forgotten Land, Journeys among the Ghosts of East Prussia (Picador, 2011) and Some Desperate Glory, the First World War the Poets Knew (Picador, 2014).

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THE RAMSDEN LECTURE
*Turning the Dream of Nitrogen-fixing
Cereals into Reality*

EDWARD COCKING

29 October 2014

Selecting a suitable nitrogen-fixing bacterium

In 1970 Norman Borlaug in his Nobel Peace Prize¹ lecture highlighted the need to extend the symbiotic nitrogen fixation of legumes with rhizobia to the world's major cereals, maize, rice and wheat to sustain the Green Revolution. He acknowledged that even though high-yielding dwarf wheat and rice varieties were the catalysts that ignited the Green Revolution, chemical fertilizers, particularly synthetic nitrogen produced from fossil fuel by the Haber-Bosch process, were the fuel that enabled its forward thrust. Borlaug's dream was that advances in biotechnology would enable cereals to imitate the ability of legumes to fix nitrogen from the air, thereby minimising the need for synthetic nitrogen fertilizers (Fig. 1).

“In my dream I see green, vigorous, high-yielding fields of wheat, rice, maize, sorghum and millet which are obtaining, free of expense, 100 kilogram of nitrogen per hectare from nodule-forming, nitrogen-fixing bacteria ... This scientific discovery has revolutionized agricultural production for the hundreds of millions of humble farmers throughout the world, for they now receive much of the needed fertilizer for their crops directly from these little wondrous microbes that are taking nitrogen from the air and fixing it without cost in the roots of cereals, from which it is transformed into grain...”

The Green Revolution: Peace and Humanity
Norman E Borlaug 1970 Nobel Peace Prize.

Figure 1: Borlaug's Dream

In the twentieth century little biotechnological progress was made with rhizobia to fulfil this dream. In this century the increasing pollution of the environment from the use of synthetic nitrogen fertilizers, either from nitrous oxide a potent greenhouse gas, or as soluble nitrates that find their way into aquatic systems, has highlighted the need to minimise their use in agricultural production (fig. 2).²

The Nitrogen Boundary

Creating new strains of rice, wheat and corn that fix their own nitrogen could achieve in the twenty-first century what the Haber-Bosch breakthrough managed for the twentieth, and without the serious environmental drawbacks of industrial ammonia production.

Environmentalists should not be scared of this prospect; they should welcome it. There can be no more important task than feeding people whilst protecting the planet. We must use the best of science and technology to help us achieve this vital aim.

The God Species: how the Planet can Survive the Age of Humans
Mark Lynas (2011)

Figure 2: The Nitrogen Boundary

However, it is now evident that Borlaug's dream is not likely to be achieved with rhizobia in any nodule-forming cereal crops because of the inactivation of rhizobial nitrogen fixation by oxygen, and the anticipated difficulty in regulating oxygen flux in such nodules.³

Consequently, research effort has been re-directed to the interaction of cereals and other non-legume crops with non-rhizobial nitrogen-fixing bacteria able to fix nitrogen under aerobic conditions.

The bacterium *Gluconacetobacter diazotrophicus* was originally isolated in 1988 from within sugarcane plants in Brazil.⁴ This non-rhizobial bacterium fixes nitrogen aerobically and colonizes sugarcane roots and shoots intercellularly without nodulation. It has many novel features that would facilitate its effectiveness in symbiotic nitrogen fixation if it could be established intracellularly. Compared with most other aerobic nitrogen-fixing bacteria its ability to fix nitrogen is more tolerant to oxygen since it can achieve a flux of oxygen that maintains bacterial aerobic respiration, while not inhibiting the activity of nitrogenase the enzyme catalysing the synthesis of ammonia from nitrogen with endogenous reducing agents and concomitant reduction of water to hydrogen. This is achieved by the bacteria excreting a mucoid protective slime layer of fructan, which preferentially hinders access of oxygen to the key oxygen sensitive nitrogenase. The polysaccharide layer is generated by transfructosylation from sucrose, catalysed by a Glycoside Hydrolase Family 68 enzyme. The bacterium also has a capability to excrete almost half of the fixed nitrogen as ammonia that is potentially available to plants. Moreover, *G. diazotrophicus* is known to produce cell wall degrading endoglucanases, xylanases and pectinases when grown on sucrose which could facilitate bacterial penetration of the primary cell wall of root meristematic cells. It seemed likely in cereals and other non-legume crops, with much lower concentrations

of intercellular sucrose than the 10 – 12% in sugarcane, that *G.diazotrophicus* might seek to establish itself intracellularly by enzymatic cell wall penetration and uptake into vesicles in the cytoplasm.

Inoculating cereals with *G.diazotrophicus*

We investigated the interaction of *G.diazotrophicus* with the cereals maize, rice and wheat.⁵ An aqueous suspension of bacteria (5 colony forming units) was used for the inoculation of surfaced sterilized seeds germinated aseptically on Murashige and Skoog medium containing 3% (w/v) sucrose and vitamins but lacking growth substances. Following inoculations with *G.diazotrophicus* containing a constitutive expressed *gus A* gene, the bacterial colonization of roots was visualised by light microscopy of the dark blue precipitate of 5,5'-dibromo-4,4'-dichloro-indigo resulting from the hydrolysis of the histochemical substrate X-Gluc by bacterial β -glucuronidase encoded by the *gus A* gene and subsequent air oxidation of the liberated aglycone. For observations on sections of roots, samples were fixed, dehydrated and embedded in acrylic resin. 1 μ m sections were cut and counterstained with Safranin for light microscopy. Following inoculation of maize, wheat and rice, *G.diazotrophicus* was detected microscopically intracellularly within the cytoplasm of the cells of the root tips of all these inoculated cereals at 7 days post inoculation. A schematic representation of the interaction is shown in Fig. 3.

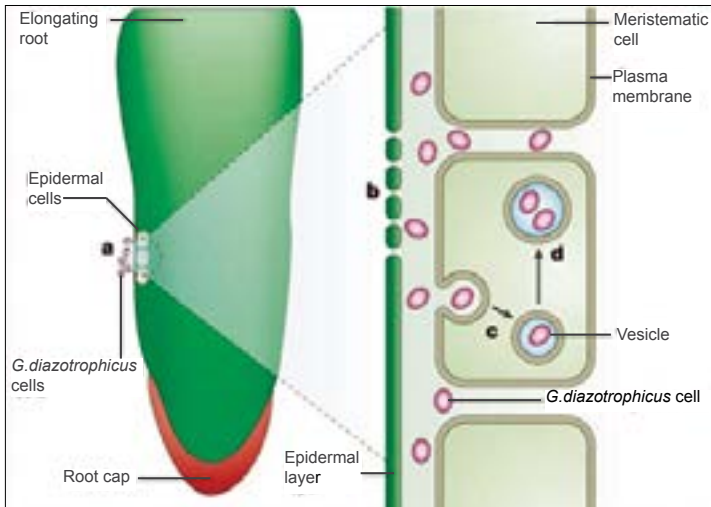
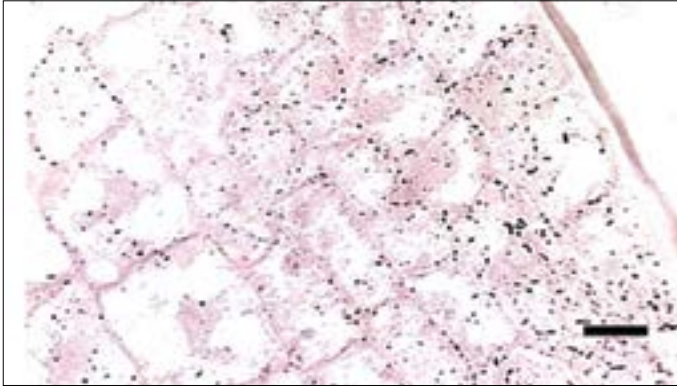


Figure 3: Schematic representation of the interaction of *G. diazotrophicus* with cereal roots (a) meristematic zone of elongating root (b) *G.diazotrophicus* penetrates the epidermal cell wall by secretion of cellulase enzymes (c) The plasma membrane pinched off via endocytosis forms a membrane surrounding vesicles containing *G.diazotrophicus* (d) Vesicles with *G.diazotrophicus* (diazoplasts) are surrounded by a membrane analogous to the symbiosome membrane of rhizobia.

In maize, for example, dark blue stained *G.diazotrophicus* was clearly visible within the cytoplasm of meristematic cells of the elongating region of the root, and within their cell walls (Fig. 4).



*Figure 4: Section of maize root showing intracellular blue stained **G.diazotrophicus** (bar = 10 microns)*

Electron microscopy of ultrathin sections of the same roots confirmed that *G.diazotrophicus* bacteria appeared to be within membrane-bound vesicles in the cytoplasm.

The fact that *G.diazotrophicus* is able to become established in vesicles in the cytoplasm in cereal root cells, similarly to rhizobia in nitrogen-fixing symbiosomes in nodule cells of legumes, indicates that there is likely to be no need for nodulation in cereals (and other non-legume crops) to achieve symbiotic nitrogen fixation.⁶ If stably transmitted from cell to cell fixing nitrogen, these symbiosome-like membrane-bound compartments containing *G.diazotrophicus* could become diazoplasts, a new type of nitrogen-fixing organelle⁷ (Fig. 5) analogous to a chloroplast.

It remains surprising that no plant followed what seems to be the easiest path to the independence of bacteria: to exploit bacterial solutions to both the genetic and physiological problems of nitrogen fixation by way of a 'diazoplast', a new organelle analogous to a chloroplast, acquired in a like manner by accretion of an endosymbiotic prokaryote into the plant's genome.

Bacterial Evolution and the Nitrogen-fixing Plant
J Postgate (1992)

Figure 5: Bacterial Evolution and the Nitrogen-fixing Plant⁷

Producing nitrogen-fixing cereals

A start has now been made by the University of Nottingham, in partnership with Azotic Technologies, with wheat to turn Borlaug's dream of nitrogen-fixing cereals into reality. We are using this *G.diazotrophicus* inoculation technology (N-Fix) in wheat field trials to determine reductions possible in the use of synthetic nitrogen fertilizer whilst maintaining yields; and have been able to reduce up to 30% nitrogen fertilizer use without loss of yield (Fig. 6). The field trials with wheat are continuing in the UK, Europe and North America, and are also under way with maize and rice and other major non-legume crops.



Figure 6: Wheat seed inoculated with N-fix and compared with nitrogen fertilizer treatments in replicated field trial demonstrated that the nitrogen-fixing bacteria could substitute 25-30% of the N fertiliser.

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THE COURTAULD LECTURE
*Wombs to Rent - Legal and Ethical
Aspects of Surrogacy*

DANIELLE GRIFFITHS AND MARGARET BRAZIER

12 November 2014

Scarcely a week goes by without the English courts having to grapple with problems relating to surrogacy arrangements. Most people agree that the law is a mess and the welfare of children born from surrogacy arrangements is imperilled, especially where the surrogate is recruited abroad. So should surrogacy be banned, encouraged or wilfully ignored? We doubt if anyone would vote for wilful ignorance yet that may be the apt description of Parliament's attitude today.

Forms of surrogacy arrangements

A surrogacy arrangement¹ is created when a woman agrees to carry a child for a couple or a single person and to hand over the child to the intending or commissioning parents at birth. Many surrogacy arrangements involve heterosexual couples where the woman cannot carry a child but a growing number involve gay male couples and single men.

Partial Surrogacy

Surrogacy may be partial - that is to say the surrogate (S) uses her own eggs but is inseminated with the male partner's sperm, (so S is the genetic mother) or full/gestational surrogacy where the embryo is created by IVF from the female partner's eggs and the male's sperm so that the couple are the child's genetic parents. Or as is popular with gay couples, the child may be created by a donor egg from woman A fertilised by one of the males' sperm and carried by a second woman, B the surrogate.

The preferred term in the USA is now 'the gestational carrier'.

Full/Gestational Surrogacy

If the couple opt for full/gestational surrogacy in a licensed UK fertility clinic, the couple are likely to receive counselling and advice to help to ensure the process goes smoothly and conforms with the law. Many commissioning couples and single men however prefer to choose a private partial surrogacy arrangement. The man provides the sperm and the surrogate self-inseminates. The parties may be wholly unaware of what the law allows, what the legal status of the couple may be and what limits are placed on payments to the surrogate.

This lecture is based in part on the paper by Amel Alghrani, Danielle Griffiths and Margaret Brazier, 'Surrogacy Law: From piecemeal tweaks to sustained review and reform' in Alison Diduck, Noam Peleg and Helen Reece, eds. Law In Society: Reflections on Children, Family, Culture and Philosophy: Essays in Honour of Michael Freeman (2015, Brill Publishers) pp. 425-455. We thank Sacha Waxman for her help in preparing this paper.

Legal Parenthood

In English law the woman carrying and giving birth to the child is always the legal mother² and if married her husband will be the legal father³. The intending parents, the commissioning couple, need to apply for a parental order⁴ to become the legal parents or in some case have to adopt the child.⁵ The law says that the surrogate can only receive expenses and any payment that exceeds reasonable expenses will in theory mean that the parental or adoption order should be refused.⁶ And if no parental order is granted the surrogate will remain the legal mother and the commissioning mother will have no legal relationship with the child even if she has in fact mothered him for years.

Eleanor King J warned of:

[T]he real dangers that can arise as a consequence of private 'partial' surrogacy arrangements where assistance is not sought at a licensed fertility clinic (or indeed of full surrogacy arrangements where the child is born abroad). At a licensed clinic consideration will be given to the welfare of a child born as a result of a surrogacy arrangement and counselling services will be provided to the parties which will include the provision of information about the likely repercussions of a surrogacy arrangement and the importance of obtaining a parental order.⁷

Surrogacy arrangements in the UK are not enforceable contracts. More and more UK citizens go abroad to access surrogacy in countries where payments are lawful and ideally cheap. The full story is more complicated!

Scenarios

Suppose a couple want a child who is genetically theirs but sadly the woman cannot gestate a child. She may have been born with no womb or perhaps has had to have a hysterectomy. The couple travel to Thailand and engage and pay a woman (a surrogate) to carry a child for them - a child made of the wife's eggs and the husband's sperm. They agree to a full surrogacy arrangement, sometimes called gestational surrogacy to distinguish it from cases where the surrogate uses her own eggs and is the genetic mother of the child, sometimes called womb leasing, renting a womb.⁸ The story starts well and gets better - the surrogate is carrying twins, a boy and a girl. Then tragedy ensues. The boy is found to have Down's. The surrogate refuses to abort the affected foetus. When the twins are born the couple take the healthy girl home and refuse to take the little boy.

This story is probably familiar - it is the tale of little Gammy. Some of the facts⁹ are hard to pin down. Did the couple go to Thailand because of allegations about abuse against the husband? Or did they go abroad because their home country bans payments and/or you pay less to the surrogate in a poor country in the developing world? Did the surrogate refuse to give up her son {do you think he should be described as her son?}.

Gammy's story is a dramatic lesson in the perils of surrogacy but not unique. An English couple went to India¹⁰ and a surrogate gave birth to twins remaining content to give them up. But because in English law the surrogate is the legal

mother and her husband the legal father the intending parents cannot transmit British nationality to the twins and so bring them home. And they cannot apply for a court order to make them the legal parents till the children are living with them. So the twins are stranded with their Indian grandparents.

A woman may agree to be a surrogate using her own eggs and later tell the intending parents she miscarried and she keeps the child. Some years later she does it again deceiving another couple and is found out.

UK law and Surrogacy

Many couples are unaware of the law. They believe that they will be the legal parents from birth and do not realise that if they pay more than expenses they are breaking the law. The surrogate hands over the baby, the couple apply for a parental order and say openly that they paid the surrogate £20-30K, much more than expenses. What should a judge do?

The Surrogacy Arrangements Act 1985 makes it illegal for a commercial organisation to set up a surrogacy arrangement in the UK. Non-profit making volunteer organisations that provide matching services are permitted and a number of agencies such as Surrogacy UK and COTS¹¹ assist and guide those who wish to found a family with the use of a surrogate. At present such organisations remain completely unaccredited and unmonitored.¹²

In *Re G (Surrogacy: Foreign Domicile)* (2007)¹³ where the commissioning parents could not apply for parental responsibility as they were not domiciled in the UK, MacFarlane J. condemned the absence of 'any statutory or regulatory umbrella' which leaves the role of facilitating surrogacy arrangements to 'groups of well-meaning amateurs'¹⁴ which can often provide inaccurate information.

Surrogacy can go horribly wrong but often the opposite is true. A couple who never thought they would have a child share the joys of parenthood. Many British surrogates report that they love pregnancy and love the fact they can help other women. Many remain in touch as a kind of honorary aunt. Good news is however never as 'good' as bad news and there is plenty of evidence that the law on surrogacy is a mess and as Professor Michael Freeman (a leading expert in both medical and family law) said in 1999, "the time is opportune for a new Surrogacy Act"¹⁵; and as Horsey and Sheldon¹⁶ have suggested more recently the 'law governing surrogacy remains confused, incoherent and poorly adapted to the specific realities of the practice of surrogacy'.

How serious are the problems? One preliminary problem is that reliable evidence about the number and outcome of surrogacy arrangements is not accessible. Records of Parental Orders (POs) which transfer legal parentage from the surrogate (and her husband if she has one) to the commissioning couple provide us with the only official data. Research led by Crawshaw¹⁷ found that there had been an increase from 52 POs granted in 1995 to 149 in 2011. In 2012, this figure rose to 192.¹⁸

The number of surrogate children born in England and Wales through informal arrangements is unknown. Even in more formal arrangements, sources indicate that many parents are not applying for a PO and unofficial rates of surrogacy

could be significantly higher. Without a PO or an adoption order, the commissioning parents may not be the legal parents of the child and so will not have the requisite parental responsibility to make important decisions relating to the child, such as medical treatment and schooling.¹⁹

Surrogacy arrangements entered into abroad

What about surrogacy arrangements entered into abroad? According to a recent media report:

It is estimated that 2,000 births to surrogate mothers took place [in India] last year [2011], with most experts agreeing that Britain is the biggest single source of people who want to become parents in this way. Britain may account for as many as 1,000 births last year in India.²⁰

We know that more and more people in the UK are looking to surrogacy, and often looking abroad to help them have a family. The exact numbers cannot be stated with any accuracy. Even if a lower estimate is accepted, the problems arising from the confused and incoherent approach to surrogacy are serious even if the numbers are not close to the 1000 suggested by the *Daily Telegraph*, and these are problems that can ruin lives.

Dealing with a troublesome case relating to a commercial surrogacy arrangement in Georgia, Moylan J said:

There is in my view a compelling need for a uniform system of regulation to be created by an international instrument in order to make available an appropriate structure in respect of what can only be described as *the surrogacy market*.²¹ (our emphasis).

Payments - buying babies

One of the problems is paying for surrogacy and the 'ban' on payments in the UK may be what motivates many people to look abroad for a surrogate. Should we allow payments and acknowledge what Moylan J called the surrogacy market. Ever since the first law relating to surrogacy was passed by Parliament, English law has set its face against allowing women to be paid for carrying a child and giving him up to the intended parents. She should not make a profit. The Surrogacy Act 1985 makes it a criminal offence for any agency to be paid for assisting in a surrogacy arrangement²² and as we have said in theory the intending parents may be denied a parental order if they have paid more than reasonable expenses. Why the aversion to payments?

Three main arguments are put forward

1. It cannot be right to allow anyone to buy a baby;
2. There is a real risk that poor, less well educated women will be exploited; and
3. Society should not commodify the human body and so you should no more be allowed to rent a womb as to buy a kidney.

Let us look at each argument in turn but we first imagine this scenario. Jack and Jill have twins, a boy and a girl, Mark and Mary. They never wanted two children

and will struggle financially so they hold an auction to sell Mark. Fran is the highest bidder at £60k. Fran has undergone Criminal Records Bureau (CRB) checks and is an approved foster mother? Do Jack and Jill do something wrong? We would guess most people would think auctioning your baby is wrong.

However even if selling babies is wrong, is paid surrogacy selling a baby? Freeman argues:

The money is paid to the surrogate not to compensate her for giving up the child, nor to 'buy' the child. The money is payment for her services; it is compensation for the burden of pregnancy. The child may have a right not to be sold, but that is a distortion of what is happening, even in cases of commercial surrogacy.²³

Michael Freeman thinks that paying a surrogate is not buying a baby and doubts that payment risks exploitation. Let us think about this second argument

How many of the young women reading this paper would contemplate surrogacy and make a payment of £10,000 to help meet student debt? Suppose one found oneself in ten years time as a single mum with two children? Most surrogates are poorer and less well educated than the commissioning couples. But does that prove exploitation if a single mum took a cleaning job at less than £10,000 is that a reason to ban such jobs?

If we are really concerned about exploitation we need to look abroad too, Problems in finding surrogates means that many couples go abroad.²⁴ In India surrogacy has become a lucrative business and clinics recruit women who spend the whole of the pregnancy in a clinic hostel monitored at all times and the women are paid much less than £10,000. Estimates of children born in India to British couples vary from 64 to over 1,000.²⁵ Hostels have been described as surrogacy factories paying desperate women peanuts. Yet to them it may be enough to pay for a daughter's education?

What about the third argument that no body part should be commodified? Margot cannot sell her kidney and Danielle cannot rent her womb because in a sense their bodies are not wholly theirs and we demean self respect if we trade our bodies like things. Titmuss²⁶ argued that where bodies can be used to help others it should be by way of an altruistic gift. But could you argue all the lecturers and professors at the University of Manchester sell their brains to the University?

So should we think again about payments permitting a moderate fee for a service of incalculable value?

Freeman asserted in response to concerns around the child that payment to a surrogate may raise:

The money is paid to the surrogate not to compensate her for giving up the child, nor to 'buy' the child. The money is payment for her services, it is compensation for the burden of pregnancy. The child may have a right not to be sold, but that is a distortion of what is happening, even in cases of commercial surrogacy.²⁷

There is another practical factor to think about too. The current law is just not working. Remember that if the commissioning couple seeks a parental order to

become the legal parents of the child the HFE Act says the surrogate must not have been paid more than reasonable expenses. If more has been paid then should the order be refused? Several cases show that payments exceed even the most generous of expenses even including Chanel maternity wear, but what is the judge to do?

In several cases judges have authorised a payment that exceeds expenses. In *J v G*²⁸ a British civil partnered male couple commissioned a surrogate in California and made payments totalling £35,650: almost twice what is presently usually deemed to be reasonable expenses and yet the parental order was granted. The reason for this gap between theory and practice is that courts are in an impossible position. Whilst the HFE Act 2008²⁹ makes it clear that a parental order should only be granted if (1) no money or other benefit (other than for expenses reasonable incurred) has been given or received by either of the parties, this conflicts with changes in the Human Fertilisation and Embryology (Parental Orders) Regulations 2010 which make the child's welfare the paramount consideration throughout the child's lifetime. Their impact was highlighted by Hedley J in *Re L (a minor)*³⁰ when he said:

....The effect of the 2010 Regulations is Welfare is no longer merely the court's first consideration but becomes its paramount consideration.... It must follow that it will only be in the clearest case of the abuse of public policy that the court will be able to withhold an order if otherwise welfare considerations support its making.³¹

'Moderate' Payments

One possible way forward is to reconsider lifting the ban on advertising so as to help those who wish to enter into such arrangements, permitting payment to agencies to cover their fees, and allowing a 'moderate fee' to be paid to surrogate mothers in addition to 'reasonable expenses'. The surrogate would be recompensed for her labour and not simply the financial costs of pregnancy.

Permitting a 'moderate fee' to surrogate mothers will raise the question of how such a reform would translate into practice. One option might be to treat surrogacy as akin to a full time job and pay up to a maximum of the minimum wage of £6.31 for 37.5 hours over the 40 weeks of pregnancy adding up to a fee of £9,465.

Why not allow the market to set the fee? We suggest restricting payment to a 'moderate sum' in part to avoid pricing many commissioning couples out of the market, so that only those of considerable means would have this method of founding a family open to them. Courts retrospectively authorising payments have been keen to ensure the amount paid has not been so much as to overbear the will of the surrogate.

Setting the UK fee too high and couples will still resort to jurisdictions like India where a surrogate's services can be obtained for less. Set it too low and the change in the law may not produce more willing surrogates and thus couples again will still look abroad. We need more research investigating whether or not surrogates are content with 'reasonable expenses', would want to be paid an additional 'moderate fee' and what sort of sums they would deem reasonable.

Permitting moderate payment may increase the number of willing surrogates in UK lessening the need for commissioning couples to look abroad or to the internet where the potential for exploitation and harm to either parties or the resulting child is higher.

Money may well be or become a motivating factor but to argue that this eradicates all other altruistic motives ignores the complexity of why women choose to become a surrogate. This is reflected in a comment made by Kim Cotton, the woman at the centre of Re C³²; she was a married 'stay at home' mother of two when she agreed to act as a surrogate for a foreign couple in exchange for £6,500, she explains how both money and a desire to help others influenced her decision:

I was a young mum at home with my kids when I saw a television programme about surrogacy. I was always looking for ways to earn money and when I saw this I thought, 'This is ridiculous. I'm pregnant at home anyway and I can be paid for it. Excellent. I loved my two kids and I didn't realise so many people had difficulty conceiving, so I wanted to help.'³³

What will payment mean for the surrogate?

Kim Cotton was happy to be paid but quite a few surrogates are worried about payment and are concerned that money will change the relationship with couples they seek to help. Recall that the term often now used in the USA in place of surrogate mother is 'gestational carrier'. Julie Wallbank has warned:

Surrogacy is not an assembly line for producing androids; it is the collaborative creation of a human being....Genetic parents need to be aware that they are collaborating with a woman not with a womb.³⁴

If moderate payment is permitted openly and lawfully, what does that mean for the surrogate and how may it alter her role once her services are rendered? Under the model of 'reasonable expenses' research has shown that a UK surrogate is most often viewed as a woman helping a family and not just as a womb for rent. Research conducted at the Centre for Family Research³⁵ found a largely positive picture of the relationships between the surrogate and her own family and between these individuals and the families created through surrogacy; relationships which were sustained over time.³⁶

In this manner the gestational link between surrogate mother and child is implicitly recognised. This can be contrasted with the position in India. In a recent BBC news report, a UK based commissioning couple commented about two Indian surrogates who were both pregnant with their genetically related twins, saying "she's doing a job for us, how often do you communicate with your builder or your gardener?"³⁷ It is clear here the surrogacy arrangement is reduced to a purely economic transaction.

If we were to permit a moderate fee in the UK, would the 'special relationship' placed on gestational ties and the way we view it change as it potentially becomes more of a transaction? And if surrogacy is an openly paid service would the arrangement also have to become an enforceable contract?

Who are my parents?

As we noted above, in the UK, it is always the gestational mother who is the legal mother from birth. The commissioning 'mother' has no claim to the child at birth.³⁸

In the UK, only two people can be legally recognised as parents. This can be a man and a woman married or in an "enduring family relationship", and since changes in the HFE Act 2008 same sex couples can apply for parental orders, For an order to be granted there can be no less than two parents – single people are not allowed to apply for a parental order (they could adopt) - and no more than two parents. One of the couple also has to be genetically related to the child.

In many arrangements, determining 'the parent' legalistically does not matter – the surrogate gestates and gives birth to the child hands her over and happily has no future parental involvement aside from, perhaps, irregular contact. Sometimes the surrogate changes her mind and does not want to give up the child. No parental order can be granted without her consent and if the couple apply to adopt the child or seek a residence order the English courts are loathed to force her to so if she is fit mother and of course in law she is the legal mother. Add to this are scenario the fact that many couples where they have provided eggs and sperm feel that they should be the parents from the start. They may be surprised to be told that at birth the legal mother is the surrogate. Gestation trumps genetics.

However once a parental order is granted the gestational relationship is extinguished and is not formally acknowledged at all. Not all but some surrogates may want a continuing relationship with a child they have given birth to – not legal parenthood but some legally-acknowledged role in a broader notion of family. This may suit those who see surrogacy as very much a human relationship- a woman helping another less lucky than her in the fertility stakes and of course at present in the UK at least in theory not paid.

Maybe one solution that recognises that surrogacy involves more than two people with a claim to parenthood and cannot be shoehorned into the two-parent family would be to expand the number of people who can be legal parents. Canada offers an alternative example of a legal framework which recognises more than two parents. The British Columbia (BC) Family Law Act (2011) has made it possible for a child to have more than two parents where ART is used to conceive the child. In the context of surrogacy and donor conception, section 30 (1) stipulates that the birth mother (the surrogate) and donor(s) can be named as a parent alongside the intended parent or parents (up to 5 parents).

There are some surrogates who are happy to gestate the child and have no further links to the commissioning couple or child. This is particularly so now in the context of foreign surrogacy which may be preferable for many parents who do not want to involve the surrogate in the child's life? There are some surrogates who wish to have a distant role in the child's life and there are some who may want a continuing role. There is no 'one shoe fits all' remedy and intention to parent may trump all regardless of any genetic or gestational tie, but it must be recognised that this is an area fraught with difficulty and emotion. If (as

we advocate) moderate payment is permitted, we must ensure it is not viewed as a totally commercial transaction so as to ensure the surrogate's reproductive links with the resulting child are recognised even if they are not always used. We must also recognise parents now come in many forms and the law should perhaps expand its definitions of parenthood.

Foreign surrogacy

We have indicated outlined that current UK regulation, including the rules on parental status and the fact that the law does not permit enforceable contracts, plus a shortage of surrogates, may be driving some UK couples to use a foreign surrogate. It might be asked whether foreign surrogacy is actually a bad thing if it helps more people become a parent. However many of the problems with surrogacy that we have highlighted earlier are amplified and further complicated in the case of foreign surrogacy.

First, most foreign surrogacy cases involve payments of more than expenses to the surrogate and may involve payment to an international agency as well. Strictly speaking the arrangement breaches UK law. The international agency may well be well outside the jurisdiction of the English courts. Moreover while, as we have mentioned above, the English courts have not so far refused a PO on grounds of excessive payments to the surrogate, such payments are clearly causing many problems.

Secondly, in relation to legal parenthood, there has been a steady increase in cases involving foreign surrogates where children are being 'marooned stateless and parentless' because of the mismatched laws on parenthood between countries – in one country the surrogate is the legal mother (UK) in another she is not (e.g. Ukraine). Many children born to British parents through surrogacy in countries that are popular places to recruit foreign surrogates are born 'stateless'. The children have no nationality anywhere in the world and this causes immense problems illustrated in the case of *X v Y*.³⁹ A British couple entered into a surrogacy agreement with a woman in the Ukraine who gave birth to twins. Under UK law, which applies even when the arrangement is made in another country, the surrogate mother and her husband were the children's legal parents. Under Ukrainian law, once the surrogate had handed over the twins she and her husband had no legal obligations to the children and the children had no right to residence or citizenship in the Ukraine. But as under UK law the surrogate and her husband were the legal parents and not the British nationals, the twins had no right to UK nationality or residence either! The Home Office gave special discretionary permission to allow the twins into the UK while their longer term future was decided by the courts.

Thirdly, the potential for exploitation and risk in surrogacy arrangements become all the more pertinent in foreign surrogacy, as the surrogate is often not simply poorer than the commissioning couple, but living in abject poverty. Regulation in the surrogate's home country may do little to protect their interests.

The Indian Experience

By way of example, research undertaken by the Centre for Social Research (CSR) in New Delhi⁴⁰ showed that Indian surrogate mothers are frequently underpaid and insufficiently cared for.

The CSR, supported by the Ministry of Women and Child Development, conducted a survey of 150 surrogate mothers and 50 commissioning parents in Delhi and Mumbai. It found that most of the surrogates surveyed were only paid one to two percent of the fee that commissioning parents usually pay for a child. The rest of the fee is usually kept by the agents who arrange surrogacy transactions.

The study also found that surrogates were often poorly informed. Surrogacy agencies were the main source of information for surrogates, but surrogates were often not provided with a copy of the written contract agreed by the agency and the commissioning couple. In cases where the commissioning couple parents did not wish to continue the pregnancy because an ultrasound scan showed fetal abnormalities or that the baby was not of the desired sex, the surrogate might be obliged to terminate the pregnancy. The practice of repeat IVF sessions so women were subjected to many rounds of IVF with risks to their health was also commonplace. While the Indian Council of Medical Research, which publishes guidelines to fertility clinics in India, recommends that a maximum of three sessions take place, the 'vulnerable position' of the women involved means that this guideline is 'easily violated', the CSR report claimed. Indian surrogates were paid little, were subjected to significant health risks and appear to have no control over their own bodies.

A global response?

Foreign surrogacy arrangements have resulted in risk to children who may end up with legal parents who do not want them and intending parents who cannot have them. Foreign surrogacy may create real risks to disadvantaged women of exploitation and damage to health. Ideally a global response is needed. In the light of the growing numbers of intending parents resorting to the web to commission foreign surrogates, coupled with the rise in the use of international surrogacy agencies, regulation at an international level is desirable. Supporting calls for global regulation in this context Hutchinson argues: "the debate in relation to the need for a Convention governing international surrogacy arrangements, akin to the 1993 Inter-country Adoption Convention which governs international adoptions, is long overdue", "the time has come to unify the various efforts to deal with the issues surrounding international surrogacy into a multi-lateral convention, providing a framework for the growing number of international surrogacy arrangements being entered into".⁴¹ The international convention would seek at the least to ensure no child born of surrogacy was "marooned" without parents or nationality and that some basic protection was afforded to all surrogates whether they live in Manchester or Mumbai. How exactly we go about creating and obtaining agreement about such a convention/framework is a key question here, but alas it is an issue which is beyond the scope of the present paper.

The best we could do now perhaps to ease some of the problems that foreign surrogacy is causing would be to start at a domestic level and reform regulation in the UK, attempting to lower the demand for foreign surrogacy by for example allowing payment to UK surrogates, permitting advertising, regulating agencies and possibly allowing enforceable contracts. We should also consider a system whereby, rather than waiting until after a child is born and then considering the welfare of that child, the status of her parents and the legality of any payments when a child who must be cared for is in the world, intending parent and surrogate should seek approval of the arrangement before a child is conceived. Such a system could look something like the Israeli system described below.

The Israeli Solution⁴²

Israeli surrogacy law takes the form of a comprehensive regulatory regime for approving surrogacy arrangements from which we could learn. Briefly Israeli law on surrogacy requires that:

- The intended mother must be medically unable to carry a child of her own.
- A surrogate mother must be older than 22 and younger than 40 and not to have given birth more than five times. Relatives of the intending parents are not allowed to serve as surrogate mothers.
- The surrogate is entitled to be compensated for her expenses, and recompensed for lost earning capacity and suffering. A sum sufficient to cover all payments for the duration of the pregnancy is required to be deposited with a lawyer or trustee before the arrangement is approved.
- The agreement is presented to the Approvals Committee along with other relevant paperwork. The Approvals Committee reviews the documentation and interviews all parties to the agreement and decides whether it can go ahead.
- If implantation is successful, the surrogate is usually given a monthly payment from the intended parents, paid to her through a third party, usually the lawyer involved in drafting the arrangement. A significantly larger proportion of the total payment is given upon a live birth. At the fifth month of pregnancy, the Welfare Officer, a specially qualified social worker, must be informed of the expected time and location of the birth.
- Within 24 hours of the birth, the Welfare Officer must be informed.
- The Welfare Officer is the child's sole guardian from the time of birth, but the intended parents will have custody.
- Within 7 days of the birth the intending parents must apply for a parentage order.
- Provided there are no concerns about the child's welfare, the parentage order will be granted and sole guardianship is transferred to the intended parents.
- The child must be entered on a special register of surrogate births.
- The contract is enforceable unless circumstances have substantially changed or the welfare of the child is at serious risk.

Israeli law aims to create a simple process that safeguards both the child and the adults involved. It ensures that the intending parents can become legal parents swiftly with the minimum of fuss and expense. Other aspects of Israeli law may be less attractive. For example single people and same sex couples are excluded. A donor egg may be used, but the sperm must be from the intended father.

Conclusion

As the demand for surrogacy increases and more people, including same sex couples and single men seek surrogates via commercial agencies abroad or on the web, the current law regulating surrogacy is increasingly unfit to meet the needs of the parties to surrogacy arrangements. Even when surrogacy arrangements do not involve any international element, the law is confused, poorly understood and poses risks to the families involved. A better legal framework for surrogacy is urgently required as surrogacy is not going to go away. The law should provide certainty and clarity for all those involved and ensure that the most vulnerable members in our society are protected. While ultimately surrogacy needs to be tackled on an international level, domestic reform of the UK's legislation should be a priority. Judges left to sort out surrogacy 'messes' have called for Parliament to intervene many times. Reform⁴³ is easy to advocate but will entail answering some difficult and controversial moral questions including:

- 1 Should the law allow surrogate mothers to be paid for their services overtly and if so how much?
- 2 Should the law allow multiple legal parents?
- 3 Should we copy Israel and require surrogacy arrangements to be approved in advance of conception or might that drive more intending parents abroad?
- 4 Should surrogacy arrangements be enforceable so that the surrogate cannot change her mind and keep the baby and the intending parents cannot opt out and refuse to pay if they change their minds?

As we asked the audience at our lecture, now we ask the readers of this journal, what do you think?

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- 3 See HFE Act 2008 ss 35 – 41 provides new rules for when a woman is treated with donor sperm after April 2009, s 35 provides that if a woman is treated with donor sperm as part of IVF or DI her Husband is deemed the legal father unless he did not consent. The position is more complicated for unmarried couples, ss 36 – 37 apply, and the surrogate could nominate a partner as the father ss 36 -38.
- 4 HFE Act 2008 s 54 now governs parental orders and it empowers the court to order that the commissioning couple be treated in law as the parents of the child in a limited number of circumstances.
- 5 See Adoption Act 2002.
- 6 See HFE Act 2008 s 54 (8).

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THE McCURDY LECTURE

The Supreme Court in the UK Constitution

RT HON THE BARONESS HALE OF RICHMOND*

14 November 2014

Famously, the United Kingdom does not have a written constitution. A constitution is a body of rules that defines the institutions of government and determines the relationships between those institutions and between the institutions and the people. Most countries have these rules written down in a single document. These documents usually provide that some of their rules are 'entrenched', needing a special procedure or a special majority before they can be changed. These documents also usually provide that the rules they contain are a special category of superior law and that any law or state action in conflict with them is invalid. If so, the constitution will usually give power to a Supreme or Constitutional Court to decide whether a law or state action is unconstitutional and to strike it down if it is not.

There are two different models of Constitutional Court in the developed world. Countries with legal systems based on the continental European model, such as most of continental Europe, Latin America and parts of the Far East, all have Constitutional Courts which are separate from the ordinary law courts. These courts all have a power of what we call 'abstract review' – that is, a new or proposed law is referred to them, usually by politicians, to see whether it is consistent with the Constitution. Some also have what we call 'concrete review' – that is, the question can come up in the context of a real case involving real people. Some have exclusive jurisdiction, in the sense that they are the only court which can rule on the question. This is to preserve the democratic legitimacy of the laws – laws passed by Parliament cannot be called in question in the ordinary courts, but only in this separate body with its specialist expertise. These continental style Constitutional courts all have much more varied composition, with far more Law Professors, than our top courts tend to have.

Countries with legal systems based on the common law or Anglo-American model, which is most of the English-speaking world as well as the Indian sub-continent and Israel, do not have separate Constitutional courts. Most do have judicial review of the constitutionality of statute law. The constitution of the United States of America, dating back to 1787, does not in so many words give the Supreme Court power to strike down Acts of the federal Congress, as opposed to Acts of the state legislatures. But the Supreme Court very soon held, in *Marbury v Madison*¹, that this was a necessary incident of a constitution which limited the

**I am very grateful to my judicial assistant, Penelope Gorman, for her help in preparing this lecture. The errors and opinions are all my own.*

legislature's powers. More modern constitutions based on the Westminster model, make this explicit. A few also have a version of continental style abstract review. In Canada and Ireland, for example, proposed legislation can be referred to the Supreme Court for an opinion on its constitutionality. But most involve concrete review, the issue of constitutionality arising in the context of a real case about real people. And the issue comes before the ordinary courts of the land which hear these cases, not some separate body to which any constitutional question has to be referred.

Not so long ago, we would have puzzled to see the relevance of all this in the United Kingdom. We do not have a written constitution. The fundamental principle of our constitutional law is that Parliament is sovereign. This means that Parliament can make or unmake any law, constitutional or not. It also means that there can be no question of any UK court striking down or ignoring or calling in question the constitutionality of Acts of the UK Parliament. When the UK Supreme Court was set up in 2009, there were some who thought that we might evolve into a US style Supreme Court. But that we cannot and will not do.

However, there is at least one important qualification to the rule of Parliamentary sovereignty. Parliament itself can give us the power to call its legislation into question, and it has done this, in different ways, in both the European Communities Act 1972 and the Human Rights Act 1998. Parliament has also given us the role, which is a necessary feature of a federal constitution, of ruling on the constitutionality of the Acts of the devolved Parliaments and Assemblies in Scotland, Wales and Northern Ireland.² So the Supreme Court of the United Kingdom is indeed a constitutional court of sorts, albeit on the Anglo-American rather than the continental model.

The task is not entirely new to us. The Law Lords in the House of Lords, and now the Justices of the Supreme Court, also sit in the Judicial Committee of the Privy Council. This was the final Court of Appeal from the whole of the British Empire. While appeals still came from federal states, such as Canada and Australia, there were cases about the distribution of powers between the federal and provincial Parliaments. Now that all of the so-called 'old' Commonwealth countries and the larger new Commonwealth countries have given up the right of appeal to the Privy Council, we no longer get such cases. But we do get cases about whether the Acts of the national Parliaments of those countries which remain are compatible with their Constitutions. As the late Lord Bingham, senior Law Lord from 2000 until 2008, commented extra-judicially, it is ironic that we bequeathed a constitution to most of our overseas territories before granting them their independence, 'while continuing to regard such provision as unnecessary for ourselves'.³

In a case from Jamaica, for example, we had to decide whether it was constitutional for the Jamaican Parliament to legislate by ordinary Act of Parliament to do away with the right of appeal to the Privy Council and to substitute a right of appeal to the Caribbean Court of Justice.⁴ The right of appeal to the Privy Council was not an "entrenched" provision in the Jamaican Constitution. So at first sight the answer seemed obvious: they could do it. But the structure of the higher courts and the independence of their judiciary was entrenched. So,

the argument ran, how could it possibly be consistent with the Constitution to provide for a court which had none of the constitutional protection of those courts to be able to overturn their decisions? Such a change could only be made by a constitutional amendment with the required special majority. Somewhat to our surprise, we accepted that argument. The result is that the Privy Council is still the final court of appeal in both Jamaica and Trinidad and Tobago.

However, as every Law student knows, we did have one case in the House of Lords, in which we had to grapple with whether an Act passed by the UK Parliament was a valid Act of Parliament. This was the first of three cases we had which challenged the validity of the Hunting Act 2004.⁵ This challenge was directed, not to the contents of the Act, but to the manner of its passing. Luckily, no-one took the point that nine members of the House of Lords were being asked to adjudicate upon a bitter battle between the House of Commons and the House of Lords. It was certainly a cast-iron demonstration of the need to set up a Supreme Court separate from Parliament.

The Parliament Act 1911 provided that if a Bill passed through the Commons in three successive sessions, and was rejected three times by the Lords, it could be presented to the King and become an Act of Parliament on receiving the Royal Assent, provided that two years had elapsed between its second reading in the first of those three sessions and its passing the Commons in the third. But a Bill to prolong the life of a Parliament beyond five years could not be passed in this way. Part of the package was to reduce the maximum length of a Parliament between elections from seven years to five. The thinking was that to get through under the new procedure, a Bill would have to start its progress in the Commons quite soon after a general election, when the Government would still have a democratic mandate.

The Parliament Act 1949 reduced the timetable in the 1911 Act from three sessions to two and from two years to one. It was passed under the 1911 Act procedure. So it was argued in our case that the 1911 Act had delegated the power of Parliament as lawfully constituted – King, Lords and Commons – to the King and Commons alone. Legislation passed by the modified body was delegated rather than primary legislation. A delegate cannot use his delegated powers to enlarge those powers unless expressly authorised to do so. He cannot pull himself up by his own bootstraps.

None of us had much difficulty in rejecting that argument. The 1911 Act did not delegate power. It created a new way of passing Acts of Parliament. The language was quite explicit: Bills passed under that procedure would become Acts of Parliament. The legislature had redefined itself. A distinction has to be drawn, as Lord Steyn put it, between what Parliament can do by legislation and what Parliament has to do to legislate.

But are there *any* limits to what can be done under the Parliament Act procedure? The Court of Appeal thought that it could not be used to make fundamental constitutional changes to the relationship between Lords and Commons, such as abolishing the House of Lords.⁶ None of us agreed with that. The 1911 Act had been passed in order to do two very fundamental things – to establish

home rule for Ireland and to disestablish the Church in Wales. But most of us (apart from Lord Bingham) thought that it would not be possible to get round the prohibition on using the 1911 Act procedure to prolong the life of a Parliament by passing two Bills – one amending the Parliament Act to remove the prohibition and then one to extend the life of Parliament. An Act designed to reinforce democracy by preventing the unelected House from thwarting the will of the electorate ought not to be used to enable the elected House to do so.

Lord Steyn thought that there might be other limits to what Parliament can legislate about:

‘In exceptional circumstances involving an attempt to abolish judicial review or the ordinary role of the courts, the Appellate Committee of the House of Lords or a new Supreme Court may have to consider whether this is a constitutional fundamental which even a sovereign Parliament acting at the behest of a complaisant House of Commons cannot abolish.’⁷

There are some words in brackets in my own opinion to similar effect.⁸ And Lord Hope was prepared to say that:

‘The rule of law enforced by the courts is the ultimate controlling factor upon which our constitution is based . . . the courts have a part to play in defining the limits of Parliamentary sovereignty.’⁹

Lord Bingham later commented, in his book on the rule of law, that there was no authority for these propositions, which he regarded as heretical. In his view, the judges did not invent the principle of Parliamentary sovereignty, which was the product of the constitutional upheavals of the 17th century, and it was not open to the judges to change it.¹⁰

But, as I have already said, it is open to Parliament to change it. When the UK entered what was then the EEC in 1973, it had already been established that (within its sphere of competence, which was at that time much narrower than it is now), the community legal order was a higher legal order than those of the member states. It was necessary to the functioning of the common market that community legislation be interpreted and applied in the same way throughout the community. So the final courts of the member states have an obligation to refer to the Court of Justice in Luxembourg any question of community law which is relevant to the case before them, has not been authoritatively ruled upon already, and is not ‘acte clair’ – that is, the answer is so obvious as to leave us in no reasonable doubt that this is how the law would be interpreted by the court and the other member states.¹¹ Once the answer comes back from Luxembourg (usually two years later), it is for us to apply it to the facts of the individual case. The coercive power to make decisions which are binding upon the government and the people of the United Kingdom remains with us: a neat solution.

A recent example is a case about part time judges’ pensions. EU law forbids unjustified discrimination between the terms and conditions of full time and part time workers. But are judges workers? We referred that question to Luxembourg,¹² which basically said that it was a matter for national law, but if they generally

worked and were treated like workers, then they were workers.¹³ So it was then up to us to decide whether the denial of pro rata pensions to part time judges who were doing the same work as full time judges could be justified. We held that it could not.¹⁴

The 1972 Act also gave the courts the duty to give priority to Community law. We do this in two ways. The first is by 'conforming interpretation'. Wherever possible UK laws have to be interpreted in conformity with EU law. It is amazing how much can be done in this way. Hence the Regulations giving effect to the Part Time Workers Directive had to be interpreted and applied so as to include part time judges even though they were expressly excluded. That was easy because it was in Regulations and not an Act of Parliament. But sometimes it is simply not possible. So if the EU law in question is one which has direct effect, in the sense of giving the citizen rights against the state, then even an inconsistent provision in a UK Act of Parliament has simply to be ignored. If fundamental rights are concerned, we may even have to do this in disputes between private persons.¹⁵ Even where EU laws are not directly applicable or effective in this way, there is still a presumption that Parliament intends to legislate compatibly with our obligations in international law.¹⁶

The position under the Human Rights Act 1998 is quite different. That Act has given us the equivalent of the Bills of Rights which almost all written Constitutions elsewhere in the world contain, but not the same power to declare incompatible laws invalid. The Act translates the rights guaranteed by the European Convention on Human Rights into rights protected by United Kingdom law. It is unlawful for a public authority to act in a manner which is incompatible with those rights. That includes the courts.

Our relationship with the European Court of Human Rights in Strasbourg is also quite different from our relationship with the Court of Justice of the European Union in Luxembourg. The Strasbourg court is not a court of appeal from us. If we decide that a person's rights have not been violated, he can complain to Strasbourg that the UK has not complied with its international law obligation to give him what the Convention requires. If Strasbourg finds in his favour, the UK may have to pay him some modest compensation. But our decision remains the decision in the case and the law remains the law unless and until the UK changes it.

So the European Convention on Human Rights is not a higher legal order which has to be enforced in the United Kingdom courts even in the face of incompatible UK legislation. As with European Union law, the Human Rights Act imposes upon us a duty of 'conforming interpretation'. Wherever possible, legislation has to be read and given effect compatibly with the convention rights.¹⁷ This can achieve a lot. In *Ghaidan v Godin-Mendoza*,¹⁸ for example, a majority of the Law Lords felt able to interpret 'living together as husband and wife' (in the Rent Act provisions about succession to statutory tenancies) to include a same sex couple. It was the nature and quality of the relationship, rather than the complementarity of gender, which was the essential characteristic.

But sometimes it is not possible to do this. In such a case, we have power to make a declaration that the statutory provision in question is incompatible with the convention rights.¹⁹ This does not affect its validity in UK law or the validity of things done under it. The Government then has three choices. First, it can promote a fast track remedial order to put things right. This is appropriate when it is a relatively simple matter. For example, after we had declared that the inability ever to be taken off the sex offenders register was incompatible with the right to respect for private life, the Government used this procedure to provide a way in which sex offenders could eventually apply to be removed from the register.²⁰ They did so even though the prime minister questioned the sanity of our ruling. Second, it can promote an Act of Parliament to put things right. An example is the control order regime introduced by the Prevention of Terrorism Act 2005 in response our declaration, in the ‘Belmarsh’ case,²¹ that the indefinite executive detention of foreign (but not home-grown) suspected terrorists was incompatible with the Convention. Thirdly, however, they may do nothing. But of the 19 declarations made in the 14 years since the Human Rights Act came into force, only one has not (yet) been put right. This is the ban on all sentenced prisoners’ voting, which remains the law despite adverse decisions in Strasbourg and a Scottish court’s declaration of incompatibility.²² Thus the Act preserves Parliamentary sovereignty. If adverse consequences there be for the UK, they are adverse consequences in international law, not in the law of the United Kingdom.

This being the case, how much notice should we in the courts take of the Strasbourg case law? We do not have to follow it, although the Act requires us to take it into account.²³ But the whole purpose of the Act was to ‘bring rights home’, so that UK citizens would not have to go off to Strasbourg to have their rights vindicated. So we have generally taken the view that if it is clear that the claimant would win in Strasbourg, we ought to follow their line unless there is a very good reason not to do so. As the late Lord Rodger put it (through gritted teeth) ‘*Argentoratum locutum, iudicium finitum* – Strasbourg has spoken, the case is closed’.²⁴

Just occasionally, if we think that Strasbourg has gone too far, and has not taken sufficient account of local conditions in the United Kingdom, or the fundamental principles of our law, we have refused to follow their decision.²⁵ We refused to follow a chamber decision in the *Animal Defenders International* case,²⁶ where we upheld our very wide ban on paid political advertising in the broadcast media. By a narrow majority, the Grand Chamber in Strasbourg upheld us.²⁷ Both we and they took into account that this was a recent judgment of Parliament, consciously balancing the important right of political free speech, so essential to any democracy, against the equally important right to free elections, where the will of the people is freely expressed, and not subject to undue influence from those with the deepest pockets who are able to buy unlimited airtime.

More controversial has been the question of whether we should go further than the Strasbourg court has yet gone. In the famous case of *Ullah*,²⁸ Lord Bingham said that it was the task of national courts to keep pace with the Strasbourg jurisprudence as it develops over time: ‘no more, but certainly no less’. To what extent

does that also mean 'no less, but certainly no more'? There are cases where we have certainly done more. In *Limbuela*,²⁹ for example, the House of Lords held that it was inhuman and degrading treatment, contrary to article 3 of the Convention, deliberately to reduce some asylum seekers to utter destitution by denying them both any state benefit and the right to work. In other cases, where we think that Strasbourg has drawn a line in the sand, we have refused to go further than they have done unless and until they re-draw the line.³⁰ The saga of the duty of the Ministry of Defence to protect the human rights of soldiers serving in Iraq is a good example of this.³¹

But there are many cases which have not come before Strasbourg yet, and may never do so. So we have to make up our own minds about what the Convention rights entail, taking into account any principles developed in Strasbourg. A recent example is the *Cheshire West* case, which is about when a person with severe mental disabilities is deprived of his liberty.³² And there are some who say that we should feel no inhibitions about developing a distinctively British view of the Convention rights, as this is what Parliament always intended that we should do.³³ Furthermore, by making them 'British' rather than 'European', they might become more acceptable to the British public. Some acute observers have noticed in our recent case law a marked tendency to stress that many of the Convention rights are already protected by the common law, which should be the first port of call for litigants wishing to assert those rights.³⁴

What of our relations with Scotland, Wales and Northern Ireland, where we have to rule upon whether the actings (to use a delightful Scottish term) of their national Parliaments and governments are within the scope of the powers which the UK Parliament has given them? Such questions come up in several different ways.

The devolved Parliaments and governments are not permitted to do anything incompatible with the Convention rights. Most devolution cases allege that they have acted incompatibly with those rights. This sort of challenge normally arises in a real, concrete case. If such a case arises in Wales or Northern Ireland, it will come up to us as an ordinary appeal from the courts of Wales or Northern Ireland. We have not, so far, had any case challenging the Acts of the Welsh or Northern Ireland Assemblies.

Civil cases can come up from Scotland in the same way. So, for example, the insurance industry complained that an Act of the Scottish Parliament expanding the liability of employers for asbestos related conditions was incompatible with the insurers' property rights.³⁵ The Damages (Asbestos-related Conditions) (Scotland) Act 2009 provided (with retrospective effect) that pleural plaques, pleural thickening and asbestosis constituted actionable harm, reversing the effect of a recent decision of the House of Lords which held that they did not.³⁶ The Supreme Court agreed that this was an interference with their property rights, but it was a proportionate means of achieving a legitimate aim. In doing so, it recognised that this was a matter of social and economic policy in which weight should be given to the judgment of the democratically elected legislature as to how the balance between the various interests should be struck. So the Scottish

Parliament is treated in the same way that the UK Parliament is treated, and not like a local authority, whose decisions are amenable to judicial review on much wider grounds.

But there is no right of appeal from the Scottish courts in criminal cases. This is because no such right existed when the Acts of Union were passed in 1707 and unlike England and Wales and Northern Ireland none has been enacted since. But devolution gave the power, at first to the Privy Council and now to the Supreme Court, to rule upon whether actions of the Scottish Ministers and Parliament are compatible with the Convention rights, including those in the field of criminal justice. This has, to say the least, proved controversial in Scotland.³⁷

But an Act of the Scottish Parliament or Welsh or Northern Ireland Assemblies may also be invalid because its subject matter is outside the scope of the powers which the United Kingdom Parliament has given to them. Under the Scotland Act 1998, everything which is not reserved to the UK Parliament is devolved, whereas under the Government of Wales Act 2006, everything which is not devolved is reserved to the UK Parliament. But this can lead to some tricky questions of demarcation and overlap.

*Martin v Most*³⁸ concerned an Act of the Scottish Parliament³⁹ which increased the sentencing powers of Sheriffs trying cases summarily (that is, without a jury) from six to 12 months' imprisonment. This applied to all offences, whatever their subject matter. But the effect was to increase the maximum penalty on summary conviction for driving whilst disqualified from six to 12 months imprisonment. This was contrary to the UK Road Traffic Act, which provides a maximum penalty of six months on summary conviction. Road traffic is a reserved area. So did this 'relate to' a reserved area? This is to be determined by reference to the purpose of the legislation, having regard to (among other things) its effect in all the circumstances.⁴⁰ The Supreme Court held that it did not relate to a reserved area. Its purpose was to relieve pressure on the higher courts in all kinds of criminal cases.

But an Act of the Scottish Parliament cannot modify a rule of Scots private or criminal law insofar as it is 'special to' a reserved matter.⁴¹ Lord Hope thought that the rule of Scottish law being modified was a rule of procedure and this was not 'special to' the reserved matter of road traffic. Lord Rodger thought that the rule of Scottish law being modified was the rule about the maximum sentence on summary conviction for driving whilst disqualified. This in his view was clearly 'special to' the reserved matter of road traffic. By a majority of three to two, with a Scot in each camp, the Supreme Court held that the Act was within the powers of the Scottish Parliament.

These were all cases of concrete review, real cases involving real litigants, coming up from the lower courts in the usual way. But the Law Officers in each part of the United Kingdom have power to refer Bills within four weeks of their passing by the devolved Parliaments to the Supreme Court, for us to rule upon whether or not they are within the scope of the Parliament's powers, before they are sent to the Queen for Royal Assent. This sort of abstract review is very new to us. We are not used to considering such issues in the round, rather than in the light of the facts of a particular case. Nor are we used to considering them without

the benefit of the views of the lower courts in Scotland, Wales or Northern Ireland as the case may be.

In fact, there have been no such references in relation to Bills passed by the Scottish Parliament. This may well be because the officials have been able to sort things out to the satisfaction of both the Scottish and the UK governments. It could also be because a reference by the UK government would be seen as a hostile act by the Scottish government and Parliament. Curiously, however, there have been no less than three such references⁴² since the Welsh Assembly obtained full legislative powers in 2011.

Two of these have been brought by the Attorney General on behalf of the UK government. The first was to the very first Bill to be passed by the Welsh Assembly, the excitingly named Local Government Bye-Laws (Wales) Bill 2012. The issue was whether the new procedures for making bye-laws on certain subjects in Wales took away powers from the Westminster government and if so whether this was merely incidental to or consequential on something which was within the competence of the Welsh Assembly, as local government is. The Supreme Court held that it was within the scope of the Assembly's powers.⁴³

The second was to the Agricultural Sector (Wales) Bill 2013, which reinstated for Wales the old system of controlling minimum agricultural wages in England and Wales which had been repealed by the UK Parliament. The question was whether it related to the subject of agriculture, which is devolved, or to employment and industrial relations which is not mentioned at all in the lists in the Government of Wales Act. We held that it did relate to agriculture, and it did not matter whether it also related to employment and industrial relations, and so the Bill was within scope.⁴⁴

The third reference is by the Counsel General for Wales (the Welsh Attorney General). It relates to a private member's Bill passed by the Welsh Assembly to make employers and their insurers pay the cost of NHS treatment for asbestos related diseases caused by the employers' breach of duty. The Counsel General thinks that it is within scope, but the Association of British Insurers thinks that it is not, partly because it interferes retrospectively with their property rights and partly because it does not relate to the devolved matter of funding for the NHS in Wales. We have not yet given judgment.⁴⁵

So we have human rights devolution cases and we have subject matter devolution cases. Both of these stem from the devolution statutes themselves. However, in the AXA case, although Lord Hope and Lord Reed ruled out the possibility of judicial review of Scottish legislation on ordinary administrative law principles, they did not rule out the possibility that it might be subject to review in exceptional cases on grounds other than non-compliance with the terms of the Scotland Act.

Lord Hope reasoned that the Scottish Parliament was not sovereign and section 29 of the Scotland Act did not purport to be an exhaustive list of the limitations upon its powers. After pointing out the power which a government elected with a large majority has over a single-chamber Parliament, he returned to the point he had made in Jackson (the Hunting Act case):

‘It is not entirely unthinkable that a government which has that power may seek to use it to abolish judicial review or to diminish the role of the courts protecting the interests of the individual. Whether this is likely to happen is not the point. It is enough that it might conceivably do so. The rule of law requires that the judges must retain the power to insist that legislation of that extreme kind is not law which the courts will recognise.’⁴⁶

Lord Hope has now retired from the court, but another Scottish Justice, Lord Reed, reached the same conclusion by a different route. The ‘principle of legality’ means that the UK Parliament cannot itself override fundamental rights or the rule of law by general or ambiguous words. It has to be specific. Nor, therefore, can it confer upon another body, by general or ambiguous words, the power to do so. The UK Parliament could not be taken to have intended to establish a body which was free to abrogate fundamental rights or to violate the rule of law.⁴⁷

The rule of law depends upon the courts being able to ensure that the government and public authorities stay within the limits of the powers which Parliament has given them. It is an essential part of the sovereignty of Parliament. The new constitutional roles which we have been given by the United Kingdom Parliament underline how essential an independent judiciary is in a democratic state. We may be unelected but we are not undemocratic. We are fortunate to live in a country where it is taken for granted that governments will respect and abide by our rulings, no matter how much they disagree with them. In return, the politicians and the people must be able to take it for granted that we will abide by our judicial oaths, to ‘do right to all manner of people, after the laws and usages of this realm, without fear or favour affection or ill-will’. We are not making it up as we go along.

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Baroness Hale is Deputy President of the UK Supreme Court.

In Search of Joseph Briggs – the English ‘Tiffany’: a memorable journey

DOUGLAS JACKSON

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In 1959 I joined a news agency in Manchester, and literally on my first day there I met an advertising man called Norman Potter; in due course we became great friends. In the mid-70s Norman had an abrupt change of career. He became a curator and took his family to live in the delightful Haworth Art Gallery in its own spacious Edwardian park on the outskirts of Accrington, an old mill town in East Lancashire.



Figure 1: Haworth Art Gallery (formerly Hollins House) which was built by the Haworth family of mill owners in 1909 and willed to the town of Accrington by its last owner Anne Haworth. It re-opened as an art gallery on 21 September 1921 – thirty years to the day after Joseph Briggs stepped ashore in New York (copyright: Haworth Art Gallery).

On the surface, it was like many another small town gallery; but this one hid a secret. On my very first visit Norman opened a large cupboard. Inside I saw the faint gleam of glass, silky smooth glass, and I began to make out vases and other objects in beautiful shapes and gorgeous colours.

“That,” announced Norman, “is Tiffany glass.”

Well, this was 1975. Tiffany glass had been off the arts radar, as you might say, for well over a generation. I'd never heard of it. So I asked him, “What's Tiffany glass?” And Norman told me about a larger-than-life American called Louis Comfort Tiffany, who back in the days of art nouveau, around a hundred years ago, was making some of the finest art glass objects the world had ever seen. There were vases and bowls and other household goods; stained glass windows and glass mosaics; and of course the one product that everyone knows - Tiffany lamps.

What I was seeing, he added, was the biggest collection of Tiffany glass in Europe, and one of the finest in the world – but practically nobody knew anything about it. And why? Because, explained Norman, when art nouveau went of fashion in the 1920s and '30s, so did Tiffany glass. In America they couldn't give it away, and in Accrington the collection had been hidden in its cupboard for more than thirty years.

“OK,” I said. “Sixty-four thousand dollar question: how did it get here?”

“Ah,” said Norman. “That was down to a chap called Joseph Briggs. And we know practically nothing about him. You're a journalist – you're supposed to be good at finding things out. Why don't you go and find out about Joseph Briggs?”



Figure 2: 1930s portrait of Joseph Briggs when he was in charge of Tiffany Studios

So eventually I did. For 25 years and more the search for Mr Briggs led me a merry dance up and down North America from Toronto to Miami, as well as around the UK; and these days of course into the far reaches of the internet. It's been a journey into the nooks and crannies of American archives, from census records and ships' passenger lists to dusty paper files that hadn't been opened for generations. On the way I met some extraordinary people who were happy to share memories and photographs and even the occasional artefact with an inquisitive Englishman.

The result is a book, first published in April 2015 and with a foreword by the antiques expert Eric Knowles. I have called it *Mosaic*, partly because Joseph Briggs made a speciality of this art-form, and partly, of course, because a mosaic is a complete picture made up of many tiny pieces – just like a life story. Because it sets the Briggs story in its relevant time and place, it takes in some of the most momentous events of the past two hundred years, from slavery to war; and it boasts a cast of characters as varied as Buffalo Bill, Bonnie Prince Charlie...and Alice in Wonderland.



Figure 3: Briggs' family homes (a) 1-7 Milnshaw Street, tucked under Accrington's famous curving viaduct. The whole row was owned by Briggs Snr., and Joseph was born at no. 3 in 1873. The row was demolished circa 1972 (copyright: Paul Francis Photography). (b) The Briggs house in Wood-Ridge, New Jersey, where Joseph lived with his wife and children from 1907. The house was the biggest in town, filled with Tiffany decoration and ornaments.

Joseph Briggs was born in 1873 into a comfortable, middle-class Accrington family, and served an apprenticeship as an engraver in the local calico printing industry. However, just like the modern movement of emigrants across Europe, in late Victorian times the goal was America, and in 1891 Joseph turned his back on a promising career in textiles and joined the millions of Europeans who crossed the Atlantic looking for a new life in the new world.

Completely by chance, on his first day in New York he met a cowboy called Seth Hathaway who worked in a Wild West show, re-creating the skills and excitement of the Pony Express service of earlier years. So Joseph joined the show as a menial worker, and probably spent up to two years touring with it.

In about 1893 he talked his way into Tiffany Studios, where after long years of experimenting Louis Comfort Tiffany was preparing to unveil his greatest triumphs, dazzling innovations that introduced the world to a range of products that would bring him universal and lasting fame. There is no doubt that Joseph was a very talented artist and designer and he was soon making his mark in Tiffany's highly creative company; in due course he was personally involved in some of its most sensational commissions. But there was more to it than that. For several reasons this quiet young man from the industrial North of England enjoyed a special relationship with the flamboyant millionaire glassmaker. He was Tiffany's personal assistant during the company's most spectacular and exciting period and intimately involved in the development of a wholly new art-form that to this day intrigues both connoisseurs and casual art-lovers alike.

There are also persistent rumours of connivance between the two men to hush up a scandal, a not infrequent occurrence in Tiffany's life at this time. Despite his fame and fortune Tiffany was well known as a man about town, a playboy who was

allegedly involved in several affairs. According to rumour, one of these was with a beautiful mixed-race woman from Virginia called Elizabeth Jenkins (1879-1959); and when she became pregnant Tiffany asked Joseph to marry her, in return for business and personal favours. True or not, Joseph and Elizabeth were married in March 1898 – a remarkable act at a time when mixed marriages, particularly between white men and black women, was virtually unknown in America, and still against the law in several states.

Whatever the truth, there is no doubt that Briggs was highly favoured within the Tiffany organisation: by 1901 he was managing the mosaic department, and when Tiffany retired in 1919 Joseph took over the business itself. As for Elizabeth Jenkins...remarkably, while her grandmothers were black slaves her great-grandfather was a Scottish Jacobite who fought with Bonnie Prince Charlie at the Battle of Culloden – and her great-great-great grandfather was the Earl of Aberdeen!

In due course Joseph and Elizabeth had six children, although their first son died in infancy. In 1907 they moved to Wood-Ridge, a pleasant town in New Jersey, only a few miles from Manhattan but a world away from that bustling metropolis. There Joseph built the biggest house in town and filled it with Tiffany decorations and ornaments. The Briggs also endowed a local church, which to this day boasts a large Tiffany stained glass window designed by Joseph in memory of his first son.

Sadly, when art nouveau gave way to art deco in the 1920s the company went into terminal decline, and in the 1930s Joseph had the unenviable task of closing down a business that was a shadow of its former self. He disposed of large stocks of glass for very low prices, and filed for bankruptcy in April 1932. However he also sent more than 130 of the finest art glass pieces ever made back to his home town in Lancashire, almost certainly to rescue them from oblivion. By then they were commercially worthless and almost an embarrassment to a once-prosperous community struggling with the social and economic problems of the Depression and the demise of the British textile industry. In Britain, this was the era of hunger marches and mass unemployment, and in Accrington the once-prosperous calico printing sector was in serious trouble.

A few pieces of Tiffany glass were displayed in the town's first museum, Oak Hill, a former manor house that surprisingly has links with one of the most famous characters in English literature¹. However, when Oak Hill closed the collection was sent to the Haworth art gallery and confined to its cupboard for the next thirty years. Joseph Briggs knew none of this: he died in New York in March 1937.

The value of the Accrington collection stayed very low for some years, but then in the 1960s came the renaissance of art nouveau – and Tiffany glass. Not surprisingly, dealers began to appear in the town waving open cheque books – but the council kept faith with Joseph Briggs and in January 1976 opened the first dedicated Tiffany room at the Haworth art gallery. Today the importance of the collection is fully recognized: it is extremely valuable and pieces are much in demand for international exhibitions.



Figure 4: A mosaic panel of sulphur-crested cockatoos created for an international exhibition by Joseph Briggs in 1909 (copyright: Haworth Art Gallery)

Two pieces from the collection epitomise this. A 'goldfish' aquamarine vase is one of only three in existence; a second is in Cuba while the third was sold at Sotheby's in New York in 2002 - for \$532,000. And a mosaic panel of sulphur-crested cockatoos, created by Joseph Briggs for international exhibitions in 1909, was valued at £50 in 1947 - and £600,000 on a recent BBC *Antiques Roadshow*.



*Figure 5: A Goldfish aquamarine vase in the Haworth Art Gallery collection
(copyright: Haworth Art Gallery)*

This would be no surprise to Joseph Briggs. Even while he was winding up the company and throwing away the glassware he told his children that one day the world would again recognise Tiffany for the genius he was. He was right, and today there is a continuing, worldwide fascination for the spectacular art nouveau glass by Tiffany that Joseph himself helped to bring to life.

As a result of my research, two unique items created when Joseph was in charge of Tiffany Studios were donated to the Haworth art gallery, and I brought them both back from America. A bronze bust of Joseph was donated by the late Neil Harrington, a Tiffany dealer from Florida. And a portrait in oils was given by Briggs' son, also Joseph (1914-1996), who unveiled it during a visit to Accrington in 1992.

Apart from a visit in 1901 Joseph Briggs never returned to England and information about him became sketchy and often erroneous as art nouveau and Tiffany passed into the dark years of obscurity. In my book I have tried to redress the balance, and to bring back to life a lad from Lancashire who was one of the most important - if unrecognised - artists and craftsmen of the American art nouveau period.



Figure 6: (a) Bust of Joseph Briggs, created when he was in charge of Tiffany Studios and marked "Tiffany". It was donated to the Harworth Art Gallery by the late Neil Harrington, a Florida collector; and (b) A portrait in oils of Joseph Briggs, donated to the gallery by Briggs' son, Joseph Jnr. ('Little Joe') who unveiled it during a visit to Accrington in 1992 (copyright: Lancashire Evening Post).

Note

- 1 Oak Hill house was sold to the town by Reginald Hargreaves (1852-1926), heir to a Lancashire textile dynasty, whose tutor at Christ Church, Oxford, was Charles Lutwidge Dodgson. At Oxford Reginald also met and courted Alice Liddell (1852-1934), daughter of the Dean of Christ Church and of course the eponymous Alice in the book that Dodgson as Lewis Carroll published in 1865. They were married at Westminster Abbey in September 1880.

*Douglas Jackson is a journalist and writer. His research into Joseph Briggs was greatly aided by the Winston Churchill Memorial Trust, which gives grants to enable British citizens to study their chosen subject abroad and to use their new-found knowledge for the benefit of the country. In March 2015 in the Trust's 50th year he was among the Churchill Fellows invited to a reception at Buckingham Palace – where they met HM The Queen. Mosaic is available in hardback and softback versions and can be ordered online from 2QT Limited (Publishing) at www.2QT.co.uk
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THE JOULE LECTURE
The Future of Nuclear Power

SUE ION

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The first two decades of the 21st Century have proved to be an unexpectedly challenging one for the Nuclear Industry and for Governments internationally. From the post millennium optimism of resurgence and the opportunities presented by the climate change challenges, to the reactions post Fukushima, the strategies being pursued across the globe are very different. They range from the very significant expansion in use of nuclear energy in China, India and Russia to the rejection of the technology by countries like Germany who had hitherto embraced it as part of their energy requirements. Even in Japan however there is a return to nuclear energy as a significant portion of that country's energy mix. Here in the UK we have seen a complete turnaround from a rejection of nuclear power as an important part of the energy mix in the late 1990's to a drive for nuclear power to be a much needed contributor to affordable, low carbon, secure energy for the foreseeable future.

The United Kingdom was a pioneer in the development of nuclear power and has experience of building and operating a wide range of commercial reactors, test reactors and demonstration facilities. It has developed a world class industry spanning the whole nuclear fuel cycle, and has a track record in design, construction and operation of a range of nuclear facilities. With suitable investment from both Government and Industry this experience can be leveraged to enable the nuclear industry to increase the generation of affordable low carbon baseload electricity to complement electricity generation from renewables, enabling Government's commitments to substantially reduce greenhouse gas emissions to be met. The same experience will also enable UK companies to secure an increased share of the global nuclear market, making a significant contribution to the growth of the UK economy.

Set in a global context, nuclear power will be an essential component in enabling greenhouse gas emissions to be curbed as the developing world increases its demands for energy in its drive for greater parity with the western developed nations, hitherto profligate in their exploitation of fossil fuel reserves. As the population of the earth continues to grow so does our inexorable demand for energy. It is essential this energy is increasingly sourced from low carbon technologies.

The world's population is predicted to increase by a further billion by the middle of the next decade and to approach 9 billion by 2050, dominated by growth in Africa and Asia. Manchester's 2011 Census indicted a population of 503,100. 1bn additional people therefore implies ~2000 cities the size of Manchester. Khayelitsha, the shanty development on the outskirts of Cape Town, is home for five million people and is without electricity. With the population we already

have, ~1.4bn are currently without electricity to power their lives. Whilst there is widespread recognition of the issue of climate change and the importance of reducing greenhouse gas emissions there is still a way to go to deliver what is necessary.

The UK enshrined into legislation through the 2008 Climate Change Act targets for reducing emissions but while the scientific justification for such legislation was clear, the engineering reality and practicality of just how it might be achieved was definitely not!

Electricity generation only forms 20-25% of the UK's energy drawdown, the bulk demands come from the transport sector and the use of gas and oil in the domestic and industry sectors. The majority of our electrical energy is still derived from fossil sources. Of the low carbon sources nuclear energy is by far and away the biggest contributor at ~20% with the various renewable technologies collectively providing up to a further ~20%. So in striving to meet carbon reduction targets we have to decarbonise our transportation and domestic and industry sectors with the implication of a doubling to trebling of our demand for electricity over the next 30 or so years, which must then be derived from low carbon sources

As a country we are disadvantaged by a number of facts: we only have a limited connection to the European grid, we have two large peaks of demand, one between 6.30 and 8.30 in the morning and the other between 4.30 and 6.30 at night and there is a large difference (30GW) between summer minimum and winter maximum demands.

A comprehensive study undertaken by the Royal Academy of Engineering in 2010 indicated that even if the maximum amount possible of renewable energy sources was installed and operated we would still need ~40GW additional nuclear generation and 40GW new fossil with carbon capture and storage to come close to achieving carbon targets and this was with 30% demand reduction. The basic conclusions were that there were no silver bullets. All of the low carbon technologies would be needed and there would need to be demand reductions across all sectors of the economy.

Extensively reported in the media, National Grid has already issued warnings of low margins for the 2015/16 winter in its energy Winter Outlook and indicated it will have to utilise 'contingency balancing services' to keep power on and raise capacity margin to acceptable levels.

As a pioneer of nuclear technology the United Kingdom has developed a world class industry spanning the whole nuclear fuel cycle, and has an impressive track record in design, construction and operation of nuclear facilities.

Following the implementation of a series of government measures to facilitate investment in new nuclear stations, the UK is on the cusp of a major programme of new nuclear build with plans by three consortia of international energy companies to build as many as twelve reactors of three different designs at five sites in the period to around 2030. This programme of new build coupled with the significant progress in decommissioning the UK's nuclear legacy, underpinned by world-class research and development provides the UK with strategic opportunities to regain its position among the world's leading nuclear nations.

In its 2015 analysis, the Nuclear Industry Association observed that a notable feature of the UK's current nuclear programme is the close cooperation between government and industry, and the degree of cross-party political commitment to the nuclear programme. This partnership between government and industry is exemplified in the 2013 Nuclear Industrial Strategy with both partners committed to working towards the successful delivery of domestic nuclear projects, and the benefits that will bring in terms of economic growth, skills, training and employment opportunities, supply chain development, R&D, and export opportunities. Across the globe, estimated investment in new nuclear construction totals \$1,200 billion by 2013, whilst estimated capital expenditure on decommissioning in the same period totals \$95 billion. The UK will be well-placed to capitalise on these global opportunities provided the momentum behind the longer term nuclear programme stretching beyond the initial phase of nuclear new build envisaged in the Nuclear Industrial Strategy I maintained.

The objectives of the strategy which sets out indicative milestones for the period 2030 to 2050, to support the expansion in domestic nuclear capacity, were reinforced post the 2015 election with the ongoing commitment to an expansion of the nuclear programme. These include the deployment of a combination of state of the art existing and new nuclear technology, such as Small Modular Reactors, and an associated life cycle capability enabling us to become a world leader in providing new stations with the underpinning fuel and waste management services and associated R&D. Investment in these future technologies will not only generate a better return to alternative energy sources, but will also bring huge commercial and industrial benefits to the UK.

The nuclear industry is already investing heavily in many areas and has committed to invest in others. However Government measures are still needed to address those areas where industry cannot make a compelling business case for investment. Once the Government has set the lead, industry investment will follow, as confidence in future technologies grows.

Support for advances in manufacturing capability are expected to position the UK in gaining a stake in component manufacture for current and future reactor designs. Extensive programmes of research have been proposed to fully utilise facilities like the Nuclear Advanced Manufacturing Research Centre, the National Nuclear Laboratory, the Culham Laboratories and British Universities to release their valuable contributions to the development of current and future technologies. Significant capital investment has been made in these and facilities such as the Nuclear Fuels Centre and Excellence and the National Nuclear User Facility but without the programme or revenue funding which has been sought in the comprehensive recommendations made by NIRAB (the Nuclear Innovation Research Advisory Board) we will fail to both deliver the required advances in technology and grow the next generation of subject matter experts. On the other hand, effective, targeted programmes of research utilising the investment which has been made in facilities will enable new manufacturing technologies and processes and an enhanced skill and capability base. This will create

valuable Intellectual Property for the UK, high value jobs, and furthermore attract international investment.

The feasibility of UK involvement in SMR development is being vigorously pursued with a comprehensive programme of analysis from technology choices, to siting, economic viability and scope for significant cost reductions in the resulting price of electricity from nuclear power plants. Ultimately it has to be demonstrated that a network of SMRs would provide smart, responsive and cost effective electricity to large industrial sites and the national grid and that SMRs could also be deployed on a huge scale overseas providing massive opportunities for UK industry.

Early decisions by Government on the options for the reuse of the UK's plutonium stockpile will also offer the UK a low-carbon energy source with the potential to offer power to the grid for decades to come.

Maintaining progress on the UK's national waste management and disposal programme will also deliver advances in waste management technologies, developing waste management capabilities for new fuel types, including fast reactor fuel. This would position the UK as a world leader in nuclear waste management, alongside its already proven, successful decommissioning programme.

With Government support and encouragement to a strong R&D programme and participation in international collaboration across the fuel cycle the UK will become a leading centre of expertise for fuel fabrication and reactor 'proof of concept', leading to major opportunities for the UK supply chain both domestically and overseas.

As a result of these measures companies in the UK supply chain, the UK nuclear regulators, and the academic and research communities will be enabled to grow significantly in skills and capability, making the UK the partner of choice in licensing and commercialising Generation III+, Generation IV and Small Modular Reactor technologies worldwide, holding a strategic position in the world's nuclear fuel cycle and becoming the supplier of choice for advanced fuels.

This is increasingly important given the growth of nuclear energy globally. There are currently 435 plants in operation, in 31 countries providing 14% of the world's power. 60 are being built in 13 countries notably China, South Korea, India and Russia. 137 are on order or planned: a further 295 are proposed. Significant further capacity is being created by plant upgrading and plant life extensions maintaining capacity. Some US plants have now applied for life extensions for 80 years.

By re-establishing our own industry and demonstrating a long term strategic commitment to nuclear power we will be opening up future prospects to rejoin the top table of nuclear nations and to significantly influence future developments on the global stage.

Dame Sue Ion FREng is Chair of the UK Nuclear Innovation Research Advisory Board (NIRAB) and a member of the Board of the Nuclear Industry Association. She represents the UK on a number of international review and oversight committees for the nuclear sector including the Euratom Science and Technology Committee which she chairs. She is the only non-US member of the US Department of Energy's Nuclear Energy Advisory Committee on which she has served since 2005. She had held a number of positions on the Royal Academy of Engineering's Standing Committees and Council over the last decade.

The Royal Pavilion: from farmhouse to fantasy

ANDREW BARLOW

12 January 2015

The Royal Pavilion, rather like Brighton itself, has never been quite respectable. Ever since the transformation of the building began in 1815 people have not known what to make of the Pavilion. To this day they struggle to contemplate what such an extraordinary building is doing sitting in the middle of an English seaside town .



Figure 1: The Royal Pavilion today.

In my view the only way to understand the Pavilion is to see it as the product of the imagination of one man. - a man who was supremely confident in his own taste or perhaps one should say who was indifferent to the opinions of others. The Pavilion must be seen as a fantasy, and one that was created from the most generalised concepts of the Orient. Whilst a number of the sources can be identified, we must not make the mistake of looking for accuracy or consistency in their usage. It should be seen as an arbitrary *mélange* brought together for maximum effect. We must think of the building as a theatrical stage, a setting for pleasure and display.

As the most personal of buildings, its evolution reflects George IV's own personality, idiosyncrasies and wishes. The changes in style and even the rejected proposals, vividly demonstrate the development of George's taste as he himself

grew from a young Prince of Wales to the Prince Regent and finally to King.

Contrary to popular myth Brighton was not invented by the Prince of Wales. Brighton was already Britain's largest seaside resort when George first visited in September 1783. Ostensibly the visit was arranged because his doctors recommended that the sea water would be good for his glands. However, like most of the Hanoverians, George enjoyed very bad relations with his father and was keen to get away from the stifling atmosphere of the court in London. It is significant that his first visit took place shortly after his 21st birthday when he would have achieved a degree of independence. The more relaxed atmosphere in Brighton and its proximity to London meant it was easy for him to escape to what he was to think of as 'his' town. It should perhaps go without saying that the townspeople of Brighton were delighted to have the young Prince of Wales, the most fashionable man in Europe, as a visitor.

On his first visits George stayed with his uncle the Duke of Cumberland. This I think highlights another aspect of George's relationship with Brighton. Not only could it be 'his' town but it was also somewhere he could be in opposition to his father. As George III disapproved of his brother the Duke of Cumberland the young prince's decision to visit him must be seen as some sort of gesture of defiance.

Perhaps inevitably, the Prince wanted a house of his own in the town. In October 1786 Louis Weltje, his Clerk of the Kitchen took a lease on what was described as a 'superior farmhouse', belonging to a local landowner Thomas Read Kemp. Weltje then leased it to the Prince for £1000 per year. Little is known about this building other than where it stood facing the Steine, a little to the north east of the narrow streets of the town.

Predictably it was not long before the Prince wanted something a little more to his taste. His nature was not to be readily satisfied and he soon decided to build. Building was to be one of the great enthusiasms of his life, and it is his vision that we see not only at the Pavilion, but also at Buckingham Palace and Windsor Castle. Usually there is a correlation between what George was able to achieve and the state of his finances. In 1786 his debts were a staggering £269,878 6s 7½d. This situation had to be resolved and after much bitterness a solution was found. By the spring of 1787 the King had settled another £10,000 on him and Parliament another £161,000 together with a one off payment of £60,000 to finish the work at Carlton House, the Prince's London residence. One can only speculate that the reason he used Weltje must have been to disguise the expenditure on the farmhouse.

This temporary improvement in his finances led in the spring of 1787 to the Prince engaging the architect Henry Holland to transform his original building. Importantly, Holland was already working for the Prince at Carlton House. As Holland was an architect closely associated with the Whig opposition the Prince's choice was in itself a very visible act of defiance against his father.



Figure 2. The 1787 Marine Pavilion

To the original single block of the farmhouse Holland added a circular drawing room – the Saloon – and a matching northern wing. He significantly increased the size of the building and produced a balanced neo-classical villa. It's known that Holland visited Paris in 1785 and the Marine Pavilion was undoubtedly inspired by the Hotel de Salm in Paris, begun in 1782. What is important is that the Marine Pavilion was in the most up to date fashionable French design which shows the progressive nature of George's taste at this time. To one critic it was '... correctly designed and elegantly executed....The tout ensemble of the Building, is, in short, perfect Harmony'. On the west (entrance) side there was a central Ionic portico which was matched in scale by a two storey domed saloon on the eastern side. Externally the Marine Pavilion was faced in Hampshire glazed tiles which gave the building a creamy stone colour, in sharp contrast to the predominantly brick and flint buildings of Brighton. They also allowed for very rapid construction meaning that the whole transformation could come about in an astonishing four months. Speed was undoubtedly an important factor for George. It still wasn't a very large building. The ground floor consisted of a Breakfast Room, Staircase, Ante Room, Drawing Room, Eating Room and Library. The only room we have a visual record of is the Saloon which was drawn by Rowlandson, showing a balanced neo-classical interior.

It is important to understand the original relationship between the Marine Pavilion and the town. The Prince's house was not constructed as a royal palace within its own grounds but rather as a seaside residence facing the fashionable Steine, close to the main London road. The subsequent reconstruction of the Pavilion by Nash would necessitate the purchase and demolition of the mass of adjacent buildings and the enclosure of the surrounding land.



Figure 3. The Marine Pavilion at the centre of fashionable society.

The Steine was the social centre of Brighton, with libraries, theatres and the best lodgings. The Pavilion did not face the sea. What the young Prince wanted was to be in the very centre of all that was happening. He wanted to see and to be seen. As the central valley leading to the sea the Steine was liable to flooding, in 1792-3 the Prince and his now-neighbour the Duke of Marlborough paid for a brick sewer to be built to relieve the problem. They were then allowed to enclose part of the Steine in front of their houses.

This marked the first stage of the gradual isolation of the Pavilion from its surroundings. Once started, this process continued as the Prince's conception of the Pavilion changed fundamentally – from a residence in the centre of town into a pavilion within its private grounds. This change was like many of the other changes, a reflection of the Prince's own change in circumstances as he matured from Prince of Wales, to Regent and finally to King. By the end of the 1790s his debts were a staggering £640 000 and it is no surprise that he looked to marriage as a means of easing his financial position. It is also not surprising that an access to new funds from 1795 led him to build again with renewed vigour.

In 1803 the next major transformation of the Pavilion estate began. William Porden's great stables were constructed in a style based on Indian sources. Exactly why George wanted an Indian inspired stable is not known but there must have been a great sense of excitement as new and detailed information about India started to emerge. William Hodges (Captain Cook's artist) had already published *Select Views in India* with its 48 plates in 1785 but perhaps the main stimulus was the return to England of Thomas and William Daniells in 1793. The sketches they had made there were published as *Oriental Scenery* in six folio volumes of 144 coloured aquatint plates between 1795 and 1808.



Figure 4. Porden's stable block

It is also worth mentioning that an interest in the Indian style might also reflect the growing economic importance of trade with India through the East India Company. It would have appealed perhaps as an elite style for a select group of cognoscenti. However, we should resist the sweeping generalisation that George wanted it simply because it was new. George's taste sometimes seems anticipatory, but the reality is more capricious and extreme or at least highly personal. The fashion for Indian taste was fairly short lived in contrast with the taste for Chinoiserie which had a much longer tradition in England. There are very few Indian inspired buildings in this country.

Porden was a relatively unknown architect to land such a high profile commission. He had been a pupil of S.P. Cockrell (the architect of Sezincote, begun c. 1805) so he was associated with a group of architects interested in Indian forms and was perhaps a more obvious choice than at first appears. Many of the sources of the huge stable block can be identified. The *structural* form is based on the Paris corn market but the *decoration* is based on Indian sources derived from the Daniells' works. The scalloped heads to the stable windows and stucco architrave are clearly Porden's interpretation of features seen on the Great Mosque at Delhi which was one of the Daniells' plates. Similarly, the main entrance from the Pavilion gardens, with its recessed arch within a square opening, must have come from this building.

To create his new stables the Prince faced many practical difficulties in purchasing the additional land. Not only was most of the land divided into relatively small independently owned plots, but the Prince's very presence had inflated

land values in what was now the most desirable part of town. At the same time that the stables were being built, a major change was taking place inside the Pavilion. The austere neoclassical interior of the 1787 Marine Pavilion was swept away. Writing many years later in 1838, Brayley, the sole authority, says that in 1802 the gift of Chinese wallpaper led to Chinese interiors in the Pavilion.

The long lasting appeal of Chinoiserie in the west is the subject of a paper of its own but, from the point of view of the Pavilion and of George, what is interesting is that at this time the vogue for Chinoiserie had waned. The Prince had already had a Chinese Drawing Room in Carlton House in 1790 so to turn again to this style twenty years later was a seemingly backward looking gesture. So why create something that was out of fashion? He may have been influenced by the construction of a Chinese Dairy at Woburn in 1789. But surely a more important factor was the publication of William Alexander's *Costume of China* in 1805. This new source of images perhaps stimulated new interest in what had become a moribund style. Perhaps it shows that George's taste was not led by fashion but was more personal.

For George, China still seemed to have held a particular fascination. Generalising somewhat, I think that part of the appeal was that China was so little known that it could appeal on many different levels. To some it was a land of polite society that produced finely-wrought articles which were brought back from China to the West – porcelain, silks, lacquerware, and tea. To others it was an unimaginably vast country which could only be ruled over by an all-powerful Emperor. That, in my opinion, is the key. At a time when the French Revolution had swept away many of the certainties upon which the ruling classes rested this apparently rock solid authoritarian rule must have appealed.

There was also a very pragmatic reason for George to look again at Chinese inspired design. Throughout his life George loved French decorative arts but France's declaration of war in 1793 had put them off limits. He famously told Lady Bessborough that he did not want his furniture to be accused of Jacobinism. The Chinese decorations installed at the Pavilion from 1802 were very much within the playful conventions of the style, combined with the strong colours of Regency taste. The surviving accounts of the Crace firm (who were responsible for the decorations) contain the familiar stock motifs of Chinese style. Bamboo, trilliage, fretwood, teawood and sophisticated colour combinations:

‘10 columns highly finished Scarlet ground to shafts, fully enriched with Purple and Dragons highly finished...with purple capitals and enrichments...the bases stone colour with ornaments and shadowed, the whole highly varnished...’

Paint effects are central to the whole effect which is exuberant, light hearted and somewhat crude with a strong theatrical feel to it. As the building of the new stables progressed, there was a considerable disparity in scale between the new stable block and the Marine Pavilion. Amidst talk of his horses being better housed than he was it was impossible that he would have been content just to

alter the decoration of the interior of the Pavilion. The Indian style of the stables would logically seem to determine the style for any proposed alteration to the Marine Pavilion; however, at the time it would have been perfectly acceptable for various 'exotic' styles to be intermingled just to create the most pleasing effect. As there was a Chinese transformation going on the inside of the Marine Pavilion why not produce a Chinese exterior? In the years between 1801 and 1805 Holland and Porden produced designs for just that. Neither came to anything but these abandoned designs demonstrate how fluid George's taste was as he searched for the ideal form to embody his changing concept of the Pavilion.

One set of proposals that was not taken any further but which was of great significance was the work of Humphry Repton (Fig 5).



Figure 5: Repton's proposal, west front.

In November 1805 Repton the most fashionable landscape gardener of his day was called in to suggest improvements to the gardens. The creation of New Road in 1806 allowed the original road which divided the grounds to be closed and the space between the Marine Pavilion and the Stables to be turned into a garden.

Perhaps wishing to gain the ultimate commission Repton produced his customary red book with designs not just for the gardens but for an entirely new residence as well, in an Indian style. His reliance on Oriental Scenery as a source is well known. 'I confess the subject (Indian architectural forms) was then entirely new to me, but from the good taste and accuracy with which he had observed and pointed out to me, the various forms of ancient Hindu architecture, a new field opened itself'. Repton said of his decision to use Indian architectural forms on the outside that "...the Chinese (style) too light and trifling for the outside...". One of the great mysteries is why he felt he had to incorporate the Marine Pavilion in

his design. He retains the east (Steine) front and simply clothes it with the stock motifs of Chinese design; an upswept roof and red columns.

The Prince was initially very enthusiastic, saying that Repton's work was 'perfect' and that he would have 'every part of it carried into instant execution...'. To the disappointment of Repton nothing came of the scheme, perhaps because of the poor state of the Prince's finances. The Stables alone cost £55,257 and as late as 1812 (four years after completion) some £11,000 was still outstanding. In detail the northern and western fronts of Repton's proposal are exclusively Mughal. Large portions are drawn almost unaltered from the Daniells' prints and therefore the sources are easy to spot. An example of what we might now think of as the insensitive use of source material is an aviary based on Hindoo Temples at Bindrabund [Brindaban] on the River Jumna.

To understand George's wishes from this time on we cannot overstate the importance of the events in France. It seems to me that George is now setting about to create a fantasy world to isolate him from an uncertain world. The events of the French Revolution were deeply shocking to him. His friend the Duc d'Orleans (now plain Philippe Egalite) had turned to support regicide and certain Whigs were ambivalent in their condemnation of the events. Was this where their calls for Liberty would lead? If anything the revolution in France strengthened George's desire for a certain concept of Monarchy. With Fox's death in 1806 the Prince's political enthusiasms lessened. By 1807 he declared himself 'not a party man'. From now on his reactionary political views and a general attitude to his position and role suggests nothing less than a Pre-Revolutionary world.

With his elevation to the Regency in 1811 George found himself ill-equipped with residences suited to his new rank but he was now able and determined to do something properly about the Marine Pavilion. Quite simply, the Regent now wanted something that was commensurate with his status. The architect who would bring this about was John Nash. On January 24 1815 Nash was instructed to visit Brighton to meet the Prince Regent's Private Secretary, Sir Benjamin Bloomfield.

With his appointment Nash continued with the idea of the Pavilion having an Indian theme.. Presumably for the simple reason that the stables are so dominant a structure. Although there can be no doubt that Nash was heavily indebted to the work of Repton it is not simply that he was stealing Repton's idea. Nash would surely have had nothing to gain from following a set of proposals that had already been, if not rejected, then certainly allowed to fall into abeyance. Writing several years later Nash said "it was therefore determined by H.M. that the Pavilion should assume an eastern character, and the Hindoo style of Architecture was adopted...'. Nash also faced the added difficulty of incorporating the existing Marine Pavilion as Repton had to in his proposal. One can only speculate that this was for speed.



Figure 6: Pavilion today showing Nash's transformation.

Nash tried to offset the size and dramatic shape of Porden's building by disguising the size of the Pavilion and one way of doing this was by creating a fantastic roof-line. He said that 'the turban domes and lofty pinnacles might from their glittering and picturesque effect, attract and fix the attention of the Spectator, and the superior magnificence of the Dome of the stables cease to be observed.' Others have noted that what Nash did was to deliberately throw up a complex roofline and one that is so provocative that it attracts the attention away from the relative simplicity of the overall form and overwhelms the Stables. The solution that was adopted was, it must be admitted, brilliant (allowing also that Repton thought of it first). Understandably, speculation was rife concerning how the building would look. On June 16 1817 the *Sussex Weekly Advertiser* remarked that 'the dome is to be raised considerably and the whole rendered more magnificent by the addition of wings in the form of pagodas'. Mughal India is the dominant inspiration, and some of the minarets, columns and windows are thoroughly Indian. However, other windows are more closely based on 18th century Gothic (Fig 7). The two drum towers behind the main domes are "castellated Gothic", and the upswept roofs which mark the ends of the building which contemporaries described as "pagoda roofs" are surely intended to be Chinese. The Indian style is an arbitrary amalgam of Hindu and Islamic based on the pictorial evidence. But the point surely is as that the Picturesque Movement allowed the use of styles other than

Greek and Roman, and what Nash was doing was combining disparate style, for the maximum stylistic effect.



Figure 7: Complexity of roof line.

These extensions and the transformation of the building are brought about through the use of the most innovative material available at the time: cast-iron. Nash clothes the central Saloon with a metal cage and this enables him to build upwards. In August 1818 the Prince Regent visited Brighton in the company of 'several eminent architects' to witness the erection of the great dome over the Saloon.

Using cast iron supports to take the weight of the first floor he pushes the walls of the drawing rooms slightly further out to the east and on the opposite west front creates a new entrance hall and portico and pushes the building out in that direction. But he is still faced with a very incoherent building. The genius of Nash is in the way he unites the disparate shapes. One of the most simple features is the use of the *jalis*, a pierced stone screen, which is strung out over the length of the east front cleverly pulling together the differing components.

By 1822 a wildly original structure had emerged from the scaffolding. With such major rebuilding the interior had to be redesigned, as a number of the key rooms had been significantly altered. The interior underwent, within the space of six years, two distinct phases of decoration and these can be clearly seen in Nash's *Views of the Royal Pavilion* published in 1826. The first dates from 1815 and the second from the 1820s and reflects George's change in status from Regent to King.

In its final manifestation the dominant style was still Chinese, but Indian and other elements were now added as the building attained a new degree of complexity and sophistication. Most of the major rooms were designed by an 'Artist Decorator' called Robert Jones who first becomes involved in the Pavilion in 1815 to work alongside the Craces. Jones was responsible for most of the major rooms, the Banqueting Room, the Saloon, the Red Drawing Room and the King's new private apartments. Frederic Crace undertook the Music Room and the Music Room and Banqueting Room Galleries. The visitor arrived through a porte cochère and into the Octagon hall. This eight-sided space is pierced on three sides and so has a light feel to it. The ceiling is designed to look as though it is tented. It has the feel of a garden room and sets the light-hearted tone for the building. The oriental nature of the inside of the pavilion is hinted at by the inclusion of the small bells which hang from the ceiling. After this the Entrance hall is rather sombre with a rather cool shade of green. The decoration is adding-in richness and intensity as the visitor moves further into the building.

From the (relatively) low key Entrance Hall the visitor is plunged into the richness of the Long Gallery (Fig 8). This room clearly shows the two distinct phases, in this case of the work of Frederic Crace. Certain features from the 1815 design were retained such as the cast iron staircase, the chimney piece and the pink and blue wallpaper, but in the second schemes the Chinese banners and life-sized mandarin figures wearing real robes disappear. They are replaced with book-cases and a weightier chandelier from the Saloon and a carpet is fitted with a rich pattern of astonishing originality for the period.



Figure 8: Long Gallery today

The Banqueting Room (Fig 9) is one of the most astonishing and exhilarating rooms in the country and to this day it is hard not to gasp as you move from the Long Gallery into this room. It is a coup de théâtre, it is meant to surprise and it does. Structurally the Banqueting Room is the same shape as the corresponding Music Room, a domed box forty feet square with lateral extension, though the rooms differ in their support of the dome. The decoration is the work of Robert Jones about whom astonishingly we still know virtually nothing. The walls were hung with 11 large canvases of Chinese domestic scenes. Although they have an affinity with what one might call rococo chinoiserie they are here placed against a background of silvered dragons, waves and stars in a style which surely has no contemporary parallel. Hovering from the apex of the dome beneath the leaves of the plantain tree (some of which are three-dimensional) is a dragon. From its claws hangs a lustre some thirty feet high. The richness of the decoration is almost overwhelming and would have been significantly richer as the floor was covered with a hand-knotted Axminster carpet 'planned to the room' the design of which echoed the design of the walls and the ceiling creating a coherent whole which we have unfortunately lost.



Figure 9: Banqueting Room from Nash's View of the Royal Pavilion.

The wings either side of the Saloon in the Marine Pavilion formed two drawing rooms; the Banqueting Room Gallery and the Music Room Gallery. The final decorative schemes are white and gold. A visual pause for breath and dramatic change in scale. A look at the previous decorative scheme of the Music Room Gallery shows the change in mood. The 1815 Yellow Drawing Room with its Chinese export paintings pasted on the walls and seemingly surrounded by painted Chinese devices has a lightness and a spirit abandoned in favour of the

more restrained Music Room Gallery. It shows how tightly the whole building was controlled as a composition, as moods were carefully orchestrated. The Saloon is the core of Holland's building and so underwent various decorative schemes before the final form of 1822. In this room the Indian influence is at its most marked. It is a tightly controlled scheme with the walls, the furniture and the chimney piece all united by the frequent use of similar motifs. The present decoration is an unfortunate hybrid. The panels which remain would have contained pleated crimson silk rather than the Chinese wallpapers which refer to an earlier manifestation.



Figure 10: Music Room from Nash's View of the Royal Pavilion

Of the Music Room (Fig 10) perhaps all one can do is quote Brayley, 'No verbal description however elaborate, can convey to the mind or imagination of the reader an appropriate idea of the magnificence of this apartment; and even the creative delineations of the pencil, combined with all the illusions of colour, would scarcely be adequate to such an undertaking. Yet, luxuriously resplendent and costly as the adornments are, they are so intimately blended with the refinements of an elegant taste, that everything appears in keeping and harmony.' Whatever we may think of the room it is surely a world away from the light hearted and playful Chinoiserie of the earliest schemes. This is more akin to Imperial Chinoiserie. Such was the King's impatience that the Crace accounts refer to Mr Crace and 34 assistants working to finish the Music Room. A sum of £18 was paid 'for wax lights used in consequence of the great exertion required to complete the works'. It was rumoured that workmen earned the equivalent of 16 days wages within one week by working nights and weekends.

By 1822 the Pavilion was finished. With its completion George's interest rapidly declined. It is often said that for George the excitement was the creative process and once that was over he sought a new challenge, the remodelling of Windsor Castle and Royal Lodge. It is more complex than that though. As George's health failed he became in many ways an increasingly isolated figure. The period 1812-21 (almost exactly corresponding to the creation of the Royal Pavilion) was a period of popular disturbance, occasional rioting, a seditious popular press and repeated literary and visual attacks on the Prince Regent. He became the embodiment of an oppressive regime. In the end the lack of an estate at the Pavilion counted against it. As the King sought privacy he retreated to Windsor with its huge private park and for the last three years of his life he never returned to the Pavilion, his most personal of creations.

Andrew Barlow was the Keeper of the Royal Pavilion and head of conservation for many years.

Building Brains: bio-inspired massively-parallel computation

STEVE FURBER

3 February 2015

Introduction

It was just two years after the world's first stored program computer ran its first program at Manchester in 1948, that Alan Turing published his seminal paper on 'Computing Machinery and Intelligence' in which he introduces his test for machine intelligence. Despite spectacular progress in the performance and efficiency of machines since Turing's time, we have yet to see any convincing demonstration of a machine that can pass his test. Perhaps the problems with true artificial intelligence are that we still really haven't worked out what natural intelligence is? Based on this view, we need to return to the source of natural intelligence, the human brain.

The SpiNNaker (Spiking Neural Network Architecture) project has been 15 years in conception and 8 years in construction, but is now ready to contribute to the growing global community (exemplified by the EU Human Brain Project) that is aiming to deploy the vast computing resources now available to us to accelerate our understanding of the brain, with the ultimate goal of understanding the information processing principles at work in natural intelligence. SpiNNaker is a massively-parallel computer system, ultimately to incorporate a million ARM processor cores with an innovative lightweight packet-switched communications fabric capable of supporting typical biological connectivity patterns in biological real time.

Turing in Manchester

Turing came to Manchester in 1948 because Freddie Williams and Tom Kilburn had successfully led the development of the first machine - the Manchester 'Baby' - to implement Turing's big idea from the 1930s, the universal computing machine - what we now know as the stored-program computer. While at Manchester he was involved in programming the machine, and he became Deputy Director of the Computer Laboratory, but much of his research interest turned to understanding morphogenesis, the process whereby biological cells differentiate and specialise during the development of an organism. However, he did continue to make seminal contributions to computing, most notably in his 1950 paper entitled "Computing Machinery and Intelligence". In this paper he begins by considering the question of whether machines might be able to "think", turning this around into his "imitation game" that we all know simply as the Turing test for artificial intelligence.

In the paper he speculates on the advances in computer technology that might make this possible. Indeed, he predicted that by the turn of the century machines

might have a gigabyte of memory. Remember that this was just two years after the first programmable machine ran its first program using only 128 bytes of main memory – a remarkable extrapolation that turned out to be equally remarkably accurate, as it was around the turn of the century that a typical desktop PC would have had about a gigabyte of main memory. On the other hand, Turing felt that the Baby was quite powerful enough to pass his test – all it required was more memory, whereas by the turn of the century machines were perhaps a million times faster, had the greater memory, but still couldn't pass his test.

Although artificial intelligence has made great strides since Turing's time, underpinning the business of major corporations such as Google, progress towards Turing's goal of making machines think – so called 'strong AI' or 'Artificial General Intelligence' – has been slower than many expected. My take on this is that the problem is that we don't yet have anything approaching a full understanding of natural intelligence, so it is very hard to imitate it in our machines. This is why my research interests have come back to focus on the seat of natural intelligence, the human brain.

Sixty-three years of progress

The machine that drew Turing to Manchester – the Baby – was the first operational stored-program computer. It was constructed using standard Post Office racks which stood about 2m tall, and it occupied seven such racks. It consumed about 3.5 kW of electrical power, with which it could execute around 700 instructions per second, so it used about 5 Joules of energy per instruction.

A more recent Manchester machine, the SpiNNaker chip (about which more later), occupies a few square millimetres on the surface of a silicon wafer (Fig. 1), and consumes around 40 mW while executing 200 million instructions a second. This corresponds to 0.000000002 Joules per instruction.

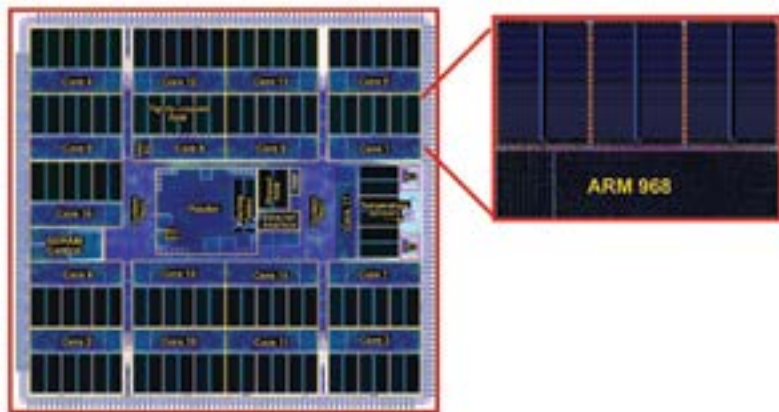


Figure 1: The SpiNNaker chip. The chip is 1 cm square and incorporates 18 ARM968 processors each with local memory, as illustrated to the right of the figure.

Comparing these two measures of computational energy-efficiency gives a measure of the progress in the efficiency of computers over the 65 years that separate these two machines – an improvement by a staggering factor of 25 billion! This progress is one of the factors that enable powerful computers to be built into small hand-held devices such as smartphones, powered by light batteries. The scale of this penetration of computing into everyday life can be seen in the fact that ARM Ltd, who design most of these mobile processors, announced early in 2015 that over 60 billion of their processors had been manufactured – that’s about 10 computers for every human on planet earth.

Computers everywhere

The ubiquity of computers is not simply a consequence of their efficiency, but also of their utility. Over the last few decades we have learnt how to turn many of the things we care about – music, photos, movies, TV, etc., into numbers that can be manipulated by a computer. This hasn’t been an easy journey – I remember debating with my colleagues in the late 1980s whether it might ever be possible to store a music track in solid-state semiconductor memory. But such has been the progress, both in music compression technologies and in the capacity of semiconductor memories, that I now carry my entire CD collection in solid-state memory on my mobile phone, for no particularly good reason other than that I can!

In order to build effective computers we need to maintain a balance between the processing, storage and communication capabilities of the systems we build. In the early days of computers, storage was the main challenge; indeed, the Manchester Baby was built primarily to test a new idea for digital storage – the cathode ray tube memory – and ending up with the world’s first stored programme computer was a serendipitous outcome of the chosen approach to testing the memory rather than an objective in its own right. Today communication is often the limiting factor, whether it is to do with moving data on and off the processor chip or satisfying the huge demands for Internet data from smartphone users.

Brains

With the spectacular progress in computers over the last half century, but limited progress towards human-like machine intelligence, my interest has turned towards seeing if we can use the computer power now widely available to accelerate our attempts to understand more about of the human brain. This organ, upon which we all so critically depend, remains a scientific mystery. We know a great deal about neurons – the brain cells from which the brain is constructed – and about synapses, the connections that allow signals to pass from one neuron to another. But we know very little about how information is stored and retrieved in the brain, or even about how it is represented as it passes from one brain area to another. Although brain imaging devices show us in increasing detail how activity moves around the brain in response to certain stimuli, we have no instruments that can see the intermediate levels between bottom-up neuroscience and top-down imaging, and yet it is in these intermediate levels that all of the information processing, storage and communication takes place. The only tool that we

can bring to bear at these intermediate levels is the computer model. Of course, these models are informed by the very important results from research in neuroscience and brain imaging, but they synthesize those results into new structures where the computer can be used to test hypotheses about the higher levels of brain function.

Building brains

Although computer models of brain regions can run on conventional machines, from desktop PCs through to high-performance parallel computers, these platforms are not ideally suited to this application domain. The mismatch is a result of the brain having enormous numbers of neurons acting in parallel, each sending small amounts of information to many other neurons. The scale of the modelling problem indicates a need for massively-parallel computers, but the communications in those computers are optimized to convey relatively small numbers of relatively large data items, as opposed to the large numbers of small data items required for brain simulation.

As a result, there is significant interest around the world in building hardware and software systems better tuned to the brain-modelling problem.

The SpiNNaker project

Here in Manchester we are developing the SpiNNaker (Spiking Neural Network Architecture) machine for brain modelling applications. SpiNNaker is a massively-parallel computer ultimately to incorporate a million ARM microprocessors – these are the energy-efficient processors that you will find in your phone rather than the higher-performance but less efficient processors that you will find in your desktop PC.



Figure 2: A SpiNNaker circuit board incorporating 48 chips, totalling 864 ARM processors.



Figure 3: A 19-inch rack incorporating 120 SpiNNaker boards, totalling over 100,000 ARM processors.

SpiNNaker has been designed from the silicon upwards. It uses a custom microchip that incorporates 18 ARM processors and a communications router. This microchip is packaged with a standard memory chip to give a component that can be used to build large machines in a highly scalable way.

The key innovation in SpiNNaker is in the communications. Neurons communicate by spiking, where a spike is a pure electrical impulse event that conveys information to other neurons only in its timing. In SpiNNaker, each spike becomes a small data packet that flows around the machine from the chip where the spike was generated to all of the other chips that contain models of the neurons to which the spiking neuron connects. All the data packet contains, apart from 8 bits of management data, is a 32-bit identifier of the neuron that spiked. This uses a form of neural communication known as Address Event Representation (AER), but on SpiNNaker AER is implemented using a packet-switched fabric, which is like a very lightweight version of the Internet.

SpiNNaker packages have been assembled onto circuit boards (Fig. 2), each board holding 48 packages or 864 ARM processors, and boards assembled into systems. The largest system assembled so far has 120 boards with over 100,000 processors in a single 19-inch rack (Fig. 3). 10 of these racks will ultimately be connected to form the million-processor machine.

On SpiNNaker, the equations describing the neurons and the synaptic

learning rules are implemented in software, so there is a high degree of flexibility in these aspects of the model. This has been exploited to implement stochastic neurons, for example to solve Sudoku puzzles. The real-time performance of the machine also makes it highly-suited to use in robotics applications.

The dawn of cognition

The growing interest world-wide into research focussed on emulating and understanding the brain comes at a time when there are significant parallel developments in machine cognition. Machines are increasingly equipped with sensors and actuators that allow them to make sense of, and interact with, their environment. Examples much in the news include driverless cars, and less newsworthy but far more common, cars with extensive driver assistance features such as automatic front collision avoidance, automatic motorway lane following and such like. A new generation of robotic vacuum cleaners is arriving, for example from Dyson, and these use far more sophisticated sensory apparatus than do their predecessors.

The brain is, of course, the control system that biology has evolved to take sensory input and convert it into actuator outputs. As we understand more about information processing in the brain this will likely transfer across into the design of cognitive machines and accelerate progress in that domain. This will lead to a very different form of engineered technology from what we have so far had to deal with, with potentially very complex ethical and practical consequences.

Conclusions

Computers have come a very long way in just over half a century of development, and have become ubiquitous and indispensable in many areas of modern life including education, business, healthcare, education and transport. But despite this progress, machines still struggle to do things that brains find easy, so attention has turned back to using the formidable computer power now available to accelerate our understanding of information processing in the brain. This research has potential benefits both in improving the treatment of diseases of the brain, and in enhancing the capabilities of our machines. The SpiNNaker project at the University of Manchester is developing a massively parallel computer specifically to contribute to this global effort to understand the inner workings of the brain, and it is already attracting a world-wide base of users who find its low power, programmable flexibility and real time performance make it particularly suitable for a range of applications in the brain-modelling domain.

Further reading

1. 'To Build a Brain - getting to the bottom of how our brains work is a monumental task, but some innovative computational tricks and a million ARM processors could help', Furber, S., *IEEE Spectrum* 49(8), (August 2013) pp. 44-49.
2. 'The SpiNNaker Project', Furber, Steve B., Galluppi, Francesco, Temple, Steve and Plana, Luis A., *Proceedings of the IEEE* 102(5), (May 2014) pp. 652-665.

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THE PERCIVAL LECTURE
*Revisiting Participation in Higher Education:
Idealism or Pragmatism?*

MYSŽKA GUŽKOWSKA

3 March 2015

Introduction

At the beginning of the last century, when the Northern Powerhouse was a smoky reality rather than today's digital aspiration, the total number of students in all of Britain's universities was barely half the number presently at Manchester Metropolitan University. Then, there were fewer than twenty universities and now there are more than a hundred and fifty. Now our students come from all parts of society and from all over the world but a hundred years ago access to higher education was a right of passage for the privileged.

The three decades prior to the First World War saw accelerating social change. The 1884 Reform Act had granted the right to vote to all men over 25 and the 1902 Education Act had, together with the introduction of scholarships in 1907, improved access to secondary education. The introduction of pensions for over-70s in 1908 and the National Insurance Act of 1911, together with other labour-related legislation, changed the situation of working people just as the election of 29 MPs of the Labour Party in 1906 changed the political constitution of Parliament. The purpose of this article is to explore how higher education (HE) has changed to include an increasing proportion of the population in the subsequent century.

Modern Universities and the Industrial Revolution

Many of our modern universities trace their origins back to the Industrial Revolution. Manchester Metropolitan University, for example, though only achieving university status in 1992, traces its origins back to the Manchester Mechanics' Institution, which was founded in 1824, incorporating a large number and variety of different institutions and colleges to become the fourth largest UK university today with 38,000 students, offering courses across the whole range of the Arts and Sciences. It was the industrialisation of Britain two hundred years ago that gave the impetus to the drive for widening access to higher education. The Peterloo Massacre of 1819 is one of many examples of the clash of Enlightenment radicalism with entrenched conservatism that gave rise to the political repression that began with the Six Acts of 1820 and came to fruition in the Great Reform Act of 1832. This radicalism led to the founding of the Manchester Guardian and the seminal collaboration of Friedrich Engels and Karl Marx as well as the practical reformism that led to the founding of Mechanics' Institutes.

The Manchester Mechanics' Institute, claimed as a forebear by both MMU and Manchester University, was set up in 1824 as the result of a meeting at the Bridgewater Arms Hotel that agreed that an institution was needed

“for the purpose of enabling mechanics and artisans, of whatever trade they may be, to become acquainted with such branches as of practical application in the exercise of their trade. [...But...] not to teach the trade of the Machine-Maker, the Dyer, the Carpenter, the Mason, or any other particular business, but there is no Art which does not depend, more or less, on scientific principles, and to teach what these are, and to point out their practical application, will form the chief *objects of this institution.*”¹

Even at this early stage in the development of modern mass higher education it is clear that there were tensions between the various stakeholder groups. Shapin and Barnes argue² that the Mechanics' institutes were intended to exert a degree of social control over the emerging working class in the urbanised, industrialised world of the early Industrial Revolution but the beneficiaries of the education viewed it differently as evidenced in a statement by the 'operatives of Manchester' who said³: “We are anxiously looking for a new form of social organization, in harmony with the lights of the age.”

Mechanics Institutes, and other similar educational initiatives in the early part of the Industrial Revolution, were an attempt to manage three distinct but often opposing objectives. Firstly, there was a political need to direct the energies of the recently urbanised working class towards productive rather than revolutionary activities. Secondly, there was an economic need to improve the productive value of artisans and mechanics. Thirdly, and in keeping with radical liberal sentiments, there was also a purely altruistic desire to bring the benefits of a liberal education to a wider audience.

While attempts to resolve the effects of these needs into coherent and effective societal benefits may have been turbulent, they certainly created a process in which the curriculum changed because of the tension between the governors and the students; the composition of the student body changed to meet the needs of the growing economy and, increasingly, all the beneficiaries wanted greater involvement in the running of the institutes. This dynamic interaction between political, economic and personal needs that are themselves continually changing, is what has driven the development of higher education in Britain over the last two centuries and will continue to drive it into the future.

British Universities and Societal Change

Change has been constant; even the six universities founded before 1700 and collectively called the Ancient Universities have continued to grow and change, while the four Nineteenth Century universities have themselves gone through changes that have seen many of their constituent colleges become independent universities in their own right. The six universities founded between 1900 and the beginning of the First World War, collectively called 'the Red Bricks', were all

developments from earlier beginnings, as were the six, usually called ‘the Civics’ that were formed in the thirty years after the end of the First World War. The evolution of these twenty-two universities differs from all those formed subsequently in that, after the end of the Second World War, the State had largely supplanted locally oriented political, economic and social actors in the provision and management of health, welfare, education, transport and utilities. The effects of this can be seen in a graph of changes in the higher education participation index:

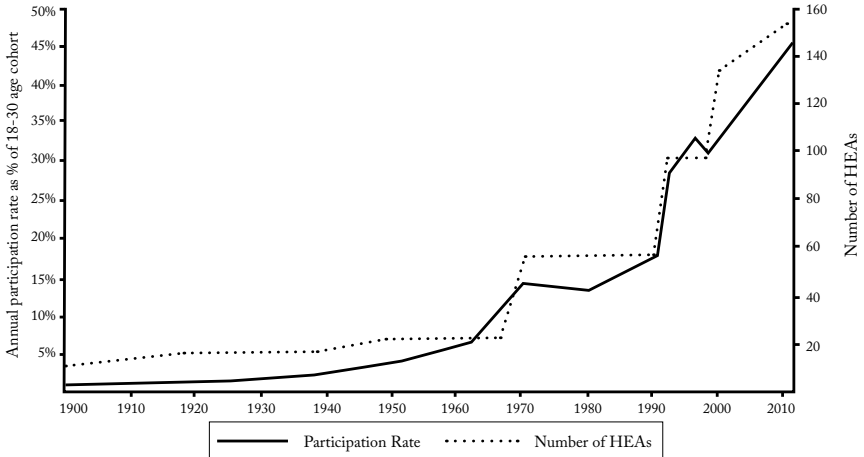


Figure 1: Participation Rates in Higher Education and Number of Universities 1900 to 2011.

Data derived from a variety of sources in several Higher Education Statistics Agency publications. For historical data, such as the Robbins Report, visit

www.educationengland.org.uk

Participation rates increased slowly but steadily between 1900 and 1960. The Robbins Report of 1963⁴ led directly to a more than doubling of university participation rates between 1965 and 1970 along with the creation of over thirty new ‘Plate Glass’ universities. The next major change came with the abolition of the distinction between Universities and Polytechnics in 1992 and since then a steady increase in the number of independent degree-awarding higher education institutions that has made higher education accessible to almost 50% of young people, involving more than two million students studying in a diverse range of settings from conventionally academic to work-based learning in partnership with employers.

The two world wars required an unprecedented mobilisation of not only military but also industrial resources. The replacement of men by women in many fields was a major factor in the emancipation of women after the first war and in the creation of the welfare state after the second. With regard to higher education,

the participation rate of university students grew fivefold in the sixty years up to 1960⁵ and tenfold in the subsequent fifty years. The enormous mobilisation of human capital that this represents is necessary to compete effectively in a globalised economic environment and is reflected in the supplanting of locally based interests by the State in the provision and management of higher education which has enabled nearly 2 million students to access higher education at the present time.

Removing the Binary Divide

The Government introduced specific strategic interventions to accelerate change in universities. One of the most important of these was Enterprise In Higher Education (EHE), which was an initiative funded by the Employment Department, and subsequently the Department for Education and Employment (DfEE), from 1987 until 1996⁶. Each of 56 Higher Education Institutions were, through a process of competitive bidding, awarded £1m each to develop an enterprising curriculum in direct response to pressure from employers, who were saying that universities were not producing graduates with soft skills, like teamwork, communication, leadership and project management skills.

EHE represented a very significant strategic intervention at a time when, critically, the UK Higher Education system was increasing from around 60 universities to more than 100 when, in 1992, the binary divide between Universities and Polytechnics was removed. The DfEE was careful to select HE Institutions from the entire sector to show that traditional academic resistance to equipping graduates with anything other than pure academic knowledge could be overcome. The selected universities responded very positively and led directly to the present environment where personal and employability skills have joined traditional academic attributes in the portfolio of a modern graduate.

During the 1990s, Government Departments distanced themselves from the implementation of policy by introducing Government Agencies, such as the Regional Development Agencies (RDAs), which, though they have since disappeared, represented a strategic approach to regional economic development that established higher education as a key stakeholder. The Agency for the HE sector in England (there were others for Wales and Scotland) was the Higher Education Funding Council for England (HEFCE). Agencification has proved not to be appropriate for all sectors but it has been reasonably successful for HE with the result that policy is set by government but implementation and oversight is delegated to the agencies. HEFCE's Business Plan⁷ for the period 2015-2020 begins with the statement that it "...aims to create and sustain the conditions for a world-leading system of higher education (HE) which transforms lives, strengthens the economy, and enriches society."

Looking more closely at HEFCE's aim it will be seen that the purposes are not simply concerned with the production and dissemination of knowledge, but address personal development and social objectives as well. In some respects these objectives reflect the concerns of those who established the Mechanics Institutes almost two hundred years ago because there is considerable emphasis on practical and directly relevant outcomes for both the student and their future employer.

Employability

A crucial aspect of HEFCE's aim concerns developing capabilities and fulfilling personal potential relating to employment after graduation that until recently was considered to be more appropriate for practically oriented and vocational types of education. The rapid advance of technology into all aspects of life has blurred, or even erased, simple distinctions between academic and vocational skills making the appropriate blending of these skills into a students' portfolio a necessity.

Since 1990 the changes in the development of students' personal transferable skills and their preparation for employment has grown from almost nothing to a huge and professional effort on the part of a large number of specialised staff in every institution. Indeed, we have been so successful at embedding these skills that the danger now is that students will not appreciate just how skilled they are.

The proof of success should be in the employability figures for graduates and HEFCE measures employability in its annual Destinations of Leavers from Higher Education (DLHE) survey six months after graduation. The survey has two primary measures; the first being whether graduates are in employment six months after graduating and the second measure is whether this employment is 'graduate level'. The most recent results are from the 2013/14 survey in which 424,375 of the 564,205 eligible graduates responded. The pie-chart below provides a simplified overview but it highlights the principle finding that two-thirds of respondents were in employment or undertaking further study six months after graduating.

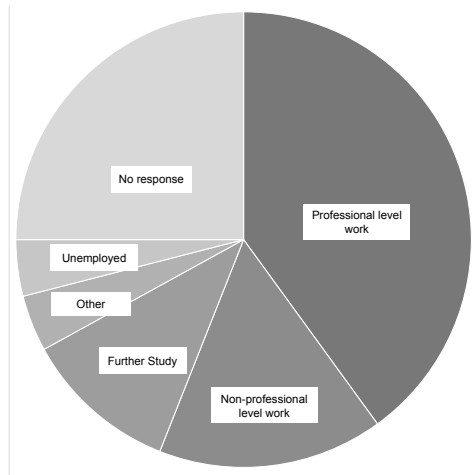


Figure 2: HESA DLHE Results 2013/14 Source: 2013/14 DLHE data from the Higher Education Statistics Agency; hesa.ac.uk

The general assumption is that non-responders would display a similar distribution to those who complied and therefore the overall balance would remain similar. The point to note, however, is that the 'other' and 'unemployed' categories

are relatively small and HESA notes that many of the ‘other’ category are taking time off to travel or gain experience. Also, it must be noted that an increasing number of students, especially in the creative and performing Arts, digital media and graphic design, fashion and entrepreneurs as well as those who go into self-employment or into graduate business start-ups, may well have to work their way up from lower level, non-graduate types of job.

An illustration of the complexity of graduate destinations is indicated in figures given by the Higher Education Statistics Agency (HESA) that took the DLHE figures for 2010/11 leavers and then followed up with a survey in November 2014.

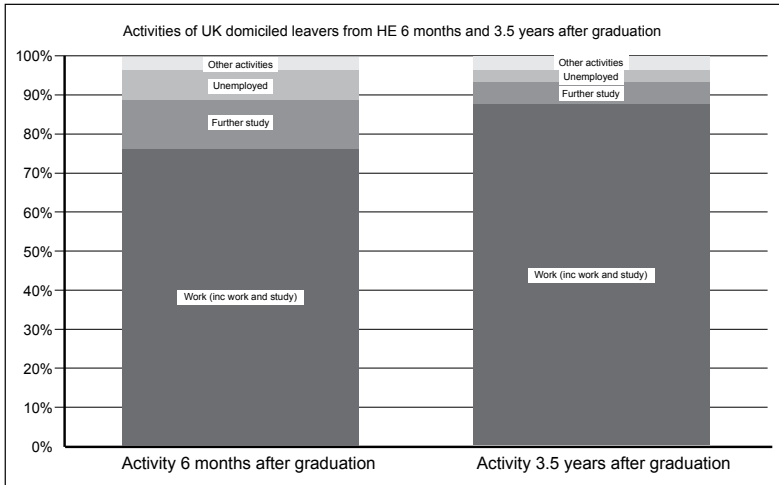


Figure 3: Activities of UK domiciled leavers from HE 6 months and 3½ years after graduation.
 Source: HESA Destinations of Leavers from Higher Education Longitudinal Survey, www.hesa.ac.uk/pr221

It will clearly be seen that further study translates into increased employment and that the proportion of unemployed falls dramatically from 8% to 2.6%. Equally clear is the indication that further study strengthens long-term employability prospects whilst turbulence at this early stage of a graduate’s career further complicates understanding of the career pathways of graduates as presented by a survey such as the DLHE.

Regional Development

These figures are especially important for Manchester and the North West. Students who come to the University of Manchester tend to be recruited nationally and to leave the region after graduation. Well over two thirds of the students at MMU and Salford, however, come from within the region, and want to remain, with the result that roughly 20,000 graduates every year become available to contribute to the regional economy. The role of the universities in facilitating this

contribution is crucial and most universities now align their own strategies with those of their city or region. For Manchester that is with the City Council and with the New Economy and Manchester's inward investment agency MIDAS, which between them deal with economic regeneration and inward investment. Universities will also be involved in the culture of their City through the galleries, museums and festivals that provide students with opportunities for learning, volunteering and work.

The Universities will also have developed strategic alliances with large employers in their region where the 'strategic fit' between the university and the organisation can be of benefit to both parties. For example, students can gain work experience or engage in real-world projects linked to their area of study. Increasingly, employees from those companies are also becoming engaged in work based learning through which they learn in the workplace, and that learning is then accredited towards an award, which may be a Certificate, a Diploma or even a Degree. Another example is in providing volunteering opportunities for students such as MMU's strategic partnership with Manchester City Football Club (MCFC) through which thousands of our students can be involved in volunteering in the community as MCFC strives not only to engage youth in football, but also to contribute to their communities. These kinds of partnerships are not easy to develop but the Manchester Universities have a good track record in this area with clear benefits for the employer, the student and the university.

Meanwhile, the government has been trying to encourage employers to become far more involved with higher education through a range of initiatives intended to engage employers as active stakeholders, but the uptake by employers has not been overwhelming. Despite real efforts by the Government to promote Business and Technology Education Council awards (BTEC), Higher National Diplomas (HND) and Foundation Degrees, employers tend to see themselves as the recipients of graduates rather than active stakeholders in their development. These different kinds of qualifications, although all designed to help students make an easier transition into university and the workplace, seem to have confused employers.

Government hopes that employers will get more involved with Higher Level Apprenticeships, which will go up to level 7 (Masters level). These should be attractive to all: students will have a job from the start and study part-time at university while being funded partly by their employers and partly by government, so they have no need for student loans. The curriculum is work-based, so the learning is relevant and contextualised, and the students will have a job at the end of their studies. MMU is actively involved in at least four pilots including Law and Accountancy, together with others in the areas of Digital Media and Chemistry. Others will almost certainly follow. Like those students engaged in work-based learning, these are different kinds of students for the university: they are part-time and are in work while studying.

A recent government initiative is to fund new sector-themed University Technical Colleges (UTCs), which are designed to involve employers and universities in the development of specialist curricula for 14- to 19-year olds. Each UTC

will be governed collectively by the employers, the university and local stakeholders. Each UTC will be linked to a specific employment sector and the UTCs will be the focus for developing the future skills that will be required to ensure that the sector continues to thrive. Some of the students would be expected to progress to their sponsor university, so MMU, for example, is linked to the UTCs at Crewe and Warrington, both of which are important to the economic development of the region for engineering, design and energy engineering respectively.

While UTCs are an important means of building partnerships with large industrial concerns it needs to be remembered that the North West has the highest number of Small and Medium-sized Enterprises (SMEs) in the country, of which a large number are micro businesses, and many are very successful enterprises. MMU has only just started to measure systematically the numbers of graduates entering SMEs, but we do know that the numbers are significant and increasing. Most universities now have Centres of Enterprise which nurture SMEs and start-ups, but the challenge is how to ensure that our students are properly equipped to engage effectively. Do they have the entrepreneurial and business skills to succeed in SMEs? Are they linked into the role models and mentors that have been shown through research to be critical success factors for small businesses and for start-ups? This area of University business is developing and growing, though there is a massive potential still to be exploited to ensure that the Universities' contribution to the regional economy, which is already significant, continues to grow.

Widening Participation and Diversity.

The government is concerned that universities should contribute to a culturally diverse nation, which appears at first glance to be a societal rather than an educational objective, including as it does the concepts of 'social inclusion' and 'diversity'. But think of this in terms of HEFCE's the overall aim to transform lives and enrich society and it becomes clear that universities must make a major effort to include those students who have the potential to benefit from HE but who, for whatever reason, do not come from social backgrounds where university entrance is a natural progression from school.

Perhaps the biggest challenge for universities is to create genuine equality of opportunity to access the benefits of higher education. Some recent data⁸ that looks at the destinations of 316,575 school-leavers aged 19 in 2012/13 gives a glimpse of the challenge of Widening Participation. What is interesting in the table below is the disparity between the most selective Higher Education Institutes (HEIs) (defined as the top third of HEIs when ranked by mean UCAS tariff score) and the remainder of the HE sector. Though Independent school pupils comprise 9% of the age cohort and pupils at selective state schools comprise 8% they between them take nearly 40% of places at the most selective HEIs but only just over 10% at the remaining HEIs. Thus a pupil at an independent or selective state school is three times as likely to go to one of the top third of HEIs while a pupil at an ordinary state school is roughly three times as likely not to go into HE at all.

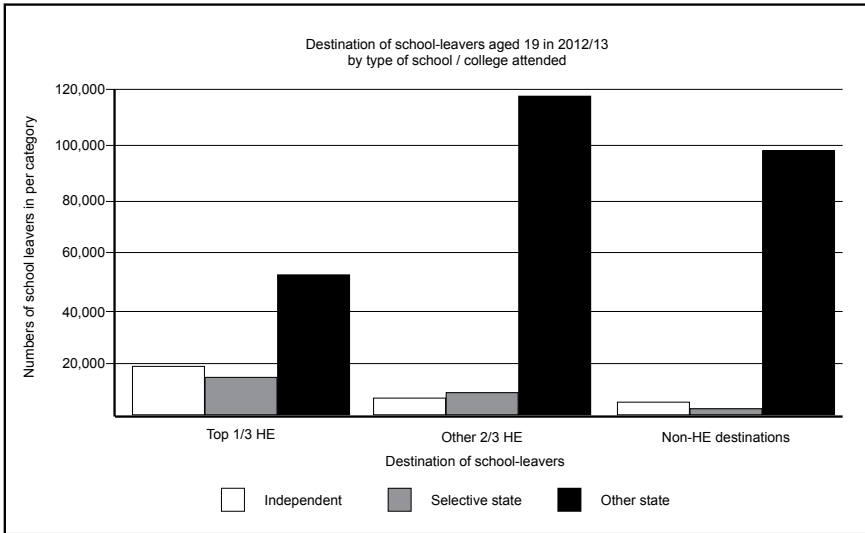


Figure 4: Destination of school-leavers aged 19 in 2012/13 by type of school/college attended.

Source: Department of Business, Industry and Skills; *Widening Participation in Higher Education*, July 2015, Table 3a

This is the crux of the problem facing higher education: how to ensure truly equitable access regardless of school attended, parental background or economic, social or geographical factors and has been the driver for countless initiatives. It must be said that there has been some success, but the root causes of inequality of opportunity are elsewhere than in universities.

Research shows that, while bursaries can encourage these pupils to overcome some of their fear of debt at the point of entering university, the real difference is made through university students reaching out into schools, acting as role models to raise aspirations and to change fundamental attitudes and behaviours towards coming to university. If this starts in primary school, it is even more effective than if it starts in secondary school. Thus, for pupils to progress to university they need to be exposed to aspirational role models throughout the whole of their schooling.

Reach-out to Schools, when aligned to specific discipline areas, can be immensely powerful. Really good national examples of success in this area include students studying Health, Social Work or Education going into schools to significantly increase the number of students coming from their surrounding disadvantaged communities to be health professionals and teachers, many of whom continue to work with those communities after graduation.

In Manchester, the universities work together in a partnership to widen participation by students from the disadvantaged communities in Greater Manchester. At MMU, this substantial activity involves staff and, most importantly, students,

who are trained to go into schools as student ambassadors and role models for pupils of all ages. In turn, this activity contributes to the personal development of MMU's students.

Universities are also making an increasingly significant commitment to their cities through the redevelopment of their campuses and student residences. MMU's new campus and student village at Birley Fields is now being used as a national case study because of its impact on the surrounding communities in Hulme, Moss Side and beyond. These campuses are aspirational to look at, they have no fences or gates and are open to the community such that they become part of the local cityscape which children see every day on their way to school, to the station or, into the city centre. The Health and Education Faculties on site at Birley Fields are actively involved in live community projects, while the community uses the facilities and university students go into the schools to act as role models for HE.

The contribution by universities to national cultural diversity is largely about encouraging students to look outwards, to improve universities' relationships with the wider world and to internationalise the curriculum for the benefit of all. Students need to be comfortable working with different cultures and one way of doing this is to attract students from overseas so that students can gain a better understanding of other cultures MMU attracts students from over 150 countries and, even though international students comprise only 4% of the total student body (the sector average is about 13%), they provide a rich asset for home students to mix and to learn about other cultures which is further enhanced by curriculum based collaborations on internationally based live projects using blended learning technologies.

But the real challenge for the UK is to encourage more of our students to broaden their horizons with overseas study or exchanges. For universities like MMU, it is even more important because so many of our graduates want to stay in the NW. A single life-changing experience overseas to learn how other cultures approach things could be the single most important thing that encourages them to think differently and which ultimately changes our regional economy from good to thriving. There are various barriers for students, including fear of debt, lack of languages, personal reasons for staying at home, being locked into annual accommodation contracts, and even, the structure of their degree programme, that can all be partially, or fully, overcome with careful planning and management. At present universities are doing much better at increasing the diversity of our student intake from the home market than they are at sending their students overseas.

Conclusion

Universities have traditionally been concerned with teaching, research and knowledge transfer while the more recent requirement that higher education should equip its students with all the intellectual, practical and interpersonal skills has transformed the student experience and value of graduates. These aspects of higher education are practical and are being dealt with pragmatically. The responsibility

to contribute to cultural diversity, especially the universities' role in improving diversity and social inclusion is far more idealistic in nature.

In most respects universities have tried to be inclusive and to open their students' eyes to the world beyond their own immediate experience. There is, of a course, a real and practical need to do this as the onward march of globalisation makes it ever more important that future generations of managers and leaders will have to deal with a greater range of cultural settings as part of their normal daily life than was even imaginable a century ago.

Many criticisms hurled at higher education still contain descriptors like 'elitist', 'middle-class', 'privileged' and so on, but that is far from the case nowadays. Universities like MMU are very aware of their responsibilities to prepare students for whatever career path they may follow and increasingly universities are diversifying the curriculum, working with a wide range of partners locally, nationally and internationally, to ensure that all graduates feel able to contribute effectively in whatever field they choose to follow. This is the practical and pragmatic side of higher education: building on our research and teaching skills to enthuse and empower our graduates. A large part of what we do is also pastoral and communal, working with a wide range of partners to reach out to help to transform lives and communities: this is the idealistic aspect of higher education and there is much more to be done if we are to provide genuine equality of opportunity.

In conclusion, I suggest that the role of higher education is necessarily practical and pragmatic, not least because universities are large and complex organisations and education and research are conducted within a regulated environment. But it is also always looking over the horizon seeking to discover new things, to create understanding, to question relentlessly: this is the idealism that drives academics and a good part of that idealism is wanting to make sure that no-one who might benefit is denied the opportunity.

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Murder, Insanity and the Story of the Oxford English Dictionary

BRIAN SCHNEIDER

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*This is a completely true story, though some events may strike the reader as unlikely or difficult to credit. Much of the material in the following pages has been adapted from Simon Winchester's book, *The Surgeon of Crowthorne*¹, but the present author believes the story deserves retelling.*

In November 1857, a paper was read before the Philological Society by Archbishop Trench, then Dean of Westminster, on 'Some Deficiencies in our English Dictionaries' the effect of which was to lead for a call for 'a new Dictionary worthy of the English Language'. In January 1859 an appeal was made to the English and interestingly to the American public to assist in the collecting of the raw materials necessary for the work, illustrating the use of English words by all writers of all ages and in all senses (Fig. 1)

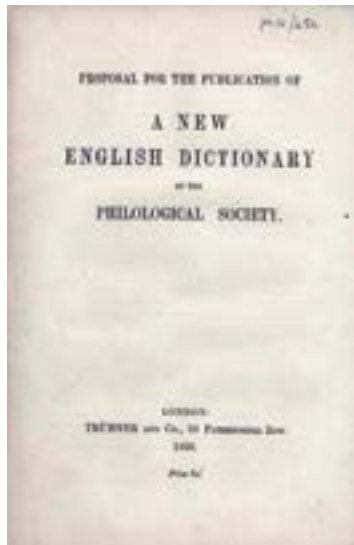


Figure 1: The 1859 Proposal for Readers

Such illustration would be accomplished by amassing quotations from books, articles, letters, diaries, manuscripts etc., each quotation being made to a uniform plan on a half-sheet of notepaper. Hundreds of volunteers began to read books, find quotations, and send in standard half-page 'slips' to sub-editors, each of whom volunteered to take charge of a letter or part of a letter. The volunteers would take

a slip, put the target word on the left and then the title, date and author of the book or article in which they had found the word. Below they would write out the full sentence in which the word appeared. This technique is still used by lexicographers today. It was this idea – the use of volunteers – which revolutionised the way dictionaries were compiled.

By the mid-nineteenth century many dictionaries were in print, but in Shakespeare's time there were no dictionaries as we recognise them today, though lists of words were occasionally published, usually dealing with one subject – medical terms, types of plants, law vocabulary, diseases and so on. If Shakespeare wanted a word, he had to pluck it from his own knowledge and memory, or adapt an existing word, or create a totally new word, a neologism. When he used the word 'bubble' he embellished the meaning by adding 'reputation' so that 'bubble reputation' describes perfectly the ephemeral nature of fame. Shakespeare himself describes his method as 'all my best is dressing old words new'.²

It was not until Samuel Johnson's *A Dictionary of the English Language* (1755) that a truly noteworthy, reliable English dictionary was deemed to have been produced. This was an astonishing feat of scholarship, undertaken by probably the only man in England at that time capable of such a task.³ In nine years, from 1746 until publication, Johnson collected and defined nearly 50,000 words, using thousands of quotations from authors, classical and contemporary, and thus laying a template for almost all future dictionaries. It was realised very quickly that the best way to illustrate a meaning was to use a quotation. The leaflet asking for volunteers, issued in 1859, was an acknowledgment of this.

Thirteen years after the appeal was launched – more precisely on Saturday 17 February 1872 – at around two in the morning, three pistol shots rang out on Lambeth Marsh in London and a man was found dead. In those days, and even up to recent years, Lambeth was a singularly unlovely part of London. It was known as a site of revelry and abandonment, with brothels and low theatres abounding. But its cheapness also attracted respectable men and by all accounts the victim, George Merrett, was one of these. A stoker for eight years at a local brewery, he was 34 years old and lived locally. With his wife and six children (and another on the way) to support, Merrett worked long hours and on that particular Saturday morning he was about to embark on the dawn shift. But that night he never reached his destination. As he passed the entrance to Tennison Street, a man shouted at him and appeared to start chasing him, yelling furiously. Merrett began to run in terror and when he looked back he saw the incredible sight of the man raising a gun and shooting at him. The first shot missed; Merrett tried to run faster, crying out for help. Another shot, and then a final bullet that struck him in the back. Doctors who examined Merrett later found a gaping wound in his neck and noted that his spine had been snapped. Two large calibre bullets had penetrated and killed him.

The man who had perpetrated this apparently motiveless crime was almost immediately apprehended by a constable, who found he was holding onto a tall, well-dressed individual of military bearing, who made no attempt to run or to use the smoking revolver in his right hand. He made one statement at the time,

in answer to Tarrant's question 'Whom did you fire at?' – 'It was a man. You do not suppose I would be so cowardly as to shoot a woman!' On arrival at Tower Street police station he became more communicative. His name was William Chester Minor, 37, and indeed he was a former army officer. He was also a qualified surgeon and had lived in London for less than a year. But there was a complication – he originated from America and had held a commission in the United States Army. Suddenly an international ingredient had been added to the stew and, as the South London Press put it later on: 'The light estimation in which human life is held by Americans may be noted as one of the most significant points of difference between them and Englishmen, and this is a most shocking example of it brought to our own doors'.

Apart from claiming that the killing was a mistake, Minor said very little and it was up to Scotland Yard detectives to find out about their prisoner. What they discovered was that Minor had been in an asylum in America after having left the army on the grounds of ill health. The American authorities told the British that he had a long history of frequenting such places as music halls, rough bars, and brothels. It was claimed that he had a prodigious sexual appetite and had caught venereal disease from which he still suffered at the time of the murder. Also, as a sign of his mental disorder he seemed to have a wholly irrational (sic) fear of the Irish! But it was not until the murder trial in April of 1872 that the full extent of his mental problems became more apparent.

For example he had been watched during his incarceration by a Mr. Dennis who told the court that every morning Minor would wake up and accuse him, Dennis, of molesting him. Then he would spit dozens of times, scabble under the bed to find people he was convinced were plotting to annoy or harm him. Dennis was certain that the American was quite mad. Confirmation of his lunatic actions came from Minor's stepbrother, who had travelled from America to attend the trial and who confirmed the aberrant behaviour. If Minor was indeed mad, then his defence would be not guilty on the grounds of insanity. The court listened in silence and Minor sat in the dock morose and apparently ashamed. The laws concerning madness were known then as the *McNaughton Rules* – named after the man who had murdered Sir Robert Peel's secretary in 1843 and who was acquitted on the grounds that he was so mad he could not tell right from wrong. This type of plea is still used today and helps to define various sorts of killing, from premeditated murder to accidental death – that is, manslaughter.

And the insanity plea is what the jury accepted in the Minor case on April 6 1872. The judge told the prisoner 'You will be detained in safe custody...until Her Majesty's Pleasure be known' – in other words a life sentence, but not in a regular prison. And thus did Dr. William C. Minor, Assistant Surgeon, United States Army, become Broadmoor patient Number 742 (see Fig. 2). But more importantly his incarceration was to have effects on literary history that echo to this day.



Figure 2: Broadmoor Asylum for the Criminally Insane

Let us return to the Dictionary. All this while the initial results for the new Dictionary, set in motion by a whole host of volunteers, were being received. It was to be produced by the Oxford University Press and was to receive its title of the Oxford English Dictionary. The basic history of the OED as the Dictionary became affectionately known is that the first full edition did not complete its appearance – in twelve huge volumes – until 1928 (Fig 3).



Figure 3: The OED first edition 1928

Individual volumes had of course been printed at various intervals prior to 1928. In 1933 there appeared the first supplement and a further five supplements were published, until a second edition of the massive work was produced in the 1970s. It had now expanded to twenty volumes. It is the definitive guide to the language and has become the lingua franca of the civilised world. Its guiding principle is its rigorous dependence on gathering quotations from the recorded use of the language. In this way the OED could reflect with astonishing accuracy the way in which a word has been employed through the centuries. But unlike the dictionaries of the past, the OED would not simply present a selection of words. It would track down and define all of it; every word, every nuance, every shade of meaning, spelling and pronunciation, every fact regarding origin and so on. Nowadays it is on the Net and can be employed in ways that were never dreamt of by its founders. If Samuel Johnson had taken seven years to produce his work (an astonishing feat in itself), the OED would take three times as long just to finish the letter A.

The man mostly associated with the early history of the Dictionary was the extraordinary Scotsman James Murray, a towering figure in British scholarship. At an early age he taught himself geology, botany, geography, history, even astronomy and he also mastered many languages. Applying in 1867 for a post at the British Museum, when he was only 30, he listed over 20 languages, which he either spoke, or of which he had extensive knowledge. The Museum turned down his application. Overqualified, perhaps?

By 1878 however, Murray's reputation was such that he was invited to meet the members of the Oxford University Press panel (which included Charles Dodgson the author of *Alice in Wonderland*). They had a project in mind in which Murray might be interested. It was this project – the Oxford English Dictionary – that eventually led Murray and the mad murderer Minor to converge on each other. Minor was rich, Murray poor. Minor was from a different country and was of high estate. Murray's social position was respectable but low. Murray was just three years older. And of course, Minor had killed a man and was adjudged insane.

That insanity can be traced back to Minor's experiences as a doctor on the battlefields of the American Civil War, especially events that took place in 1864, which triggered his already latent madness. The battle of Spotsylvania in which 27,000 died was noted for its sheer savagery, its pitiless hand-to-hand fighting which led to horrific and grotesque injuries. It was also fought over tinder-dry land that burst into flames and itself burnt hundreds of men to death, a death agonising to suffer and behold. There were in addition punishments meted out to a number of Irish deserters (some of the Irish had lost faith in the Union cause, a cause to which Minor belonged). Some faced execution, others imprisonment and yet others various forms of public humiliation and even torture and branding with the letter D for deserter.

It was this last – the branding – that apparently Minor was ordered to do on one occasion. Reluctantly he obeyed and, already sickened by the carnage of the battlefield, he had to listen to the screams of the victim on whom he had himself inflicted pain. What Minor felt was that this man would forever afterwards harbour feelings of hatred and desire for revenge against the doctor who

had administered the punishment and he began to feel the paranoia of an unbalanced mind, convinced that every other Irishman also was looking to harm him. He began to carry a gun even when he was out of uniform. He had killed George Merrett under the delusion that he was one of avenging Irish out to do him injury.



Figure 4: James Murray in the Scriptorium

In 1868 he began to complain of headaches and vertigo and was diagnosed as suffering from monomania⁴, which manifested itself in impulses both suicidal and homicidal. His doctors concluded that he was unlikely to be cured and he was formally placed on the Army Retired List. For the rest of his life, including his incarceration in England to which he sailed in 1871, he was paid an army pension.

Back once again to the OED. All this while the steadily growing team of volunteers was duly filling in their slips. Initially space was provided for an anticipated 100,000 pieces of paper. In the end 6 million slips were submitted to a special building in Oxford called The Scriptorium (unfortunately no longer in existence). Also the dictionary was having teething problems finding the right editor – but in 1879, seven years after Minor's incarceration, James Murray became the General Editor and would remain so until his death.

One of his first tasks was to ask for more volunteers via a four page pamphlet sent out to libraries, put into newspapers and circulated widely by whatever mean was available (Fig. 5). And in the early 1880s one copy of the pamphlet found

its way into the pages of a learned journal, which in turn was delivered to a cell in Block 2 of the Broadmoor Asylum for the Criminally Insane in Crowthorne, Berkshire. And there the pamphlet and journal were read voraciously by William Minor, for whom books had become a second life. The man who had murdered George Merrett and who now was an inmate of Broadmoor had kept hold of some sanity by becoming a scholar.

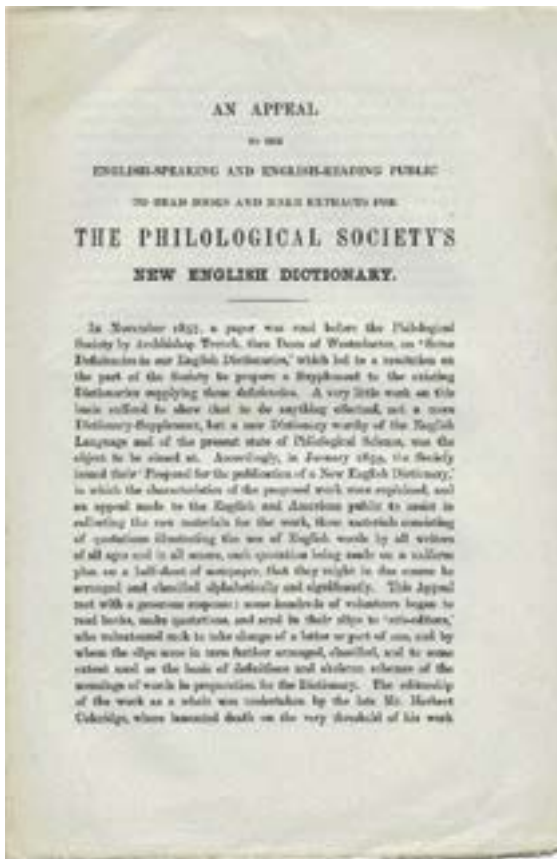


Figure 5: The 1879 Appeal for Readers

The invitation in the pamphlet to be a volunteer promised an opportunity for intellectual stimulus, a link to the outside world, perhaps even a measure of personal redemption. He wrote back immediately from 'Broadmoor, Crowthorne, Berkshire' and the staff of the Dictionary, including the editor, did not recognise the name of an establishment which was then not as famous a place as it was later to become. Even if the word 'asylum' had been used, the meaning, in those days, was generally restricted to Dr. Johnson's innocent explanation in his dictionary: 'A

place out of which he that has fled to it, may not be taken': in other words, a sanctuary. And to some extent it was a sanctuary for Minor – he had all his own books shipped from America and supplemented them with scores of new and second hand volumes ordered from London. He inhabited two rooms at Broadmoor, of which one became a library, complete with bookshelves, a writing desk and chairs. In addition, a lifelong interest in painting led him to set up his easel in the other room, along with a music stand, so that he could play the flute, an instrument he had begun as a child. If all this sounds charmingly normal – well, so it is.

But alongside the civilised and everyday activities in which Minor indulged, there was another, darker system of behaviour which underlined Minor's real insanity. His delusions of persecution grew more bizarre over the years. Every night he claimed he was subjected to brutal torture from assailants who came through the floor of his room. Each night he claimed his spinal marrow was pierced and his heart operated upon. An entry in his case file at Broadmoor explains the dichotomy between his daytime and night-time lives: 'With the exception of his night-time visitations, he talks very coherently on most topics. He is rational and intelligent for the most part'. In fact his rational nature made him ever more remorseful about the murder and he took the unusual step of writing to the widow, Eliza Merrett, to whom he explained how remorseful he was, and to whom he offered whatever assistance he could – for example, suggesting that he settle money on her and her children. Astonishingly, the letter worked a small miracle – she not only accepted his offer of money, but she requested and was granted permission to visit him. Before long she was making monthly journeys to Broadmoor, talking eagerly to this now seemingly harmless American. She even, for a few months, brought him parcels of books that he listed for her to buy. Eventually, however, the visits petered out and the lonely Eliza took to drink.

However, the serendipitous coming together of his library, her deliveries of books and Murray's pamphlet led to another astonishing part of Minor's astonishing life. His letter to the Editor of the Dictionary – James Murray – led to an answer and an agreement that Minor should become one of the volunteers, though Minor did not appear to have started work until 1885. In later years Murray explained: 'I never gave a thought to who Minor might be. I thought he was either a practising or a retired medical man with a good deal of leisure'. The truth about this new volunteer – one of 800 who had replied to the pamphlet – was a great deal stranger than this detached, literary and other-worldly Scotsman could have imagined.

So after languishing for more than a decade in intellectual isolation, Minor had discovered a goal in life. At last he could put his scholarship to use. For a while at least he appeared much happier. Even the case notes suggested that spirits of this prematurely aging, suspicious and brooding character had started to lighten. At long last he had something to do. But could he in fact do it? Murray's pamphlet and the subsequent guidance notes he sent to Minor explained that they were looking for hundreds of thousands of quotations. What could he provide from his prison cell? Certainly volunteers were needed to find quotations for each and every word in a book: especially words that were rare, obsolete, old-fashioned,

brand new, or used in a peculiar way (for example, young people today often describe a person as 'wicked'. meaning brilliant or 'cool'⁵). Quotations needed to be found to pinpoint the moment when a particular word or meaning entered the language. For example, in the brilliant TV series *The Simpsons*, Homer Simpson's despairing exclamation "Doh!" whenever something disappointing happens to him might seem to be its first use in this context: in fact, it has so far been traced back to Tommy Handley in *ITMA* in 1945, where this dialogue took place:

"The man that I marry will call me dear."

"Oh you're going to marry a stag!"

"Doh!"(then misunderstood by the second speaker as 'doe')

"Yes, the same thing."

Suddenly Minor's books became his most treasured possessions. For the next twenty years at Broadmoor he would do virtually nothing else but enfold himself and his tortured brain in the world of books, or more specifically in the world of words. In order to become a useful contributor to the OED he created his own system to discover relevant quotations, a system carefully worked out and rigidly followed. Each and every time he found in a book a word that piqued his interest he wrote it down, in tiny letters, in an eight page quire that he had already prepared. And he painstakingly and carefully did one book at a time; so meticulously that his work won the admiration and awe of all who saw it. To this day the quires preserved in the archives of the OED are such as to make people gasp. As an example of his work let us take the word 'buffoon'. He found this on page 34 of a book by Jacques de Bose, originally in French, but translated by someone with the initials N.N. and entitled *Compleat Woman*. He placed the word and the sentence in which it occurred in a chosen position in his quire to allow for other unusual words beginning with b to come before, but not giving much space for words after – because there would be far fewer words beginning with bu available to come after 'buffoon' and very few words indeed beginning with bw (three listed in the dictionary of which the most familiar is bwana). There are some words beginning with by, but obviously none beginning with bx or bz. So when he found 'balk' he was able to place it a long way above 'buffoon', near the beginning of the quire. A few pages later on in the same book he came across 'blab', which he fitted in to the correct place about half way in the quire. Using this method he did not have to rewrite his work, because his words followed in precise alphabetical order and he was able to send to the Scriptorium at any given time a large number of words beginning with the same letter, supported with quotes, the words themselves in the right order.

This one book was to give him words such as atom azure gust hearten fix foresight. The word feel was recorded 16 times, on each occasion with slightly different nuances. And so the word-list for the first of Minor's cellful of books began – word after word after word. A single book might take him a few months to complete and, as he did not want to send small amounts to the Dictionary, he would index and collect and collate words and sentences from each book and his eight page quires became a master-list of the indexed words from his library. By 1884 he had enough quires ready to ask the editors – and Murray in particular

– if any specific words (called catchwords) were needed. Unlike other volunteers, Minor had made a kind of Victorian Rolodex of words. When the editors asked for a particular word he would refer to his quires and by his own indexing method could go immediately to that word's appearance or appearances in his books to date. Then, and only then would transcribe the best sentence containing the word onto the ready-made quotation slip and send it back.

His technique was quite unprecedented and it suited Murray admirably – he now had on tap as it were a supply of fully indexed words. He could find a term that was giving them problems and write to Minor to ask for the quotation that illustrated its meaning. Only someone with nothing else to do and with an enormous capacity for detailed work could have done what Minor achieved. Because he was able to give them chapter and verse on a word they wanted at a particular moment, they were able immediately to send his slip, without checking, to the compositors, typesetters and printers.

The first word that Murray tried with Minor in this way in 1885 was the deceptively simple term 'art'. When he successfully provided a plethora of quotations – no fewer than 27 – for the word, there began a correspondence in which ever larger packages were to arrive at the Scriptorium virtually every week until a veritable blizzard of paper was howling from Crowthorne, a blizzard which lasted for nearly twenty years. Murray had been editor for nearly five years when Minor began his contributions. In spite of vowing to resign on many occasions, he stuck to his daunting task in the teeth of parsimony and interference until the first part of the Dictionary with all the words accumulated from 'a' to 'ant' appeared in 352 page edition at twelve and sixpence in 1884. Murray predicted that the whole work would be finished in a further eleven years. It was actually to take another 44 and the 352 pages would swell to no fewer than 15,487!

But it was with the word art that there was a starting point for a relationship between Murray and Minor (sounds like a music-hall double act), which combined amazing scholarship, tragedy, and mutual respect, even friendship. It was only death that separated them thirty years after the first written contact. In some ways it would have been doubly romantic if they had never met, but meet they did, but not for the first seven years of collaboration. As mentioned earlier, Murray thought that Minor was to quote, 'a practising medical man with a good deal of leisure'. What he did not know was that, in spite of the wonderfully erudite scholarship and sheer volume of contributions, Minor remained profoundly and irretrievably mad. Mad and yet exceedingly valuable to the whole project. Though other volunteers might have sent more slips than he did, it was the quality of his work that impressed. Almost every one of his quotations was used and he became one of the main contributors who was asked to chase specific words, as he could be relied upon to produce first-class references, often the earliest reference to be found. When we look at the OED today we will constantly be coming across an example of Minor's research.

So valuable did he prove that the preface to Volume 1 A-B paid him a tribute, praising 'the unflagging services of W. C. Minor'. But the question remained: who is this man? Eventually, someone who knew about the murder remarked

to Murray: "How kind you are being to our poor Dr. Minor". "Poor Dr. Minor? What can you possibly mean?" And so he was told the full story. One can only imagine his astonishment at hearing what he later described as the 'thrilling' story of Minor's trial and incarceration. Murray decided he must visit the man and wrote to Minor who replied that he would be delighted to receive the editor. And so in 1891, on a Wednesday in November, Murray arrived at Crowthorne station, where a coach and horse awaited him. When he entered the imposing building, which at that time had no sign stating its purpose, he was greeted by Dr. Nicholson, then Governor of the Broadmoor Asylum for the Criminally Insane. He stayed for lunch, at which Minor was also present (apparently he was a favourite of the Governor's children) and spent a number of hours with Minor in his rooms. He wrote later that he found him: 'as far as I could see, as sane as myself, a much cultivated man...and of fine Christian character'. This first encounter was to begin a long friendship, based on mutual respect and a passionate shared love of words. In the next several years, they met dozens of times, all at Broadmoor of course, where they were surreptitiously watched by attendants, to make sure there were no outbreaks of trouble.

'The supreme position, among contributors,' Murray was later to write, 'is certainly held by Dr. Minor who, in the past two years has sent in no less than 12000 quotes. So enormous have been his contributions that we could easily illustrate the last four centuries from his quotations alone.' But Minor himself was far from happy during the 1890s and in 1901 his output slackened and Murray began to worry. About this time the authorities were considering the possibility of sending Minor home to America to spend his declining years (the correct word – he seemed to be declining rapidly – he was 67 and showing it). A crisis seemed inevitable and at the beginning of December 1902 it struck.

'At 10:55 a.m. Dr. Minor came to the bottom gate and he called out: "You had better send for the Medical Office at once! I have injured myself!"'. So reads the report in the papers pertaining to Patient 742. It was an understatement. When the medical examiner went to see Minor, the latter calmly told him that he had cut his penis off. It was something he had been planning for months, and being a doctor he was able to do it and to stem the flow of blood. For Minor the act was redemptive – it had come about as a result of a profound religious awakening two years previously, when he had changed from being a virtual atheist to a fervent belief in God. He began to regard himself as a vile creature, endowed with terrible habits (as already mentioned, in his youth he had been a womanizer with voracious sexual appetites and he continued to masturbate and have erotic fantasies whilst in Broadmoor). With his newly awakened belief he decided that amputation of his privates would solve the problem. In his delusion, paranoia, dementia and overall madness, this was to him a logical move. The very notion that someone could calmly mutilate himself so grotesquely and painfully caused the doctors to shake their heads with wonder.

He stayed in the asylum infirmary for a month and after a further period of recuperation, the idea of returning him to the States was again raised. In England he had nobody and he had virtually stopped his work for the OED. So his life

had become a slow-moving tragedy, an act of dying conducted before everyone's eyes. He fell in his bath; he hurt his leg; he suffered from cold. For the next 8 years the decline was steady and pitiful and in 1910 Dr. Brayn of the asylum staff inexplicably and callously ordered that Minor be stripped of his privileges, including removal from his rooms, confiscation of his books, sketch-pads and flute. Angry letters poured in from a few remaining friends who had heard the appalling news. This included Murray and his wife who said that it was imperative that their scholar-genius friend should now be allowed finally to go home, out of the clutches of the monstrous Dr. Brayn.

Minor's brother Alfred sailed to England to try and put pressure on the Home Secretary to allow William to be freed into his custody. By great good fortune the Home Secretary was the youthful but already wise Winston Churchill, who was especially sympathetic to Americans, probably because his mother was one. On Wednesday April 10th Churchill signed the order. The occasion for his departure was a momentous one; Murray invited a photographer to take a formal farewell picture of the old man while the two friends, the creation of whose combined scholarship had in no small measure led to the first six volumes being published (Minor was taking a presentation copy of all six back with him to the States) said goodbye to each other in an air of stiff formality. Minor left for Tilbury Docks from Waterloo Station, no more than a few hundred yards away from where the murder of 1872 had set the whole extraordinary train of events in motion.

At this time Murray was struggling with the volume containing the letter T – a task that was to take five years from 1908 to 1913 to complete. He was also feeling his own mortality, but he kept up his pace of work even when his prostate gave up on him in the spring of 1915. He died on 26th July of that year, of pleurisy. He therefore did not see the completion of the great work of which he had been the driving force for so long. He was however still regarded as the main editor of the remaining volumes because of the enormous amount of effort he had put into every letter of the alphabet and his was the principal name on the volumes right up to 1928.

The day of Murray's death was just another date in William Minor's increasing count of bad periods. He was now resident in the Government insane asylum in Washington and the day itself was enlivened when it was reported of him that he 'Struck one of his fellow patients...but has little strength to hurt anyone'. In fact he was deemed harmless – in this year of 1915 he was a thin, toothless, wrinkled, slightly deaf old man of 81 but, to quote, 'very active for his age'. It was at his stay in this hospital known as St. Elizabeth's that his illness first received its modern diagnosis – he was suffering from dementia praecox of the paranoid form, what we now call schizophrenia. If this is what he had been suffering from all these years, could it be attributable to his war experiences, or was his illness truly causeless, as some people still believe is the case with schizophrenics? In the period in which Minor suffered, very little was done for patients, beyond on the whole kindly treatment in an asylum. Today we have medication. In those days we didn't. But perhaps William Minor's thousands upon thousands of quotations,

assiduously discovered and recorded, were his medication – they certainly were a form of therapy.

William Minor lingered on until 1920 when his failing eyesight prevented from doing the one thing that he truly loved – reading. With nothing left to live for, he passed away peacefully in his sleep on Friday 26th March 1920. He was 85. Among the greatest of contributors to the greatest of Dictionaries, he was nevertheless buried in obscurity near what is today a slum area of New Haven, Connecticut.

Seven years after his death the first edition of the OED was finished. Twelve enormous volumes, 414, 825 words defined, 1, 827, 306 quotations used, to which Minor had contributed scores of thousands. The total length of type used was 178 miles – London to the outskirts of Manchester. It was one of the greatest efforts, if not the greatest achievement, in the history of printing.

Whilst he was immersed in his books during the daytime, William Minor's paranoia was kept at bay. The agonies of the nights that were to keep him a patient were for us a blessing in disguise. He was mad and as a truly savage irony, we should be glad that he was, because he was able to pursue his astonishing investigations without let or hindrance for so many years. It's certainly an uncomfortable feeling but it's an ill wind...that in this case has blown every user of English since 1885 some good.

References

- 1 Simon Winchester, *The Surgeon of Crowthorne*, 1998.
- 2 <http://www.shakespeare-sonnets.com/sonnet/76>
- 3 Johnson, in a not too modest manner, also recognised his unique ability to produce such a work, averring: "I knew very well what I was undertaking, and very well knew how to do it, - and I did it very well."
- 4 Monomania was regarded in the 19th century as a form of partial insanity conceived as a single pathological preoccupation in an otherwise sound mind. This was not the case with Minor, who suffered from a host of symptoms and delusions; the diagnosis demonstrates the paucity of knowledge of mental disorders at the time.
- 5 Older people also succumb to this variant: 'He has a wicked sense of humour' is said in admiration, not in reproof.

After 40 years in the business world Brian Schneider returned to academic life and gained his PhD in 2009. His book on prologues and epilogues in early English drama was published in 2011 and he was engaged as co-editor on three books dealing with aspects of Anglo-Saxon life, the last of which appeared in 2014. He is Financial Director of the prestigious and influential Malone Society.

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Samuel Bamford, the Radical

ROBERT POOLE

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The radical and writer Samuel Bamford of Middleton (1788-1872) is best known for his two-part autobiography, *Passages in the Life of a Radical* (1839-41), with its superb account of the 1819 Peterloo Massacre, and *Early Days* (1848). But an autobiographer needs a full life, and Bamford was also a journalist, a poet, a diarist of distinction, and one of the longest-lived and best-documented working men of his age.



Figure 1. Samuel Bamford

Samuel Bamford was born in 1788 in the Lancashire weaving village of Middleton, six miles north of Manchester. His father was an artisan weaver and a Methodist, and some-time Governor of the workhouse in Salford, where half the family, including Samuel's mother, died of fever; young Samuel himself nearly followed them. He received an intermittent formal education, including spells at the grammar schools in Middleton and Manchester, and then held a succession of jobs ranging from east coast sailor to Manchester warehouseman. He also enlisted

in the local Volunteer force during the 1803-4 invasion scare, later writing a celebratory poem, 'Oldham Local'. He married his childhood sweetheart, Jemima, in the Collegiate Church in 1810, soon after the birth of their only child Ann who was, unusually, placed in his arms immediately afterwards. He was in Manchester at the time of the Luddite disturbances in Middleton in April 1812, and was back weaving in Middleton as the post-war movement for a radical reform of parliament took off.

Bamford became secretary of the Middleton Hampden Club, founded in 1816, just at the time when the leadership of the radical movement was moving from London (as it was to do again in the Chartist period). When the London Hampden Club proposed a national petitioning campaign for parliamentary reform which would last many months, a meeting at Middleton led demands for more urgent action, as:

it is impossible for the People of this part of the Country, to SUBSIST on their present means, even with the support of the SOUP KETTLE, till the Date fixed by the London Hampden Club, (March 2nd).¹

A delegate meeting for the Manchester area held in Middleton in December resolved to send out missionaries to rouse other manufacturing districts, and another in January chose delegates to the national Hampden Club meeting in London on 22nd January 1817, Bamford among them. In London he met his heroes Cobbett, Cartwright and Hunt, and made a crucial intervention in favour of manhood rather than taxpayer suffrage, pointing out that the militia lists provided a practical basis for an electoral register. "This was enough for me. The thing had never struck me before", wrote Cobbett; Hunt's radical line was adopted.²

The response of the Manchester reformers to the expected rejection of the petitions by parliament was to organise a march on London to petition the Prince Regent: the 'march of the blanketers' on 10 March. Habeas Corpus was suspended, and internment introduced. Bamford opposed the expedition on practical grounds, accurately predicting its successful interception by the military. With equal shrewdness, he exposed and denounced a clandestine attempt to enlist him in a scheme to "make a Moscow of Manchester" in order to secure a base for a second march on London. The plans for this rising went ahead, involving some of his associates, but the organisation was penetrated (and perhaps instigated) by spies and the conspirators were arrested at the end of March. Because of his radical connections Bamford was afterwards rounded up as a suspect, put for a time in chains, and taken to London for interrogation by Lord Sidmouth and the Privy Council. He took care to drill his comrades in a common defence; not a single one of them went to trial, and Bamford was released ahead of the others in May 1817. His early return raised suspicions that he had turned informer, suspicions which were never entirely to leave him. They are refuted by the Home Office's records; others wavered, but not Bamford. He also rejected an approach from the instigators of the abortive Pentridge rising; his close associate Joseph Mitchell, bolder but less shrewd, was ruined by his role as the unwitting colleague of Oliver the spy.

Now a figure of some authority, Bamford was prominent in the series of local reform meetings that accompanied the spinners' and weavers' strikes of 1818. He continued to advocate petitioning, which many now felt was a discredited tactic; Bamford however was at heart a constitutionalist, submitting a petition to parliament about his imprisonment and seeking (in vain) a hearing at the bar of the House. He favoured an open, community-based style of campaigning and strewed his speeches with homely, common-sense political metaphors. He was an early advocate of women voting at meetings, which earned him scoffing comments from some of his fellow-orators. He was a natural local leader of the revived mass platform strategy in the Spring of 1819. No pacifist, he helped to form the guard for Hunt on his visit to Manchester in January 1819. He was the chief local organiser of the Rochdale and Middleton component of the march to Manchester for the great reform meeting of 16th August 1819, notable for its military-style discipline, its festive array, and its inclusion of women and families. He distributed laurels to the section leaders as the march moved off and urged peace and good order upon the marchers. Troops broke up the meeting, and in the "Peterloo massacre" that followed 15 were killed and over 650 more sabred and trampled, among them many women and some children. Afterwards, reunited with a wife whom he had feared dead, he led a thousand of his comrades in a defiant and disciplined march back to Middleton beneath the only banner to survive the carnage. It was his finest hour. A few days later he was arrested, imprisoned briefly in Lancaster castle, and charged along with Henry Hunt and others with seditious conspiracy.

Bamford reacted fiercely to Peterloo, and was probably at his most militant in its aftermath. Nonetheless, he submerged himself in the quest for evidence to prove what had happened. He attended the inquest into the death of the Oldham Peterloo victim John Lees as a reporter, and he assiduously gathered evidence for the defence at the forthcoming trial, engaged by the Metropolitan Relief Committee. At the trial in York in March 1820 Bamford conducted his own defence. While Hunt took the attacking role Bamford's carefully-marshalled witnesses as to the peaceful and festive nature of the procession made such an impact on both judge and jury that the prosecution despaired of success. He was not alone in being shocked by the verdict of guilty, and his outburst at the subsequent sentencing hearing at the King's Bench in London probably exacerbated the penalty: one year in Lincoln gaol.

Bamford now began working to establish himself as a writer. For several years he had been producing poetry, and the radical *Manchester Observer* had printed his songs and verses extolling Hunt, Cobbett, Brandreth and liberty and denouncing corrupt lawyers and parsons. A slim volume, *The Weaver Boy*, was published in early 1819. From Lincoln he added many more, including two popular broadsides: a tribute to Queen Caroline and 'The Song of the Slaughterer' about Peterloo, the latter sung to imposing effect at the solemn anniversary gatherings in 1820 and 1821. A larger volume, *Miscellaneous Poetry*, was published by Thomas Dolby of London in 1821. The radical moment however had passed. He had also fallen out with Henry Hunt over Hunt's incessant self-promotion, and again faced suspicion

from some of his fellow-villagers. He returned to weaving, at which he was highly skilled, and the next year moved a little way out of Middleton to Stakehill to tend his loom and his family in peace.

Little is known of Bamford's life over the next eighteen years or so. He was among those local radicals who made some common cause with the liberal third Lord Suffield, lord of the manor of Middleton, on reform issues. In 1825 they accepted Suffield's patronage in establishing a Mechanics' Institute for Middleton, an episode which ended in acrimony as (in Bamford's account) Suffield tried to censor the publications in the reading room. In 1826 he went on a long expedition on foot to persuade north Lancashire calico weavers not to take part in machine breaking in Middleton, a successful mission which earned him death threats but which may have kept the weavers out of a trap laid by the authorities. By Bamford's own account he stopped weaving in 1826, although he was reported in 1840 to be weaving silk. He tried various other occupations, including beer seller, newsagent, auctioneer and post officer. He corresponded first with the *Morning Herald* and from 1826 was a regular correspondent for the *Manchester Guardian*.³ In 1832 he was forced to serve as parish constable in Middleton, getting involved in an undignified series of disputes with other reformers and townspeople and appealing to the magistrates for support; Bamford himself always claimed the issues were personal, but his rift with his former fellow-radicals was profound. He continued to write poetry, publishing *Hours in the Bowers* (1834) a largely new collection of more lyrical material with the most radical verses of his youth excluded. The following year saw the greatest blow of his life as his single daughter Ann died at the age of 25, apparently of a consumption which in his darker moments he attributed to his family's privations during his imprisonment in Lincoln.

Bamford's career as a writer took off in middle age, stimulated – or rather provoked – by the Chartist years of 1838–48. From the outset Bamford was a critic of the Chartists, rejecting what he saw as “mob law and mob violence” even as he maintained the justice of their wider cause.⁴ Their tactical opposition to the Anti-corn Law League angered a veteran radical blooded in opposition to the ‘bread tax’. In the spring of 1839 he published an appeal to would-be insurgents in the form of a version of the epic poem ‘La Lyonnaise’ by the French republican writer Pierre-Jean de Beranger, which detailed the awful consequences of the Lyon silk weavers uprising of 1834. Later that year he began work on the first volume of his autobiography, *Passages in the Life of a Radical*, which extolled what he saw as the constitutionalist, community-based reform movement of his youth whilst at the same time warning of the risks of class-based insurgency. In 1841–2 he wrote a series of *Walks Among the Workers* for the conservative *Manchester Chronicle*. In 1843 there came a revised edition of his *Poems* and in 1844 an anthology of journalism and fictional sketches entitled *Walks in South Lancashire*.

At the same time as he wrote his memoirs, Bamford retreated from the present. As if to signal his distancing from his earlier life he moved from Middleton to Blackley, nearer Manchester, renting a cottage on the edge of the picturesque Boggart Hole Clough. He occasionally attended meetings of the Sun Inn circle of Lancashire poets and authors in Manchester, where he was something of an elder

statesman in a circle of rising dialect writers and fireside poets whose common theme was nostalgia. He cultivated an interest in the history of Lancashire, idealising its old halls and paternalist gentry. He became friendly with the Manchester Guardian's chief reporter and local history writer John Harland, assisting him with copying source material and later publishing a couple of antiquarian essays of his own on Middleton.⁵ When Harland sent him a copy of a questionnaire about Lancashire dialect Bamford replied:

I am of opinion that the origin of the names of many of our streams, hills, and old places of habitation, are celtic, and if I were a young man, I would try to acquire a knowledge of that language as well as Saxon, were it only to gather up as it were, and understand the memorials of the people who have been here before us.⁶

Harland's questionnaire was part of a project by Manchester Literary and Philosophical Society to compile a Lancashire dialect glossary. It prompted Bamford – who both spoke the dialect and studied it – to compile his own extensive glossary. He sent a copy to the Society in November 1843; his original is now in the John Rylands Library.⁷ J. H. Nodal later recounted how, “after the Council of the Lit & Phil Society had decided to proceed no further with the undertaking, Mr Bamford obtained permission to publish his own collection of words, and it forms the glossary appended to some of his works.”⁸ This was Bamford's *Dialect of South Lancashire*, published in 1850 and reissued in 1854. Bamford's view that the Lancashire dialect preserved much of the Celtic and Anglo-Saxon tongue was embraced by William Gaskell in his *Two Lectures on Lancashire Dialect*, and subsequently became generally accepted.⁹ In the Autumn of 1872, about six months after Bamford's death, a meeting of Manchester Literary Club (of which Bamford had been a revered member) resolved to compile a Lancashire dialect glossary, and approached the Lit & Phil via Gaskell for permission to use Bamford's manuscript. Notwithstanding the work which had accumulated since, Bamford's collection remained the principal resource for the resulting publications.¹⁰

Passages in the Life of a Radical made Bamford's reputation as a writer.¹¹ It was widely reviewed in the newspaper and periodical press, both in Manchester and nationally, its author lauded for his moderation, his professed patriotism and his fluent and muscular prose style. His approving readers included Isaac Disraeli, William Gladstone, the Carlyles, the Gaskells, and Charles Dickens. Thomas Carlyle sent him admiring letters and a signed copy of *Past and Present*, and Jane Welsh Carlyle visited his cottage while on a tour of the region. He also became friends with the Sheffield “corn law rhymer” Ebenezer Elliott. Bamford's poem “God Help the Poor” featured in Elizabeth Gaskell's Manchester novel *Mary Barton* (1848); she mentioned him by name, describing him as “fine spirited”. The Gaskells received him as a guest, and Elizabeth Gaskell obtained for him a signed copy of the poems of Tennyson, whom he much admired.¹²

Bamford was uncomfortable with the sometimes patronising praise heaped by the middle classes on the head of a moderate working man. He supplemented his income from writing by occasional appearances as a lecturer, and became a regular

speaker at meetings designed to promote self-education and mutual improvement among the working-classes.¹³ In the afterglow of corn law repeal, as Bamford again found himself struggling to make a living, a testimonial fund was set up for him, but his undeferential insistence on taking the proceeds as a lump sum rather than as an annuity created acrimony and distrust amongst his supporters. Preferring independence to charity he invested the money in publishing a second volume of autobiography, *Early Days*, in 1848-9. This he followed in 1850 with *Dialect of South Lancashire*, a version of the founding text of Lancashire dialect writing, Tim Bobbin's comical 1746 *Tummus and Mary*. Bamford used his own knowledge of Lancashire dialect to "correct" Tim Bobbin's original, which he considered too close to the Merseyside dialect of its author's youth, and appended his earlier glossary, now liberated from the grasp of the Manchester Lit & Phil. This provoked an anonymous satirist to publish an illustrated satirical poem entitled 'Tim Bobbin's Ghost' (1850) which homed in mercilessly on Bamford's weaknesses and sensitivities. Bamford was deeply wounded at this attack by someone who had obviously been close to him at one time; he suspected a minor writer called George Richardson but it bore the fingerprints of his fellow dialect writer and former radical ally Elijah Dixon. It may have been this episode which prompted him to accept the offer of a post in the Inland Revenue through the patronage of the Liberal Sir John Wood.¹⁴

In 1851, then, Bamford left his native Lancashire to work as a clerk in the once-hated tax-gathering machine, writing a heartfelt poem 'Farewell to My Cottage'. The move to London was not a success. Bamford was shifted from office to office as the Inland Revenue reorganised itself, finishing up at Somerset House cataloguing "a huge mass of old foisty, rotting, stinking books and papers".¹⁵ The hours of work and his advancing age left him no time to visit the British Museum Reading Room to write his further history and memoir of Lancashire. He did however manage an extension of his autobiography into the 1820s, in the form of a hostile polemical memoir of his fellow-reformer Amos Ogden (1853). He also contributed three fictional sketches of the 1853-4 Preston cotton lockout to *Cassells Illustrated Family Paper*, a moralising intervention which preceded those of Dickens in *Household Words* and *Hard Times* and Gaskell in *North and South*.¹⁶ He was the occasional guest of Thomas Carlyle at his home in Chelsea and the drinking companion of the Northumberland poet Robert Story, a fellow clerk at Somerset House, but he never felt at home in London and revisited Lancashire from time to time. At the end of seven years he resigned his post and in May 1858 returned to live in humble Moston, on the opposite side of Boggart Hole Clough from his former cottage at Blackley, narrowly surviving a serious train crash on the way.

Now aged 70, Bamford sought once more to make a living as a writer and lecturer. In this he was assisted by the revival of the liberal reform movement in 1859-61 which adopted him as something of a respectable working-class figurehead. Dinners were held in his honour and he was befriended by Sir James Kay-Shuttleworth, providing reminiscences and gathering historical material about the 1826 powerloom riots for Kay-Shuttleworth's novel *Scarsdale* (1862).¹⁷

His public appearances however brought only mixed results and he fixed his hopes on obtaining a government pension for himself by way of compensation for the imprisonment he had suffered for the cause of reform in his youth. He was bitter at his failure to obtain more than a £50 one-off grant, and his prickliness again alienated potential patrons, but the death of his wife Mima in 1862 prompted a final testimonial which was this time used to provide him with a pension. During the years 1858-62 he kept a diary, to which he added letters and cuttings; it remains an unusual and important document of working-class life. Feeling his age, he gave up his aim of writing further histories and memoirs and burnt other 'old and useless letters and papers', although the final edition of his poetry, *Homely Rhymes* (1864) did include some further reminiscences.¹⁸ He lived on peacefully, visited by friends, admirers and local children, until his death in February 1872.¹⁹

It would be easy to see Bamford's political life in terms of a familiar kind of age-related slide from radicalism to conservatism, fuelled by his own somewhat cantankerous personality. After his release from gaol in 1821 his resentments were increasingly expressed in personal rather than political terms, directed as often as not against his fellow-reformers, a tendency that reached its nadir in his unhappy term as a constable of Middleton in 1832-3. As he lost confidence in the immediate fitness of his class for the franchise, his belief in manhood suffrage became more a declaration of faith in educational progress than an immediate political demand: "the people themselves wanted reforming" was how he put it.²⁰ In his autobiography he suppressed mention of some of his insurrectionary associations and activities, and bid instead for recognition of his status as a pioneering working-class moderate and anti-corn law campaigner. If towards the end of his life his status as an honest, stalwart radical was largely unchallenged, it was partly because he had outlived and out-written most of his critics. There will always be evidence for those who see him as a renegade. Seen in a wider context, however, Bamford's consistency of principle is more apparent and his stature rises.²¹

From the time of his imprisonment, if not before, Bamford placed family and social values over short-term political targets; Victorian values came out to meet him, rather than vice versa. He understood from bitter experience the vulnerability of the radical movement to espionage and the disastrous human consequences of demagoguery, betrayal, and imprisonment. Peterloo shook him to the core, for the most peaceful of mass protests had been met with the most savage of responses, but by the same token he was able to recognise liberalisation when he saw it. The tendency of modern scholarship has been to downplay the significance of Chartist membership and class rhetoric as litmus tests of radicalism, and to recognise the importance of community, gender and culture; on all these counts, Bamford scores. While experience brought him to reject annual parliaments and payment for MPs, he never deviated from the long-term goal of universal manhood suffrage. In a political landscape which had changed almost completely over his long lifetime he stood by the old radical demands of cheap government and no bread tax. The Bamford who later in life insisted on toasting the whole royal family and not just the monarch was the same Bamford who had proclaimed

the rights of the King's abandoned wife forty years before. Acutely class-conscious in his everyday life, he rejected the political language of class and remained at bottom an old-style radical patriot.

Bamford's well-known autobiography remains one of the founding documents of English radical history, and a literary classic. While he is occasionally disingenuous, making strategic omissions, time and again the sources bear out his account. While other nineteenth-century working-class autobiographers such as William Lovett typically describe the alienation of the self-educated working man from the unreformed society of his youth. Bamford celebrated his community background, confessing to a dissolute youth and offering in *Early Days* a rich insider's account of the customs and culture of the weaving districts in the early industrial revolution. In *Passages in the Life of a Radical* Bamford (like the young Dickens) regularly pauses in his political narrative to relate anecdotes and ghost stories. His journalism and lectures tended to be didactic and moralising, although on the right topic he could also write with eloquence and power. His poetry has been less highly regarded, partly because its context has been lost: much of it was written to be sung rather than read, or had a topical political purpose, depended on local familiarity, or used dialect. Bamford's 'Ode to a plotting parson'²² curses Hay, the Peterloo magistrate, with tremendous effect:

And here, like a good loyal priest shalt thou reign,
The cause of thy patrons with zeal to maintain;
And the poor, and the hungry, shall faint at thy word,
As thou doomst them to hell in the name of the Lord.

'The Bard's Reformation' dwells lovingly on the pleasures behind the alehouse door as it closes for the last time, while Bamford's verses in ironic celebration of his quack doctor friend Healey have a robust vulgarity worthy of Tim Bobbin himself. Above all, his rough dialect elegy on 'Tim Bobbin's Grave' powerfully unites the spirits of two poets from a common soil in a timeless communion of brown ale. His 'Song of the Slaughter', written from Lincoln gaol to commemorate the first anniversary of Peterloo in 1820, was sung again at the 16 August 2015 commemoration on the site of the original rally.

As a working man seeking to make a living as a writer, Bamford encountered suspicion from his peers and a mixture of prejudice and condescension from his social superiors. The awkwardness stems in part from his attempt to speak simultaneously to both working-class and middle-class audiences, and to transmit the better values of each to the other, a near-impossible task for which he believed himself well-fitted. "God has...led me to dwell amongst this people, one of them, and still apart" he wrote in the preface to *Walks in South Lancashire*²³. In a period when so many working-class writers succumbed to mental turmoil, alcoholism, and despair, Bamford's rugged survival was exceptional. Into his seventies he remained strong, clear-eyed, upright and direct. He ripened rather than mellowed. On his death, he was the most celebrated of all English radicals. His funeral was attended by thousands. The procession, five-abreast, sombrelly re-enacted in reverse the march to Manchester which Bamford had led over half a century before. There could have been no finer tribute to the hero of Peterloo.

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The Preservation of the North West's Industrial Heritage: a memoir

RICHARD L. HILLS

On 20 October 1969, Lord Hery Rhodes of Saddleworth, Lord Lieutenant of Lancashire, formally declared open what became the North Western Museum of Science and Industry in its temporary home at 97 Grosvenor Street.¹ Although there were some other industrial collections in the region, there was no general science museum, so this one would contain displays of steam and internal combustion engines, spinning and weaving, paper-making and printing, scientific instruments, clocks, electrical exhibits such as radios, archives and much more. It would become the focal point for industrial preservation in the North West. I had pioneered the collections and as Director would see them through to a permanent home at Liverpool Road Station in what is now called the Museum of Science and Industry (MOSI). When Grosvenor Street closed its doors to the public in July 1983, it had been visited by over half a million people who had flocked to see its many working machines and demonstrations.

I had been educated in classics at Charterhouse School where I took full advantage of the engineering workshop to build a model steam railway locomotive. National Service followed with a commission in the Royal Artillery, which gave me further experience with guns and motor vehicles. I then read for the Historical Tripos at Cambridge, specialising in economics. My father was however none too pleased when I replaced my saving certificates with a 1924 Lancia Lambda. Its restoration gave me further practical experience which proved to be very useful for carrying exhibits for the museum when I eventually arrived in Manchester. I should have then read for a Diploma of Education but a severe climbing accident delayed this for a year. While recuperating, I restored the Lancia at a friend's workshop in Long Melford. He was engaged in preserving the 1831 beam engine at Stretham, Isle of Ely, which gave me my first industrial heritage experience. Because I thought it would be too difficult to climb up the associated steep stairs, I sat on a cabin trunk at the bottom. Curiosity got the better of me so I looked inside and found records of the performance of the engine, staff wages, etc. These were to form the basis of my first venture into academic research during the completion of my Dip. Ed. After a brief spell at school teaching, I was accepted at Imperial College, London, where some of my earlier work on fen research was submitted for its Diploma.² I became a member of the Newcomen Society for the History of Engineering and Technology with its nation-wide links, becoming a member of its Council.

The Move to Manchester

With experience in teaching, historical research and practical restoration, I was offered a curatorial post at Birmingham Museum of Industry but turned it

down because I saw no prospects for developing the educational potential of the collections. In 1965 Donald Cardwell, then Reader in History of Science and Technology at what became The University of Manchester Institute of Science and Technology, was offering a Research Assistantship to study the history of the textile industry. Not only was there the prospect of gaining a higher degree but Donald explained the plans for a new science museum on the University campus with support from the University, the City as well as UMIST. It would be closely linked to a broad spectrum of educational services for all ages and abilities. The fish was hooked but when I landed in Manchester, I found the reality was that there were no fixed plans, no finance, almost no exhibits and only a small office on J floor in the UMIST main building. Oh yes, there was another 'asset', the use of a damp railway arch in Charles Street as a store! I came to Manchester to start a new career which eventually resulted in my PhD.³

The National Trust and Quarry Bank Mill, Styal

My first involvement in industrial preservation in the North West was at Quarry Bank Mill, Styal. Shortly before the start of the Second World War, Alec Greg presented the mill and the adjoining woods along the River Bollin to the National Trust. By the 1960s, the Trust wanted to enhance the mill as a visitor attraction. Hence it became a candidate for the proposed science museum for Manchester. But there were two reasons that militated against this: poor access and limited floor loading made it unsuitable for the heavy engineering exhibits envisaged. Also, although it was close to Manchester airport, it lay beyond the boundary of the City of Manchester which would consequently not support this idea.

The rejection of Styal was unknown when I arrived in Manchester in 1965 and I was offered a cottage in the village. The National Trust was still determined to develop the mill so I joined what became a special Trust for the mill and wrote the first report on proposals for a museum in the mill reflecting its past. I also learnt a great deal about fund raising methods and launching appeals. Later I was asked to write reports for the National Trust on the restoration of Nether Alderley's corn mill and the saw mill at Dunham Massey – further instances of helping to preserve the industrial heritage.

The Birth of the North Western Museum of Science and Industry

Meanwhile in Manchester, there had been progress over the science museum. In the early 1960s, Lord Bowden, Principal of UMIST, had asked Donald Cardwell to investigate the possibility of establishing a science museum. A Working Party was set up with representatives of Manchester University, UMIST and the City of Manchester Education Department. The report was submitted on 31st October 1966 recommending that Manchester should have such a museum of some 170,000 sq. ft. with a staff of around 52 people, and an annual budget of £149,000.⁴

The principal aim was, 'to explain the major discoveries and inventions of history of science and technology using wherever possible exhibits made in or linked with the North West, establishing a valuable tool for schools and universities'. The

function of such a museum would be acquisition, conservation, research, publication and of course exhibition. It was also envisaged that whenever and wherever possible, the exhibits would be restored to full working order and be demonstrated in operation from time to time. But the financial situation at the time prevented any action being taken.

I always say that the Museum's salvation came through the Methodists. The University wanted to demolish the Methodist chaplaincy for redevelopment. UMIST had purchased the headquarters of the Manchester Unity of Oddfellows at 97 Grosvenor Street, for a planned extension of the Metallurgy Building but did not need to demolish it for at least three years. It was proposed that the Methodists might occupy most of the ground floor and that the science museum should make a start upstairs. I asked how could we carry heavy Crossley gas engines and the like up the magnificent staircase with no hoist or even a lift. In the end, agreement was reached that the embryo museum would occupy part of the ground floor including the loading bay, the front of the middle floor and all the top. The original grandiose plans had shrunk to an area of around 12,000 sq. ft., and a budget of £12,670 for 1968 which had to cover everything, heating, repairs, installation of exhibits and staffing. There were to be a lecturer, a secretary and two technicians. At least we could make a start.

News of the proposed museum spread quickly and offers of exhibits poured in. The world famous locomotive building firm of Beyer, Peacock announced closure of its Gorton Foundry in the autumn of 1965. With Lord Bowden's support, we were able to rescue much of its important archives including one and a half tons of glass plate negatives stretching back to 1856. Crossley Brothers, manufacturers of internal combustion engines since the 1870s, were closing their power house and were intending to send some of their historic engines to Birmingham, but agreed to hang onto them until a place could be found for them in Manchester. It had quickly become apparent that there were enough potential exhibits to start a good museum.

The Exhibits

Even as we were moving the first exhibits into our new museum, we were landed with a dilemma. We needed to put on the best possible display to draw in visitors and convince the institutions supporting us that a permanent display would be a success, but should we devote precious time and resources to taking into store exhibits the like of which might not be offered again? I took the risk and had enough faith in the importance of a science museum for Manchester to go for the future as well as the present.

The first dilemma came through Reg Platt, an iron founder at Wigan, telling us that the National Coal Board was closing their colliery maintenance depot at Haydock which had been driven by an early beam engine probably dating back to 1830. Donald Cardwell had persuaded Bill Johnson, Professor of Mechanical Engineering at UMIST, to build us a one-third scale model of the first successful type of steam engine, that of Thomas Newcomen of 1712. This was being erected at Grosvenor Street. The Haydock engine featured the crucial improvements

of James Watt, with his separate condenser, his double-acting cylinder, parallel motion and governor.⁵ Reg Platt offered to store it for us in his yard at Widnes, the use of his lorry to transport the parts and also the use of a friend's mobile crane to help lift out the parts. It was an offer too good to refuse – but we had to dismantle it.

My Chief Technician, Frank Wightman, was to play a vital role in the preservation of our industrial heritage. He was apprenticed at George Saxon, builders of mill engines. He was able to produce engineering drawings and use machine tools like lathes and drilling machines. He could use oxy-acetylene cutting and welding equipment. At his home in Barton Road, he had his own engineering workshop. He was generous to a cash-strapped museum in lending various items of his equipment such as chain lifting blocks, jacks, slings, and large spanners, as well as his little 15 cwt. lorry. He was an easily recognisable figure in his black beret and greasy dungarees. But above all, he was well-known for his passion for mill engines. I was able to use his expertise to take out the mill engines for our science museum.

The largest mill engines might develop 3,000 h.p. and, while one of 2,000 h.p. has been preserved at Trencherfield Mill in Wigan, it was realised that moving one of even this size into a museum would be beyond any possible finance. So medium sized ones were sought that would show the basic design developments. To preserve them in the museum for as long as possible, they would not drive anything but run at reduced speed and boiler pressure. The Haydock engine fitted into this pattern and, soon after it had been dismantled, we were faced with a similar dilemma because the 1925 Galloway engine from Elm Street Mill, Burnley, was offered. It was probably the last reciprocating steam engine installed in a textile mill with the latest technical features including a Uniflow low pressure cylinder. Its removal was particularly difficult because it was situated in the centre of the mill. Then there was the Barnes engine from Firgrove Mill, Rochdale, situated by the side of the canal, another difficult removal operation, and others were to follow which completed the history of the steam engine. They presented us with major storage problems so that some parts were moved three times before reaching their final resting place at Liverpool Road Station. Without Frank's enthusiasm for our industrial heritage, the mill engine collection, and indeed much of the textile and machine tool collections at MOSI, would not exist. The working mill engine collection has remained the most popular display at MOSI.⁶

Manchester had become known as 'Cottonopolis', so the museum had to show how cloth was made. This would help preserve the skills as well. We began with the early domestic industry, then the great inventions which launched the Industrial Revolution in the last part of the eighteenth century followed by the typical machines of the heyday around 1900. For the domestic industry, we could demonstrate spinning on two types of spinning wheels. We had a wide loom with John Kay's flying shuttle. This we warped up with alternate coloured threads to weave plain cloth. Then there was a much later Jacquard loom with its cards and harness and two shuttles for weaving complex patterns with coloured wefts.

While skill was needed to demonstrate these hand domestic machines, they did not have the health and safety hazards of powered machines.

For the early Industrial Revolution, since no original spinning jennies of James Hargreaves have survived, Frank Wightman constructed one based on a replica at Higher Mill, Helmshore. English Sewing Cotton generously lent their very early four spindle Arkwright water frame. Since this was too precious to be worked, we built a replica.⁷ To show the principles of Samuel Crompton's spinning mule, we constructed one from parts of a modern mule. While these showed the dramatic improvements in spinning techniques, space limitations allowed us to display only a carding engine to cover the preliminary opening and preparation machines.

When in 1972 the museum was able to expand into the whole of 97 Grosvenor Street, the chance was taken to begin displaying the 1900 period. Spinning machines such as the mule and ring frames could be shortened to just a few spindles to show the principles. Likewise the same would apply to looms. We decided to concentrate on medium count spinning. Therefore we accepted the offer from Elk Mill, Shiloh Spinners, of one of their medium count Oldham style mules of 1927 which was amongst the last built. To fit into Grosvenor Street, it was cut down from over 1,000 spindles to 120. Platt's International of Oldham helped take it out and mount it on a steel sub-frame so it could be easily dismantled and moved to the permanent museum. This was a wise decision because it has had to be moved three times, once to Liverpool Road and twice while there. A roving frame was treated similarly to supply bobbins for both mule and a ring frame. Fred Hilditch, who was the mule spinner at Elk Mill, came and demonstrated 'his' mule for us. It has proved to be a great attraction ever since. At Liverpool Road, it was possible to collect other machines to process cotton from a bale through an opener, carding, etc., and use the spun cotton to weave cloth.

At Grosvenor Street, we set up an over-pick Lancashire loom with an electric drive to weave plain calico cloth with weft spun on our mule. There was also a ribbon loom with a Jacquard mechanism capable of weaving four ribbons with a pattern at once. The ribbons were sold in the museum shop. At Liverpool Road, other looms were added to the display so it became a small working mill. Many other textile machines were taken into store.⁸

Small examples of lathes, planing machines and other machine tools would still show the basic operating principles and historical development. We were able to save a wide variety of machine tools made by famous Manchester makers such as Sharp Roberts, William Muir, and Pollock & McNab.⁹ Our collection of tools by Joseph Whitworth covered lathes, a pillar drill, planing and gear cutting machines as well as his standard taps and dies and measuring instruments. A few were motorised at Grosvenor Street while, at Liverpool Road, an engineering workshop was established in the Byrom Street warehouse.

Two other important North West industries were displayed, papermaking and printing. The Paper Science Department, at UMIST, offered the National Paper Museum just as the planning of the initial displays at Grosvenor Street had commenced. It consisted of artefacts, a library and paper samples. Over the years, it was developed to show pulp preparation and making paper by hand and

machine.¹⁰ It proved to be a very popular display with international significance because a visitor could make a sheet of paper, have it dried and take it over to the printing display for printing.

Smaller examples of printing presses were acquired. We started with a replica wooden press of 1695 followed by early cast iron hand presses, treadle platen presses through to a flat bed Wharfedale press by Furnival of Reddish and a Miehle press by Linotype of Altrincham. These were supported by cases of type, paper guillotines and a non- operable Linotype. With this equipment, we were able to print posters advertising our special Working Days, a replica of the front page of the first issue of the *Manchester Guardian*, keep-sakes and much more which could be purchased at the museum shop.

Electrical engineering was represented by exhibits made by firms such as Mather & Platt, Metropolitan-Vickers, Royce and Ferranti covering a wide variety of generators, through motors, meters to household exhibits such as wireless sets. We had a good collection of scientific apparatus produced by J.B. Dancer such as microscopes and telescopes. Dancer made instruments for J.P. Joule's experiments on heat as well as pioneering photography in the region. We displayed later cameras made by Thornton, Pickard and others together with a host of other chemical and scientific exhibits.

The Move to Liverpool Road and re-birth as MOSI

The formation in 1974 of the Greater Manchester Council raised prospects for a permanent home for the museum because it was a regional authority with greater resources. It soon became the major member of the Committee managing the museum. With the 150th anniversary of the opening in 1830 of the Liverpool and Manchester Railway looming, eyes were turned to the original surviving terminus Grade I listed buildings at Liverpool Road (Figure 1).

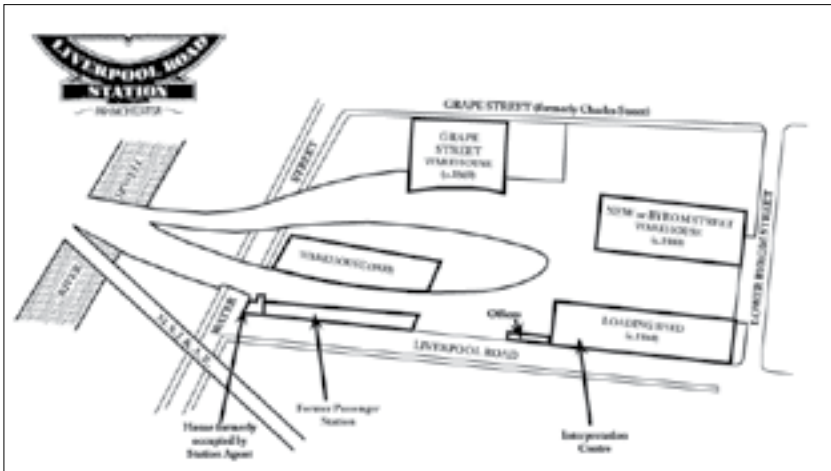


Figure 1: The Liverpool Road site

This placed me in a dilemma because I had visited them in 1968 with Dr. David Owen, Director of the Manchester Museum, and Jack Diamond, Professor of Mechanical Engineering at the University. While we admired the 1830 warehouse with its magnificent interior structure of wooden beams, we noticed the rain running down the walls where lead had been stripped off the roof and the collapse of some walls. We trod carefully over the rotten floor timbers and were glad to get into the open air to escape the smell of dry rot. Even if it could be restored, the ceiling heights and pillar spacing made it unsuitable for a museum of technology encompassing the achievements of Manchester engineers.

I was faced with a difficult decision. If I rejected the station, would there be another more suitable place? Cllr Fieldhouse wanted to hold a Great Railway Exposition at Liverpool Road Station to celebrate the 150th anniversary. In a way, it was lucky that the 1830 warehouse could not be restored in time because I pointed out the later near-by Goods Shed which could be prepared for the Exposition and then form part of the permanent museum. I had realised that it would form an excellent setting for the mill engine collection with the space to erect them on solid foundations where they could be run under steam. The Goods Shed was purchased, becoming the Power Hall.

But this posed another dilemma. The world's first passenger railway station would need suitable exhibits to explain the history of railways. The museum had its archive collection such as the Beyer, Peacock and some Metropolitan-Vickers records. It had a collection of permanent way ranging from early wooden rails through fish-belly cast-iron, wrought iron and the latest steel on a concrete sleeper. It also had a collection of signalling instruments, lever frames, block instruments, signal arms and so on. But except for a few models, it had no examples of locomotives or rolling stock. By 1979, most surviving steam locomotives had found homes at preservation societies. What were we to do? Manchester locomotive building firms had exported many locomotives. Perhaps we could add a further dimension to industrial preservation by bringing back to Manchester some locomotives that had been exported. The Science Museum would be unwilling to lend the original 'Rocket' displayed in London but it did loan the replica of Ericsson's 'Novelty' with its original wheels and one cylinder that had participated in the Rainhill Trials. Ericsson was a Swede so it had overseas connections. We arranged for the motion to be rotated with an electric motor. I designed a couple of replica 1830 carriages based on the contemporary design of Nicholas Wood. A replica 'Planet' was built later to form a period train which has proved very popular with visitors. The boiler design of 'Novelty' was too dangerous for us to consider using as a replica at Liverpool Road.

Seeing a sectioned locomotive being explained to visitors at the Lucerne Transport Museum made me covet something similar for Manchester. But where could a suitable one be found that was not scheduled for restoration to full working order? The answer proved to be the Isle of Man. The railway system on the island had been drastically curtailed so there were unwanted locomotives – and they had been supplied by Beyer, Peacock. During a visit there, I was introduced to their Minister for Transport by my cousin, a member of the House of Keys. We

could have an engine provided it was not restored to working order but it might be sectioned. Luckily for us, a roll-on roll-off ferry had just commenced service. Pickford's agreed to send over a low-loader to bring the Isle of Man locomotive No. 3, Pender, back to Manchester in time for the 149th anniversary celebrations. Eventually Pender was taken back to Gorton where a Community Industry team prepared her sectioned for the 150th anniversary celebrations and later display in the Power Hall.

The British Overseas Railway Historical Society came to the rescue with a 4-4-0 tender locomotive built around the turn of the century. This group had been seeking to repatriate locomotives from various countries. Through them, President Zia of Pakistan presented one built by the Vulcan Foundry at Newton Le Willows. It was sent from Lahore to the Karachi docks under its own steam and loaded on a boat before we were aware. It was unloaded by a mammoth crane at Liverpool Docks, where sniffer dogs inspected it in case it was smuggling drugs. An extra rail had to be laid at Liverpool Road to accommodate its 5 ft. 6 ins. gauge. As it was being run off Pickford's low loader, I suddenly realised we had not checked the height, but fortunately it fitted. All was well for the Queen's visit in 1982. An LMS Black Five on loan completed the display of conventional steam locomotives except for the little 0-4-0 shunter from Agecroft Colliery used with our replica carriages.

Manchester's main contribution to locomotive development was the articulated type patented by H.W. Garratt in 1907. Beyer, Peacock agreed to build a couple for the 2 ft. gauge Tasmanian Railways. This type proved to be such a success that they could be found on railways across the world. In 1966, I looked admiringly at the first Garratt, K1 brought back to England standing forlornly in Beyer, Peacock's works up for sale. As ever, we had no finance, no museum and nowhere to store her. Luckily she was bought by the Ffestiniog Railway potentially for use there.

All the Garratts supplied to mainline railways in Britain had been scrapped. The last remaining industrial type at Baddesley Colliery had found a home at Bressingham. The British Overseas Railways Historical Society negotiated over one of the mighty East African Railways 59 class but the cost of shipping this back from Mombasa was beyond our resources at £100,000. The much smaller South African 2 ft. gauge Garratt seemed a more reasonable project. Then a remarkable series of coincidences happened. The South African Railways decided to scrap their strategic reserve of steam locomotives. This included a GL Garratt of 1929, the most powerful steam locomotive built in Europe weighing, 160 tons – and yes it was built by Beyer, Peacock. It would be a worthy memorial to Manchester engineering. A Garratt can be split into three through its many working parts. We learnt that GEC was sending parts of turbines and transformers out to South Africa on Wynnes' heavy lift trailers, three of which would be returning empty. Yes, we could have the Garratt. Yes, Wynnes would transport it home. Yes, P & O would reduce their shipping fee to only £30,000. Yes, the GMC would help to find the finance. That was the easy part. The Garratt was at Johannesburg, 500 miles away from the port at Richards Bay. I flew out to South

Africa to help organise everything.¹¹ Our prize was landed at Tilbury but before we could claim it, Customs and Excise demanded £ 2,000 Value Added Tax (value added to what?). It was safely assembled and pushed into the Power Hall, a fitting exhibit of our industrial heritage and in a way the climax of my museum career because I accepted ill-health retirement shortly afterwards, having overworked at the museum for many years. In the Power Hall, with the EM2 high speed electric engine repatriated from the Netherlands, I left behind a small collection of locomotives that covered so much of their history based on Manchester-built exhibits.

Support for Education

If the museum were to leave Grosvenor Street for a permanent home, it was necessary to have the support of as many people as possible. The few museum staff received the advice and support of staff at the universities. In addition, links were forged with local societies and the publication of research was encouraged. In the early 1960s, there was a growing interest in the history of science and technology and in the growing new subject of Industrial Archaeology. Virtually no effort had been made in the North West to preserve artefacts, documentation and processes featuring the many contributions to industrial development and invention which had led to the region being acknowledged as the centre of the Industrial Revolution. Owen Ashmore at Manchester University's Extra-Mural Department organised many lectures on Industrial Archaeology, such as lunch time lectures at the Central Library, special lectures to groups like Rotary Clubs and more importantly, day and evening classes in schools and other centres across the region. The staff at Cardwell's department and at the museum participated in these, with the newly opened museum in Grosvenor Street becoming a particular focus for group visits and evening classes. For many years, I gave courses for the Workers Educational Association across the region. With the help of the Education Department of the City of Manchester, a very successful Schools Service was established at the museum.

Owen Ashmore and a small group had launched the Manchester Region Industrial Archaeology Society in 1965. On my arrival in Manchester, I was quickly volunteered as Secretary, becoming Chairman later. As well as regular lectures, we organised visits and trips to places of interest as well as recording specific sites. Grosvenor Street became the centre for these activities as well as the repository for the Society archives. In return, members advised the museum about possible exhibits and sometimes worked with our technicians as well as demonstrating some of the machines on display. MRIAS has celebrated its fiftieth anniversary. Another group that made the museum its home was the newly formed North Western Branch of the Newcomen Society. Its members also helped with museum activities.

I was able to help launch two other societies, the British Overseas Railways Historical Society and the British Association of Paper Historians. Britain had pioneered railways across the world, most originally equipped by British firms. Some people hoped to repatriate British-built locomotives. Manchester, with its firms like Beyer, Peacock, seemed to be a suitable venue where they might

be displayed. A scheme to open a museum at Mode Wheel (Salford Quays) foundered and we have seen how this Society helped the museum at Liverpool Road Station. The other society was the British Association of Paper Historians launched in 1989 which celebrated its 25th anniversary in 2014. These four societies all proved to be good examples of preserving our industrial heritage.

Collecting archives, such as those of Beyer, Peacock, was always a very important part of the museum's policy. Back in the 1960s, the local archive offices showed little interest in industrial archives, particularly those of engineering firms. Here the museum could fill a niche role and be another focal point. In addition, while it might be possible to preserve one example of an exhibit, say a lathe, the archives of a firm could show how that lathe had evolved from the first concept to the last one produced. Moreover, while similar examples of most exhibits might be found in other museums, the archives were unique.

The MRIAS archives proved to be a rich source of scholarship for students of all ages. The drawings of J. & W. McNaught, builders of the Barnes engine, provided the basis of a mechanical engineering student's thesis. The Cockshoot collection of photographs of their coach-built cars helped a mature student with his thesis on Rolls Royce. The Beyer, Peacock collection itself has helped many people with details of locomotives and formed the basis of my own history of Beyer, Peacock.¹² Many more examples could be given of the importance of the archives to the preservation of industrial heritage as well as helping the writing of pamphlets and guides to museum exhibits of which we produced a wide range. At Liverpool Road, the museum has continued to develop and in 2013 alone there were 643,000 visitors. It has become Manchester's chief visitor attraction through its many working exhibits.

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- 7 Hills, R.L., *Richard Arkwright*, (Priory Press, London, 1973), p. 96.
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- 10 Hills, R.L., *Papermaking in Britain, 1488 – 1988, A Short History*, (Athlone, London, 1988) p. 249.
- 11 *Railway Magazine*, May 1984, No. 997, Vol. 130, Hills, R.L., ‘What a Whopper, Moving the South African Class GL Beyer-Garratt’.
- 12 Hills, R.L., & Patrick, D., *Beyer, Peacock: Locomotive Builders to the World*, (Transport Publishing, Glossop, 1982) p. 302.

David Higginson writes: Revd Richard Hills, MBE, MA, PhD, DIC, DipEd, CIMechEng, FMA, was honoured in 2015 with an MBE in recognition of his services in preserving the industrial heritage of the north-west region. The Lit & Phil President invited him to give a detailed account of his life's work in order to provide a permanent record of his achievements and the article above is the result.

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Annals of Manchester, 2014

The idea of publishing an annual record of events in the Greater Manchester area along the lines of the much-consulted Annals of Manchester, compiled by William Edward Armytage Axon, was one of the final projects initiated by Professor Donald Cardwell before his death in 1998. That the publication of such a record will be of interest not only to present readers but future historians and researchers can hardly be questioned. Readers should note that Axon's Annals, covering the years to 1885, is now available on the internet. It is also fully searchable, yielding far more references than can be identified using the printed index, which is heavily weighted towards the names of individuals. This will further increase the usefulness of this most useful local reference work.

As in previous years, corrections and amendments to this year's entries should be sent to Terry Wyke, Manchester Metropolitan University, Department of History, Politics and Philosophy, Geoffrey Manton Building, Rosamond Street West, off Oxford Road, Manchester M15 6LL. Entries for inclusion in the Annals for 2015 should be sent to the same address.

The entries below cover the period from the beginning of January 2014 to the end of December 2014.

Wednesday 1 January Rev. Dr. Richard Hills, 78, a founder of the Manchester Museum of Science and Industry, was awarded an MBE for services to industrial heritage.

Tuesday 7 January Paul Goggins, Labour politician, died, aged 60. He was born in Manchester in 1953 and educated at St Bede's College. National Director of the charity Church Action on Poverty, Salford councillor and chair of Manchester Labour Party before entering parliament as MP for Wythenshawe in 1997. He served as junior minister for prisons and probationary service in 2003 and from 2007-10 was minister for Northern Ireland.

Wednesday 8 January Work began on regeneration of the Brunswick estate, Ardwick. The work includes renovating existing properties and construction of new homes. The project marked the end of Manchester council's historic role as a social landlord beginning in the 1880s.

Tuesday 14 January Jim O'Neill named honorary professor of economics at the University of Manchester. He introduced the term BRIC (Brazil, Russia, India and China) to identify the next group of industrial economies in the developing world.

Monday 20 January Work began on removing the cenotaph in St Peter's Square to a new location opposite the Cooper Street entrance of the Town Hall. The removal was caused by the construction of a new tram line. St Peter's Cross is also to be removed but is to be restored and returned to its existing location.

Tuesday 21 January Manchester Cathedral organised its Canon Wray's Birthday Gift to provide socks for the homeless. The fund revives a charity set up by Canon Cecil Daniel Wray who died in 1866.

Thursday 23 January Union and College Union lecturers at the three universities in Manchester and Salford took part in two-hour national strike. Staff at the Manchester Metropolitan University and University of Salford lost a day's pay for taking part in the industrial action.

Friday 24 January Professor Fanni Bogdanow, who died in 2013, left £1.5m to the University of Manchester. She came to Britain in 1939 as a refugee on the Kindertransport, aged 11, and went on to study and teach at the University of Manchester becoming a recognised authority on Mallory.

Tuesday 28 January Steven Cain, 25, died having previously fallen into the Rochdale Canal near Piccadilly. He was the 15th person since 2000 to be pulled from the underground canal near Piccadilly, an area used by gay couples.

Wednesday 29 January The University of Manchester announced plan to recruit 100 new academic 'stars'.

Tuesday 4 February George Osborne, Chancellor of the Exchequer, attended a ceremony for the building of a new railway platform at Manchester Airport.

St Chad's, Cheetham Hill to provide new memorial for parishioners who died in the first world war. The original memorial was lost in 1960s.

Wednesday 5 February Gay activists in Manchester demonstrated support for Russia's LGBT community, part of an international protest that coincided with holding of the Winter Olympics in Sochi.

Thursday 6 February William Roache, television actor, found not guilty of historic charges of assaulting women.

Friday 7 February Large crowds gathered at The Lowry Theatre, Salford Quays to watch celebrities arriving for the filming of the popular television programme *Britain's Got Talent*.

Wednesday 12 February John Pickstone, historian of science and medicine, died, aged 69. He established the Centre for the History of Science, Technology and Medicine at University of Manchester, having previously lectured and researched in the Department of History of Science and Technology at UMIST. In 2009 he was chiefly responsible for establishing the Manchester Histories Festival.

Thursday 13 February Mike Kane elected as Labour MP for Wythenshawe and Sale East in by-election following the death of Paul Goggins. John Bickley, UKIP, came second in the poll with 18 per cent of the vote.

Fifty anti-fracking protestors arrested at Barton Moss. A charge of obstructing the highway was dismissed, but later they were ordered by the court to leave the land.

Severe storms disrupted road and rail travel throughout Greater Manchester.

Friday 14 February Tom Finney, footballer for Preston North End and England, died, aged 91. He was knighted in 1998.

Friday 21 February Hazel Blears, MP for Salford and Eccles, announced that she will leave parliament in 2015.

Monday 3 March Police Constable Andrew Hamer sentenced to one year's imprisonment for assaulting Anthony Bradbury in Tib Street in 2012.

Wednesday 6 March Jamshed Javeed, who lived in Levenshulme and was a teacher at Sharples School in Bolton, was jailed for six years for terrorist offences. He was arrested as he was about to travel to Syria to fight for Islamic State.

Thursday 6 March Parts of Albert Square were closed to public for filming of *Frankenstein*, a film starring Daniel Radcliffe and Andrew Scott.

Friday 7 March Monitor, NHS regulator, to investigate the management of The Christie NHS Foundation Trust.

Tuesday 11 March Craig Rodger, 26, died in hospital following a hit-and-run accident on Wilbraham Road, Chorlton.

Friday 21 March Sir Howard Bernstein presented opening address to Manchester Business conference.

Saturday 22 March Manchester Central Library reopened to the public following £50m revamp of the building. The library, designed by Vincent Harris, originally opened in 1934.

Wednesday 26 March Police arrested a homeless Polish man, Maciej Maciejewski, for starting a fire by throwing a bottle of petrol at the entrance to Manchester Town Hall. He was sentenced to two years imprisonment for arson.

Tuesday 1 April Rail minister Stephen Hammond visited Victoria Station to see progress on the upgrade of the station which will include an ethylene tetrafluoroethylene roof and a new tram stop.

Maria Balshaw, Director of Whitworth Gallery and Manchester City Galleries was appointed board member of Arts Council England.

Sunday 6 April Some 7,000 runners competed in the Greater Manchester Marathon which began and ended at Old Trafford.

Monday 7 April Demolition of Owens Park halls of residence in Fallowfield. A new student village is to be built on the site.

Tuesday 8 April The Manchester-based family shoe repair and key cutting firm Timpson is to open 100 new outlets in major supermarkets. The company opened its 1,000th outlet in Baguley, Wythenshawe in January.

Wednesday 9 April Droylsden Academy (opened in 2009) was judged to be 'inadequate' by OFSTED.

Thursday 10 April Opening of British Dental Conference and Exhibition at Manchester Central Convention (formerly GMEX).

Tuesday 22 April David Moyes dismissed as manager of Manchester United following poor results. He had been in charge of the club for ten months. Ryan Giggs was appointed interim manager.

Saturday 26 April Plaque unveiled at Agecroft Colliery in memory of the miners who died there from 1958 to 1990. The pit first opened in 1844.

Tuesday 29 April Stevie McMullen and Ryan MacDonald who escaped from a security van while on their way to Manchester Crown Court in 2013 were jailed for 25 years and 20 years respectively.

Wednesday 30 April A detailed report conducted by Sir Christopher Kelly into the near-collapse of the Cooperative Bank identified poor management decisions including the merger with the Britannia Building Society (2009) as among the principal reasons for its problems.

Wednesday 7 May Report conducted by Lord Myners was highly critical of the governance of the Cooperative Group whose headquarters are at One Angel Square. He resigned from the Cooperative Bank in April 2014.

Monday 12 May Manchester City celebrated their Premier League and Capital One Cup victories with an open-top bus parade round the city.

Thursday 15 May The Fall performed a concert in Manchester Cathedral.

Sunday 18 May Over 40,000 runners took part in the annual BUPA Manchester Run.

Monday 19 May Louis Van Gaal appointed as manager of Manchester United.

Thursday 22 May In the city council elections the Liberal Democrats lost nine seats leaving the Labour Party with 95 of the 96 seats. The remaining seat is held by an independent Labour councillor, Henry Cooper. The overall turnout was 37.0 per cent compared to 17 per cent in 2012. UKIP won seats in Bolton and Oldham for the first time but no seats in Manchester. The Labour Party controls eight of the ten local authorities in Greater Manchester.

The eight MEPs elected for the North West constituency of the European Parliament were Theresa Griffin, Afzal Khan and Julie Ward (Labour); Jacqueline Foster and Sajjad Karim (Conservative); Louise Bours, Paul Nuttall and Steven Woolfe (UKIP).

Former BBC broadcaster Stuart Hall, aged 84, was sentenced to a further 30 months imprisonment for indecently assaulting a young girl.

Wednesday 28 May Malcolm Glazer, the head of the family that took over Manchester United in 2005, died in Tampa, Florida, aged 86.

Wednesday 4 June Ahmed Al-Khatib, aged 34, of Gorton was sentenced to life imprisonment for the murder of his wife, Rania Allayed, aged 26, whose body has never been found. His two brothers were also imprisoned.

Saturday 7 June Snoop Dogg and Sam Smith were among the performers at the two-day Parklife music festival in Heaton Park. One of the spectators, Robert Hart from Macclesfield, was punched and died from his injuries.

Tuesday 10 June Rik Mayall, comedian, aged 56, died. He studied drama at the University of Manchester (1975-8) and his television comedy *The Young Ones* was said to have been inspired by his student house, Lime Cottage, East Didsbury.

Thursday 19 June Development Economics' *Serving the UK: McDonald's at 40* report estimated that McDonald's contributes £130m a year to the Greater Manchester Economy. Manchester's first McDonalds was opened in Oxford Street in 1985.

Friday 20 June Paul Costello, 25, was jailed for three years and eight months for drug dealing at the Warehouse Project.

Sunday 22 June Good weather attracted an estimated 200,000 people to the Manchester Day parade which began in Liverpool Road and ended in Exchange Square.

Monday 23 June In a speech at the Manchester Museum of Science and Industry the Chancellor of the Exchequer, George Osborne, called for a high-speed rail line linking Manchester and Leeds as part of plan to create a Northern Powerhouse.

Friday 27 June Manchester City Council signed housing deal with the Abu Dhabi United Group (owners of Manchester City Football Club) to build 830 homes in Ancoats and New Islington, part of the East Manchester regeneration project.

Wednesday 2 July Professor Michael Talbot, musicologist, donated a score by the Italian Baroque composer Pietro Paolo Bencini's *Li due volubi* to the Henry Watson Music Library, Manchester Central Library.

Friday 4 July Holiday makers faced long delays at Manchester Airport as security was increased following warnings of terrorist attacks.

Sunday 6 July Large crowds gathered at Blackstone Edge, near Littleborough to watch the second stage of the Tour de France.

Monday 8 July Industrial action by teachers closed schools in Greater Manchester.

Saturday 12 July Demonstrators gathered outside the BBC offices in Salford Quays to protest over its pro-Israeli bias in reporting the conflict in the Middle East. A demonstration was also held in Piccadilly Gardens.

Tuesday 15 July Colin Harris, University of Salford Librarian (1986-1993) and Manchester Metropolitan University Librarian(1993-2007), died.

Wednesday 23 July Television presenter Esther Rantzen, who campaigned to protect vulnerable children and established Childline, received an honorary doctorate from Manchester Metropolitan University.

Thursday 24 July Dora Bryan, actress, died, aged 91. She was born near Wigan and went to school in Oldham. She appeared in films including *A Taste of Honey* (1961) and the BBC television comedy *Last of the Summer Wine* (2000-2005).

Friday 25 July Ancoats Dispensary Trust awarded £770,000 from the Heritage Lottery Fund to be used to help stabilise the building. The Dispensary, which opened in 1874, was due to be demolished.

Thursday 31 July Greater Manchester Police opened a counter in Manchester Town Hall. There had been a police station in the town hall from 1877 to 1937 when it moved to Bootle Street.

Tuesday 5 August An RAF Typhoon escorted a Qatar Airways plane to Manchester following a security incident on board which resulted in the arrest of a passenger. Incoming flights to Manchester were diverted to other airports.

Sunday 10 August Dame Kathleen Ollerenshaw, mathematician and Conservative politician, died, aged 101. She was born Kathleen Timpson in Withington. Although losing her hearing as a child she went on to become a distinguished mathematician. She represented Rusholme on the City Council from 1956 to 1981. She was an active supporter of many institutions in the city including the Royal Northern College of Music, Manchester Polytechnic and Manchester Astronomical Society. She published an autobiography *To Talk of Many Things* (2004) whilst *First Citizen* (1977) recalled her time as Lord Mayor.

Wednesday 13 August Sir Peter Fahy, the Chief Constable of Greater Manchester Police, to be interviewed by the Independent Police Complaints Commission as part of investigation into a series of allegations made against GMP including the surveillance of an alleged sex offender and the disposal of body parts associated with the case of Harold Shipman.

Sunday 17 August Mark Hackett, Labour councillor and former Lord Mayor, was investigated following allegations that he had bullied a Muslim anti-war protester.

Tuesday 26 August Figures show that during the coalition government Manchester has been 26 times harder hit than councils in the richest areas of England.

Friday 29 August Alexandra Park, Moss Side reopened following a £5.5m restoration.

Saturday 30 August Over 3000 people participated in the gay parade part of Manchester Pride celebration of the city's lesbian, gay, bisexual and transgender communities.

Sunday 31 August A Manchester United supporter, Michael Carter, who was assaulted in King Street West died in hospital.

Monday 1 September The conductor, Nicholas Smith, was jailed for eight months for indecently assaulting a 15-year-old student whilst a visiting teacher at Chetham's School of Music in the mid-1970s.

Saturday 6 September Hundreds of delegates attended Soccerex global convention held in Manchester Central.

Austerity Wrecks Lives march in Manchester city centre was followed by a rally at Castlefield.

Monday 8 September Jim Dobbin, Heywood and Middleton MP, died, aged 73. He died during a Council of Europe visit to Poland.

Thursday 11 September An arson attack on Manchester Dogs' Home in Harpurhey killed 53 dogs. Over £2 million was given by the public to rebuild the home.

Maxine Peake starred in *Hamlet* directed by Sarah Frankcom at Royal Exchange Theatre.

Wednesday 17 September Eddie Cass, local historian and folklorist died, aged 77. Following a career as a Manchester banker, he pursued a range of scholarly interests as well as being closely involved with a number of Manchester-based projects and societies including the People's History Museum and the Lancashire and Cheshire Antiquarian Society. He also curated exhibitions at the Portico Library. His publications included *The Lancashire Pace-Egging Play: A Social History* (2001) and *The Pace-Egg Plays of the Calder Valley* (2004).

Thursday 18 September The Home Theatre Company staged performance of *Romeo and Juliet* at Victoria Baths.

Sunday 21 September Labour Party annual conference opened in Manchester.

Friday 26 September Olga Kenyon, 77, local author and campaigner, killed when crossing Chester Road in Hulme. Her writings included *800 Years of Women's Letters* (2003).

Kylie Minogue performed at the Phones4U Manchester Arena. This was the thirtieth occasion she had appeared at the venue, having previously performed in 2002, 2007, 2008 and 2011.

Wednesday 1 October Greenwich Leisure Limited (GLL) took over management of nine council-owned leisure centres in Manchester, including the Manchester Aquatics Centre and the Hough End Leisure Centre.

Thursday 2 October Opening of Manchester Metropolitan University's Birley campus, Stretford Road, Hulme.

Midland Hotel is to be subject of new Channel 5 documentary.

Friday 3 October Eccles taxi driver Alan Henning was kidnapped and killed by Islamic state militants whilst taking aid to Syria.

Sunday 5 October The Victorian villa in Plymouth Grove which was home to the novelist Elizabeth Gaskell was opened to the public following a £2.5 restoration.

Sunday 12 October Eric Scrivens, music impresario, died, aged 88. Scrivens opened the legendary Club 43 in the 1940s and ran it for 22 years, attracting jazz musicians from Europe and the United States. Sonny Rollins and Zoot Sims were among those who performed at the club.

Tuesday 14 October Unison, GMB and Unite called off planned strike following new pay offer.

Thursday 16 October Everyman Theatre, Liverpool was winner of the RIBA Stirling Prize for Architecture. The Manchester School of Art (Feilden Clegg Bradley Studios) was among the finalists.

Saturday 18 October John Course, journalist, died, aged 86. He joined *The Guardian* in 1960 and was key figure in the Manchester office following the newspaper's move to London, serving as Northern Editor from 1988-1993.

Wednesday 22 October Chinese business leaders visiting Manchester were shown development projects including Airport City, Manchester Corridor and First Street.

Monday 27 October Publication of *Rebalancing Britain. From HS2 Towards a National Transport Strategy* which supported a superfast railway line linking Liverpool, Manchester, Leeds and Hull.

Friday 31 October Pragaret 'Charlie' Singh, age 35, died in hospital following a shooting at Manchester Food Traders, Wood Street, Openshaw. Five people were arrested but no one charged with his murder.

Saturday 1 November Joel Barnett (Lord Barnett), politician, died, aged 91. Born in Manchester in 1923, his father was a tailor. He attended a Jewish School before winning a scholarship to Manchester Central High School. Trained as accountant and set up his own practice. Elected as Labour MP for Heywood and Royton in 1964. He served as junior minister in Treasury, later becoming head of Public Accounts Committee. Made a Life Peer in 1983. His *Inside the Treasury* (1982) related his time as Chief Secretary to the Treasury. The formula he devised in 1978 to allocate expenditure to the regions is named after him.

Monday 3 November Greater Manchester agreed an historic devolution settlement with the government. Under it there was to be a significant transfer of powers, including transport, housing, planning, health and social care, to Greater Manchester. The settlement also required a directly-elected Mayor for Greater Manchester.

Metrolink line from Cornbrook to Manchester Airport opened The nine-mile line which includes 15 new stations cost £400 million.

Thursday 6 November Thirteen drug dealers who operated in Piccadilly Gardens and who were arrested as part of Operation Manderla were jailed for a total of 19 years.

Friday 7 November Manchester Evening News Business of the Year awards held for the 21st time. Winners included the Lancashire County Cricket Club.

Annual Manchester Sleepout to raise funds for Booth Centre.

Tuesday 11 November Duncan McTier, a double bassist, pleaded guilty to sexually assaulting female students from the Royal Northern College of Music at his trial at Liverpool Crown Court.

The two-minute silence at 11.00 am was marked by services in towns across Greater Manchester.

Wednesday 12 November Warren Clarke, film and TV actor, died, aged 67. He was born in Oldham and best known for his role in the police drama *Dalziel and Pascoe*. His films included Stanley Kubrick's *A Clockwork Orange*.

Manchester City Council announced further job losses in response to cuts in central government funding. Some 3,000 posts have been lost since 2011.

Friday 14 November Funeral of Herbert 'Mac' McNeill who served on the Artic Convoys in 1944. He was presented with the Usherkov medal shortly before his death. He joined the Navy aged 15 and completed two convoy missions to Russia in 1944.

Wednesday 26 November Stainless steel sculpture 'Dad's Halo Effect' by Ryan Gander unveiled outside Connell Sixth Form College in Beswick, part of East Manchester regeneration programme.

Alex Poots, founding artistic director of Manchester International Festival, announced he will step down after the 2015 festival to take up new post in New York.

Monday 1 December Manchester Metropolitan University became responsible for managing Manchester City's former Platt Lane training complex in Fallowfield.

Thursday 4 December Cathay Pacific started first direct flight from Manchester to Hong Kong.

Monday 8 December George Osborne, Chancellor of the Exchequer, opened the Manchester City Football Academy, part of the Etihad Campus, funded by the Abu Dhabi United Group.

Thursday 11 December Ray Teret, aged 73, a former Manchester disc jockey and friend of Jimmy Savile, was jailed for 25 years for sex offences committed against 11 women beginning in the 1960s.

Monday 15 December Anthony Crolla, WBO inter-continental lightweight champion, was seriously injured after confronting burglars raiding a neighbour's house in Chadderton.

Thursday 18 December Dave Copeland, a street entertainer who performed with the Piccadilly Rats in Manchester city centre, died.

Friday 22 December 'Mad Friday' attracted thousands of people to shop and party in Manchester city centre.

Thursday 25 December Geoff Pullar, Lancashire cricketer, died, aged 79. He was born in Swinton. He played in the Lancashire League before joining Lancashire in 1954. He was named Wisden Cricketer of the Year in 1960.

Wednesday 31 December Michael Kennedy, music writer and critic, died, aged 88. He was born in Chorlton-cum-Hardy in 1926. He had a long association with the city, and with the *Daily Telegraph*, becoming one of its music critics in 1950. He was later northern editor of the newspaper (1960-1986). His biographies of musicians included Elgar (1968, 2004), Barbirolli (1971) and Walton (1989). He was closely associated with the Royal Northern College of Music, writing a history of the college (1971) His *Portrait of Manchester* was published in 1970. He was awarded an OBE in 1981 and CBE in 1997.

Manchester Airport carried 21.989 million passengers in 2014 (20.751m in 2013). London Heathrow, Dubai, Dublin, Tenerife and Amsterdam were the busiest routes.

Obituary

EDWARD FLETCHER CASS

1937-2014



Anyone attempting to pay tribute to Eddie Cass would be daunted by the challenge of covering the whole range of his work, activities and interests. A man who had successful careers in coal mining, banking and academia he was the ultimate polymath and, as the archetypal Manchester man, ever modest – more concerned with doing than in reciting what he had done. It was easy to have known him for years but not know, for instance, that he was one of the UK's experts on the history of playing cards.

Eddie was born in Longsight and, apart from a few years in Birmingham, lived in Manchester all his life. He grew up in wartime east Manchester, then its most industrial part, and went to the

Central High School in what is now Sheena Simon College (where years later he served as governor). His first job was as a coal miner in Bradford Colliery, where he formed an attachment to the NUM (though not always its leadership); he became friends with Jim Allen, the future playwright – they would 'adjourn' shifts down the pit to discuss politics.

He left mining and turned to banking, a move which his father considered as giving up a 'proper job', and as a bank clerk for Williams Deacons and then the RBS he studied part time at Manchester College of Commerce, in the old Mechanics Institute, a building he got to know later in a different context. Manchester in the early 60s was duffle coats, the Kardomah Cafe, frothy coffee, jazz bands and folk clubs and in that milieu he met, courted and married Sheila – the rock and mainstay of his life – and they went on to raise three sons. A successful banker, he maintained a thirst for knowledge and an insatiable curiosity for a variety of subjects which sprang from the history of his home town. It encompassed industrial archaeology, architecture, canals, food and art history. Book collecting on a major scale turned him into a bibliophile and in later life he studied part time for an MA in the Manchester Studies Department of Manchester Polytechnic (now Manchester Metropolitan University).

Though bookish, he was no dry-as-dust scholar. Eddie was the most clubbable man. To walk in with him into a city-centre restaurant was to be the focus of a shower of greetings of 'Hello Eddie' – from all parts of the room. He had a wonderful gift for making friends and used his powerful intellectual and organisational skills to give something back to the Manchester cultural institutions, from which he and Sheila derived so much pleasure. These included Cornerhouse, John

Rylands Library, the Lancashire and Cheshire Antiquarian Society, the 'Lit and Phil', the Portico Library, the Museum of Science and Industry, Manchester Art Gallery, Manchester University, the North West Labour History Society, and the Royal Exchange Theatre and many more, including the British Association for Friends of Museums, on which he represented the NW.

He served as Company Secretary of the National Museum of Labour History (the Pump House Museum), where he was a constant source of support. Joining a formidable board of trustees, including Jack Jones, Michael Foot, John Monks, and Graham Stringer, he rapidly gained respect and admiration for wise negotiation and for putting in place the solution of sometimes difficult problems.

Eddie took early retirement in the mid 90s and embarked on an academic career. In quick succession he finished a PhD on Lancashire Cotton Culture and curated a series of exhibitions on subjects ranging from North West Fiction to Elizabeth David, the food writer. His recent research focussed on Lancashire folk life; he lectured and published widely and broadcast on the radio. He wrote the definitive book on Lancashire Pace-Egg plays and was a research fellow on an Aberdeen University project which took him to the USA and Canada; he lectured and curated in Germany for his good friend, the late Detlef Hoffman. Eddie became active in the Folklore Society and the Society for Folk Life Studies and uniquely served as national president of both bodies. He was very recently honoured with the Coote Lake Medal of the Folk Life Society. Awarded for 'outstanding research and scholarship', he joins an illustrious list which includes Christina Hole, and Iona and Peter Opie.

Eddie's priceless geniality and downright decency generated enormous love and loyalty from all those around him. We all mourn him and will all miss him immeasurably.

He is survived by his wife Sheila and sons Nick, Tim and Tony.

Nick Mansfield, Brian Rarity – September 2014

Other Deaths 1 July 2014 - 30 June 2015

Members will be saddened to learn of the following deaths, which occurred during the above period.

Mr Trevor Cheetham
 Mr Peter Frank
 Mrs Audrey Insley
 Mr James O'Grady
 Dame Kathleen Ollerenshaw
 Mrs Sheila Smyth
 Mr Philip Webb
 Mr Thomas Webster

Named Lectures 2014-15

A complete list of the Named Lectures prior to 2014 is given in volumes 151 and 152 of the Memoirs.

The Wilde Lecture

2014 Oct 7 *Siegfried Sassoon's War* 153 pp16-26
Lord (Max) Egremont

The Ramsden Lecture

2014 Oct 29 *Turning the Dream of Nitrogen-fixing Cereals into Reality*
153 pp27-31
Prof Edward Cocking

The Courtauld Lecture

2014 Nov 12 *Wombs for Rent - Legal and Ethical Aspects of Surrogacy*
153 pp32-46
Dr Danielle Griffiths and Prof Margaret Brazier

The McCurdy Lecture

2014 Nov 14 *The Supreme Court in the UK Constitution* 153 pp47-56
Lady Hale of Richmond

The Joule Lecture

2015 Jan 7 *The Future of Nuclear Power* 153 pp65-69
Dame Sue Ion

The Clayton Lecture

2015 Jan 20 *Mind Reading: The Philosophy of the Mind*
Prof Tim Bayne

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The Percival Lecture

2015 Mar 3 *Revisiting Participation in Higher Education: Idealism or Pragmatism?* 153 pp91-102
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The Dalton Lecture

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Simon Singh

The Manchester Lecture

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Sir Howard Bernstein

Proceedings of the Manchester Literary and Philosophical Society

ANNUAL REPORT OF THE COUNCIL, 2014-2015

Lectures arranged by Council

As is customary, our year commenced with our AGM held on 23 September 2014 at the Manchester Business School. We always try to arrange for a member of the Society to give the Lecture after the Business Meeting. This year was no exception and somewhat special as it was the retiring President, Professor Kenneth Letherman, who gave the talk on *Duets in Verdi Operas*, a lecture he had intended giving at the previous year's President's Reception before being hospitalised only hours before. He explained how in his long career Giuseppe Verdi wrote about 30 operas, and was certainly the most successful opera composer of the nineteenth century. In some of his greatest works, a central point in the action consists of a duet in which a conversation between two characters is presented and one of them is persuaded to a course of action which then determines the outcome of the plot. This was illustrated by musical extracts from Verdi's operas.

A week later on the 1st October Dr Peter Reed presented a paper on the life of *Robert Angus Smith (1817-1884)*, which had been abstracted from his biography of Smith a book signing session of which had taken place prior to the Lecture. Robert Angus Smith was one of the great Manchester reformers of the 18th and 19th centuries, coming to the city in 1843 to continue the work on the reform of the city's insanitary conditions of which so many members of the society had devoted their energies at that time. Indeed Angus Smith's cultural and intellectual centre was the Manchester Lit & Phil in which he served as an officer over many years and its President from 1864-65. In 1859 he became the first person to use the term "acid rain" which led to his appointment as the Chief Inspector of the Alkali Inspectorate and Joint Inspector of the Rivers Pollution Act, a post in which he was the incumbent on his death. In addition, the talk explored other facets of his professional work, as well his interests in psychic research and anti-quarian studies.

The President's Reception this year was a celebration of work already undertaken and yet to be accomplished in East Manchester, the Society returning to its roots in the welfare of the citizens of the city. The venue, Gorton Monastery, a perfect example of an iconic building in the district, a building once on the UNESCO Register of buildings in danger, which by the hard work of a dedicated band of locals has been restored and developed as a successful event venue and a beacon for the rebirth of the community. The address on that evening was given by Michael Oglesby CBE, DL., former Vice Lord Lieutenant of Greater Manchester, entitled *Tackling the Inequalities in Health Outcomes in Greater Manchester*; an issue on which he is working to improve through his own Trust.

It is a known fact that the health of Manchester's residents poses one of the biggest barriers to the city's further economic growth and progress on the global stage. The causes and the results are linked to work problems and deprivation, a message not dissimilar to that given in 1781. He outlined these causes and the scale of the health barriers but also showed the paths to be taken to ensure the opportunities could be fulfilled.

Baroness Hale of Richmond, Deputy President of the Supreme Court spoke in November on the work of *The Supreme Court in the UK Constitution*. The address looked at the ways in which UK Supreme Court is different from the Supreme Courts elsewhere in the world and the ways it is the same. On this particular occasion, invitations were extended to the members of the Law Faculty of the local Universities.

In December, the regular Christmas Events took place. The Carol Service was held at St Ann's Church (the Parish Church of Manchester) in conjunction with another established Manchester institution, The St James's Club, founded in 1825. Our Christmas social event was held at the Royal Northern College of Music where we were treated to a full tour of both "front and back stage" on all the improvements undertaken on the Concert Hall and adjacent areas, followed by an excellent musical performance from the talented students of the College.

The New Year started with a bang *The Future of Nuclear Power*, an address given by Dame Sue Ion DBE. FREng. As with Lady Hale, Dame Sue was ranked in the Top 100 Women in the Country in lists produced by both the BBC and Daily Telegraph. She discoursed eloquently on the part that Nuclear Power could contribute to one of the greatest challenges facing the modern world, the balance in providing a growing need for energy whilst maintaining an environment fit for humans. This again was a Lecture that the Society publicised to its contacts across the Young Peoples Sector.

The following lecture was the annual Percival Lecture, this year in the hands of The Manchester Metropolitan University. The object of the Percival Lecture is to provide a bridge between Academia and the Society and in turn the civil society of the city. With that remit, the chosen subject *Higher Education; Idealism or Pragmatism in a Changing World* delivered by the Deputy Vice-Chancellor of the University, Dr Mysżka Gużkowska, was most appropriate in that it dealt with all areas of the student experience with emphasis on world-class learning and teaching, employability, internationalism and sustainability within the curriculum.

The following week, the evening's event involved a visit to another of our allied institutions **The Museum of Science and Industry**, where the Head of Collections, Jack Kirby gave an illustrated talk on the future plans for the institution and to dispel all recent rumours regarding the uncertainty of its future. He also revealed the results of the investigation into the provenance of the bequest from the extended family of John Dalton in New Zealand of certain artefacts reputedly to have belonged to him. Regrettably, whilst some were contemporary with the period of John Dalton's life, none could definitely be attributed.

April saw another paper on what is becoming a national and indeed an international crisis which, if not addressed quickly, could lead to hundreds and thousands

of preventable deaths throughout the world. To put this problem, that of the overuse of antibiotics, into perspective both medically and governmentally, we were very privileged to welcome Professor John Watson MB.BS. MSc. FRCP. FFPH. the Deputy Chief Medical Officer for England whose talk was entitled *The Threat of Antimicrobial Resistance And What We Need to Do About it*. Sixteen million people were killed in the First World War, 50 million by the Spanish flu that followed and recently we have seen the effects of the ebola virus disease in West Africa. An extremely topical subject.

Universities and Society: Past, Present - and Future by Professor Stefan Collini, Professor of Intellectual History and English Literature at Cambridge University, brought our main lecture season to an end. He asked and then debated how we can expect to see our Universities develop in the 21st century under the changes both governmental and social that are occurring as we progress into the future.

The Society's outside visit included a talk entitled *The History and Transformation of Manchester Central Library* by the city's Chief Librarian, Neil MacInnes. This was brought about by the extensive restorations and extensions to the library over the last few years, to equip it to be a dispenser of knowledge, learning, research and enjoyment for both the citizens of the city and the large number of students and researchers who also flock here. After a lunch, over which the facts were pondered, we all transferred to the Library to view the changes for ourselves.

Lastly, but by no means least, the Society showed how much it was abreast of the changes in governance that are to take place in the country and in particular in Greater Manchester by hosting one of the first public lectures on the subject. Greater Manchester is the first region in the country where all shades of political colour have come together to unite both national and local government in the devolution of certain services previously directed from the centre, to the region. Who better to give this insight than the local architect of the whole plan Sir Howard Bernstein, Chief Executive of Manchester City Council and where better than at the Society's major event The Manchester Lecture.

J S Buckley
Honorary Secretary

Lectures arranged by the Arts Committee

The average attendance at the seven talks organized by the Arts Section this year has been approximately 100. This is highly encouraging and suggests that Society members have once again welcomed the balance of lectures across a number of disciplines within the Arts. A similar format has been followed when compiling lectures for the forthcoming session 2015/16. Two visits were also arranged to the Manchester Art Gallery *The Sensory War* exhibition.

The 2014-2015 programme began in October with Max Egremont's talk on *Siegfried Sassoon's War*. The speaker, who was Sassoon's official biographer, provided an arresting cameo of Sassoon's family life, love of cricket and his Edwardian writing prior to his enlistment as an officer in the Army. While

serving in the First World War Sassoon's previously carefree existence gave way to almost suicidal acts of bravery which led to the award of the Military Cross. As the war progressed his poetry reflected the horror and suffering of the soldiers and was critical of those officers in higher command. In 1917 he declined to return to duty after convalescence, threw away his Military Cross and was declared unfit for duty. During hospital treatment for "shell shock" he met and befriended Wilfred Owen. Both went on to produce evocative, powerful anti-war poetry. In his poem *Wisdom*, Sassoon wrote "For every man his way: The world's my ship and I am alone on deck", words which described starkly the gloom of the latter part of his life compared to the comparative bliss of his youthful earlier days. The speaker also outlined the work of other poets, some of whom were killed in action but whose poetry epitomised the hopes and disappointments of their generation while also proclaiming the futility of war. These sentiments struck a chord with future generations, not least around the time of the Vietnam War. Sassoon and his fellow poets remain potent forces influencing popular opinion long after their deaths.

In November Sandra Pollard spoke on *Sickert and the Camden Town Artists*. Her highly informative talk contained multiple slides from the work of this loosely based and short-lived group to illustrate themes they held in common like the Music Hall, the changing role of women, working life in an increasingly industrialised Edwardian England and bleak "bedsitter land". Their overriding purpose was to portray the realities, often drab yet sometimes colourful, of modern life just before the First World War. Their subject matter was modernity and metropolis, social class and social type and gender and sexuality. While the group contained relatively well known figures such as Harold Gilman, Lucien Pissarro and Augustus John, inevitably the focus was on Walter Sickert whose enigmatic self-portrait, half in light and half in shadow, gave an insight into the complexities of this artist whose work was very wide-ranging. He was celebrated for his traditional depiction of scenes of France, Venice and Bath yet he was also famous for the many nude women he painted. Most of his models were prostitutes who were not painted as glamorous but rather as cheerless, forlorn women sitting or lying on a bed. Sickert was an influential figure in making the transition from Impressionism to Modernism in British art. He was attracted to complexity and ambiguity and it is regrettable that he is still sometimes referred to as a suspect in the Jack the Ripper murders when no reliable evidence has ever been produced to justify such an allegation.

Douglas Jackson's talk on *Tiffany Glass - The Joseph Briggs Collection* in early December described the remarkable life of Joseph Briggs. He rose from comparative obscurity in Accrington, emigrated to America in 1891, aged 17, and became a wealthy man due to his association with Louis Comfort Tiffany. The latter spotted the potential of Briggs who, although trained as an engraver, first attracted the attention of Tiffany through his drawing skills. Briggs rose through the ranks of the company and ran it when Tiffany died. The period from the 1880s to the end of the First World War was the high point of Tiffany glass which took many forms yet retained, for the most part, the distinctive art nouveau vogue. The company fell victim to changing tastes in the 1920s and to the Great Depression

of the 1930s when Briggs decided to send 120 examples of the finest glass back to Accrington where it lay unseen by the general public until the 1970s. The array of glass, tiles, vases and mosaics is now displayed at the Haworth Art Gallery which has the largest collection of Tiffany Glass in Europe. Briggs's life was an emotional roller coaster in which, at one level, he rose from comparative wealth to very considerable riches yet, at another level, he experienced deep misery in personal terms through the early death of the family's first born child and, later, in his business dealings. The constants in his life were his wife and his best friend Hawley "Seth" Hathaway, a colourful fellow, who introduced Briggs to the Wild West shows. The story of Briggs's life and work was recounted with humour and insight.

Andrew Barlow, an art historian and former Keeper of the Royal Pavilion, spoke knowledgeably and enthusiastically on *From Farmhouse to Fantasy: the evolution of the Royal Pavilion*. His lecture in January took us on a transformational journey, lasting 35 years, from the early history of a rented farmhouse to an extravagant exotic pleasure palace, all driven by the Prince Regent, later George V.

George, who rebelled against his upbringing, threw himself into a decadent life of womanizing, gambling and drinking, but he was also well educated with a passion for the arts and architecture and noted in Europe for his charm and culture. However, his expensive lifestyle and multiple passions incurred huge personal debts including more than £250,000 on just part of this project. In 1787, the House of Commons agreed to clear his debts and increase his income enabling a magnificent Indian-style stable complex, with an 80 foot dome span and housing 60 horses, to be built. George then hired Henry Holland to transform the farmhouse into a modest villa but this proved to be not suitable for the lavish events he loved to host. In 1815, he engaged the architect John Nash to complete the transformation into the oriental palace we see today. George loved Chinoiserie, a decorative style inspired by China, and the palace was furnished therefore with flamboyant furniture and fittings. Brighton cherished George and welcomed the prosperity his Court brought to the town. But, when the project was finished, he lost interest and barely visited again. The Pavilion, not to Queen Victoria's liking, was sold to the City Council in whose hands it remains today.

In February Dr Roberta Mazza spoke on *Egypt in the Roman Empire: Art, Culture and Everyday Life of a Roman Province*. The lecture had two related strands. The first described the debt owed by researchers and lovers of Egyptian culture to Amelia Edwards whose travels in the 1870s made her aware of the increasing threat to ancient monuments in Egypt from tourism and modern development. She became a tireless public advocate for their preservation and, in 1882, co-founded with Reginald Stuart Poole the Egypt Exploration Fund. A decade later, in the year of her death, the Edwards Professorship of Egyptian Archaeology and Philology was set up at University College, London. A solid basis was established therefore for the study of Egyptian artefacts and it was the wealth of such material, particularly papyri, at the John Rylands Library that drew Dr Mazza to study in Manchester. The second strand covered the main themes of her talk. Using the major milestones of everyday human existence as

the framework of her lecture Dr Mazza recounted how disputes between neighbours, marriage and divorce were as common then as now. However, in other aspects, like the use of amulets and statuary to the goddess Isis to protect from the dangers of childbirth, there was no ready comparison with the modern western world prompting the speaker to remark “how close their lives seem to ours today yet so very far away”. The story was told with drama, passion and deep knowledge.

In March Dr David Bostwick addressed the Society on *Misericords: the Medieval World Upside Down*. Cathedrals, monasteries and parish churches showed pity or misericordia on their elderly or infirm monks and nuns by allowing them to lean on the upturned seats in the choir stalls during the eight hours of daily devotions. Intricate carvings on the underside of these seats were created from the 13th to the 17th century before improving levels of literacy eventually resulted in the written word superseding imagery as a means of imparting a religious or moral message. The repertoire of probably 280 designs, available to craftsmen or made by them, can be seen in carved stone, stained glass and the borders of medieval books as well as misericords. They were not always religious and also portrayed everyday life in humorous form, in fables, months and seasons, trades and recreation often with a moral story. Many scenes depicted wild life “upside down” such as rabbits catching the hound or the wild boar roasting the hunter. Some species had another meaning such as the dragon epitomising evil, the wily fox as the devil, owls as non-believers and monkeys as quack doctors. Common sayings like putting the cart before the horse or the knight falling from his horse as pride before a fall were also represented. The canopy and the stall seat itself were carved from a single piece of oak, often at considerable expense, and were donated by wealthy patrons as a sign of penitence. Through the use of humour, mastery of the subject matter and a large variety of illustrations the audience were given an insight into ordinary and religious life in the medieval period.

The final lecture of the session was delivered in late April by Dr Brian Schneider on *Murder, Madness and the Oxford English Dictionary*. The extraordinary story that unfolded in the course of the lecture was all the more remarkable because it was true. Dr William Chester Minor had been born in 1834 into a prosperous family. He became an army surgeon and served in the American Civil War. His mental health appears always to have been fragile but his war experiences exacerbated his condition. While in England in 1872 he fatally shot George Merrett, whom Minor, haunted by his paranoia, believed had broken into his room. Minor was found not guilty at his trial on grounds of insanity and sent to Broadmoor asylum where he became Patient Number 742. His quarters were comfortable and he had access to books and booksellers. In 1879 Dr James Murray assumed the editorship of the Oxford English Dictionary (OED) and appealed for volunteers to contribute to a new edition of the OED. Minor saw the advertisement through his dealings with London bookshops and volunteered his services. Over two decades he became the second biggest contributor to the OED. Murray was intrigued that Minor was never seen and never attended events in London. Eventually he tracked him down to Broadmoor. He visited Minor on many occasions for over twenty years and a respectful friendship was formed. This uplifting

and astonishing story, based on the book *The Surgeon of Crowthorne* by Simon Winchester, was recounted by Dr Schneider with wit and pace but without any false sentimentality. The facts spoke for themselves.

The Sensory War 1914-2014 was the subject of two visits by members to the Manchester Art Gallery in October 2014 and February 2015. The exhibition lived up to its title in every respect. There were over 190 exhibits from many countries and, while the range was impressive, the visitor had to be prepared for the disturbing as well as the thought provoking. At the core of the exhibition were the First World War images which captured vividly the shock experienced by those who fought and the physical, mental and emotional damage done to those who had been injured. It was said that the war turned people into machines and one saw evidence of this in several works. The aeroplane emerged as a deadly war weapon and this too was featured most notably in "Banking at 4,000 feet" by CRW Nevinson whose paintings were a major feature of the exhibition drawing on his time as an ambulance driver for the Red Cross and as an operating theatre assistant. The exhibition centred on the series of emotions felt by both combatants and civilians. In a series of watercolours, some of which were particularly graphic, head and facial wounds were shown in minute detail leaving one deeply empathetic for the injured soldiers and in wonder of the skill required by the surgeons. Perhaps nowhere was the emotional force behind the exhibition more movingly demonstrated than in the twelve pictures on loan from the Hiroshima Peace Memorial Museum. One saw in stark terms how the victims of the first atomic bomb remembered the horror of that event in 1945. By any standard this was a powerful exhibition and one worthy of more than one visit.

The Society's Annual Section Meeting was held on 29 April 2015 and Patricia McWilliam Fowler agreed to assume the role of Chair of the Arts Section for 2015-16. Tony Jackson and Joanna Lavelle will serve as Joint Minute Secretaries. The outgoing Chair expressed his warm appreciation to the members of the Arts Section for their exemplary contribution and friendship during 2014-15. He also thanked Julie Brockenshaw and Kathryn Slater from the office staff for their sterling support throughout the year and to Society members generally for their enthusiastic attendance over the session.

Arts Section members for 2014-15 and contributors to this report were Edwina Dyson; Patricia McWilliam Fowler; Tony Jackson (Minute Secretary); Joanna Lavelle; Albert McMenemy (Chair); Gary Mitchell; Gwyneth Mitchell (to 31 January 2015); David Shreeve

May 2015

Lectures arranged by the Science and Technology Committee

29 October 2014 - Professor Edward Cocking

Turning the dream of nitrogen-fixing cereals into reality

This lecture reported on a genetic engineering method of getting cereal crops to also fix nitrogen in the soil in the same way as do legume crops such as clover - with

obvious advantages from the point of view of maximising the world production of cereals while simultaneously minimising the use of fossil fuels for the production of nitrogen (e.g. using the Haber-Bosch process). It was well received with lots of good questions.

25 November 2014 - Professor Colin Bailey

The behaviour of a building during a fire

Professor Bailey, who is a world expert in the field of structural fire engineering, gave a very entertaining talk on the subject of the unusual mode of collapse of the 7 World Trade Centre Building. This building was ignited near the top by burning debris ejected from one of the buildings actually struck by an airliner. He demonstrated, using some very vivid slides, how the design of the structural steelwork had contributed to the progressive collapse. MANDEC was very full for this lecture.

7 January 2015 - Dame Sue Ion

The future of nuclear power

In a very authoritative lecture Dame Sue discussed the present situation concerning the future development of nuclear power in the UK and in various other countries, in particular China, and explained why some countries, notably Germany, had opted out in the aftermath of the Fukushima accident. She then analysed the problems of eliminating the use of fossil fuel within the time-frame promised by the UK government and showed how difficult this would be without the use of nuclear power. This lecture attracted a large audience in the MMU Business School lecture theatre.

9 February 2015 - Professor Sophie Scott

The science of laughter

Professor Scott is a cognitive neuroscientist at UCL where she works on the neural systems involved in human vocal communication, including speech and emotional vocalisation. She was particularly interested in how a fit of laughing involving two or more people can become irresistible. She illustrated this with the famous “Leg-over” episode involving cricket commentators Brian Johnson and Aggers which demonstrated how this recording can infect even a Lit and Phil audience!

24 March 2015 - Professor Robert Mulvaney

Frozen in Time: The archive of past climate and atmospheric change

Ice cores drilled out from the primordial ice sheets of Antarctic and Greenland provide a unique record of climate, going back many thousands of years. Prof Mulvaney gave a vivid impression of what it is like to camp on an ice-field and operate a complex drilling rig at these temperatures – not to mention the problems of bringing the cores home without melting them. He then described the methods by which the ambient conditions at the time the ice was laid down can be determined. The results provide some of the most compelling evidence in support

of human responsibility for the current high levels of CO₂ in the atmosphere and for the consequent ambient temperature rise since the start of the industrial revolution.

14 April 2015 - Simon Singh

The Simpsons and their mathematical secrets

In what was probably the highlight of the session, Simon Singh described the various mathematical “secrets” that have been smuggled into the scripts of *The Simpsons* by a number of scriptwriters who were also mathematical geniuses. These writers had used the show to explore everything from Calculus to Geometry - from Pi to Games Theory and from infinitesimals to infinity. The lecture was based on his recent book of the same name and, after the lecture, his signed books sold like hot cakes. This lecture was the first of the Society’s lectures to be held in the Pendulum lecture theatre of the Manchester Conference centre. (capacity 280) Attendance was about 250. The venue worked well for this size of audience and the break-out room and registration areas were both excellent.

18 May 2015 - Professor Will Swan

Why a house in a lab?

Professor Swan described the advantages of testing out retrofit thermal insulation for typical terrace houses by building a close replica of such a house inside a concrete vault within which precise weather conditions could be simulated. The idea is to define a set of standard conditions and compare heat loss for each of these for competitive retrofit systems. The advantage is that if we were to attempt to compare different systems using normal ambient weather, it would be impossible to make strict comparisons using only the weather that happened to be available at the time.

This lecture had to be changed at short notice because of the death of our original speaker, Professor Michael Brazier, in a tragic motoring accident. A lecture in his memory by one of his Oxford colleagues - on the fossil evidence for evolution - will be given in the next session.

The Science and Technology Section for next Session

We hope that the members will appreciate the programme we have arranged for next session. This will be distributed shortly as part of next year’s Lit and Phil programme.

As Keith Ross has completed his maximum term as Chairman, Michael Sinnott will be taking over from the Society AGM in September.

The present membership of the S and T Section committee is as follows:

Chris Baker; Chris Malkin; Diana Leitch (VP- Council Lectures); Ian Munro (corresponding member); Jonathan Cave (corresponding member); Kenneth Letherman (immediate past president and previous chair of S and T); Melissa Lord; Michael Sinnott (Chair Elect); John Proctor; Rod Sandler (corresponding

member); Keith Ross (current chair); Sir Netar Mallick (Current president); Charles Galasko.

Ideas for future lectures are invited. Please send them with full details where possible to Michael Sinnott or to any other member of the committee.

Keith Ross

Chairman, Science and Technology Committee

Lectures arranged by the Social Philosophy Committee

October 13 2014 - Dr Ruth Davis

Music of the Mediterranean

Ruth's fascinating lecture, which was well received, included some extraordinary audio recordings of Middle Eastern traditional music (first made by Robert Lachman sixty years ago), which were somehow even more evocative of distant cultures than film footage would have been.

November 20 2014 - Dr Peter Shapely

Urban Deprivation and the State

Peter's lecture was grounded very firmly in the public policy area of the Section's remit. His presentation was based on his current funded research, examining the effects of the policies of successive governments in the 1970s and 1980s to counter urban deprivation and to stimulate regeneration. His conclusions underlined the relatively small practical policy differences between governments of very different doctrinal persuasions, as well as the intractable difficulties in tackling the great societal problems.

January 20 2015 - Professor Tim Bayne

Mind Reading

This was an excellent presentation - research led, raising challenging issues of a moral and ethical nature as well as presenting fascinating scientific and medical advances. Wide-ranging questions from the floor, indicating that it was well received.

February 24 2015 - Professor Grenville Hancox

Speech Therapy through Singing

Grenville very kindly agreed to stand-in for his colleague and co-researcher Professor Stephen Clift, who pulled out in January because of family commitments. The title and content of the talk remained unchanged. It was rather a niche topic, but was enjoyed by the audience, and attracted not only a wide range of questions, but also a queue of individuals with rather more personal queries at the end of the lecture. Grenville's style of delivery was engaging, and his passionate advocacy of the physical and psychological benefits of singing, particularly for the elderly and the unwell was very convincing.

April 1 2015 - Dr Isabelle de Groote

Tracking the first people in Britain through Palaeontology

Isabelle's lecture on the Happisburgh footprints was much enjoyed and appreciated by the audience. Not only was Isabelle a primary researcher on the identification and origins of the footprints and therefore able to bring life to the story of their discovery, but she also put the findings into their fascinating and pre-historical global context. Her presentation style was engaging and her love of her subject shone through.

By chance, her lecture linked elegantly into the previous week's S&T lecture on "Ice Cores", and both speakers made reference to the other's lecture. There was a large audience for Isabelle's lecture, which also appeared to have a substantial degree of overlap with the "Ice Cores" audience of the previous week.

May 7 2015 - Dr Robert Poole

Samuel Bamford: the life of a radical

Robert's presentation on the life and work of Sam Bamford was enriched by Robert's rigorous research and passionate commitment to uncovering the real story of Bamford as one of the Lancashire radicals who made such a contribution to the character and development of Manchester. The presentation was notable for the careful analysis of the non-violent path that Sam Bamford pursued which set him apart from some of the other protagonists at the Peterloo Massacre, and how his imprisonment following Peterloo was unjust. Bamford is remembered not only for his involvement in the radical politics but also as a chronicler of social and political life in 19th Century Lancashire, a prolific writer of leaflets and letters, a poet and a newspaper correspondent.

May 27 2015 - Amanda Bailey

Nurturing Mindfulness in Schools

Amanda's demonstrated how "mindfulness", a technique of meditation derived from Buddhism, may have a positive effect on the temperament, behaviour and concentration of pupils in School. It was an interesting talk, which stimulated a wide range of comments and questions from the audience.

Committee Membership

Peter Barnes (Secretary), Ian Bradford, David Brailsford, Caroline Brice, Malcolm Brown, Carole Taylor Bruce, Derek Caldwell, Philip Hulme, Marcia McCauley, Judith Ross (Chair)

Meetings 2014-2015

Formal meetings of the committee were held in September, December, February and April of the 2014-5 session, and communication by email was sustained between the meetings. It was agreed at the Chairs & Secs meeting with Honorary Officers on May 5th 2015 that Section Heads and the Vice-President in charge of Council lectures should meet informally from time to time to discuss areas of shared interest, to develop themes and sometimes to avoid duplication

and overlaps of topics within the lecture programme. The Social Philosophy Committee welcomes this more integrated approach to programme planning.

Annual Section Meeting

The ASM was held on May 18th 2015 at 6.00pm at the Manchester Dental College. Fourteen persons attended. A valuable discussion took place about the substance and quality of the 2014-5 programme and the preview of the 2015-6 programme. A dominant theme was the desire of members that there should be greater opportunity for discussion after the speakers' presentations. This is an issue that the Committee wishes to address in the coming session and beyond, and is working on ideas for new formats.

Planned Programme 2015-2016

September 30 2015 - Dr Susanne Shultz
Evolution of behavioural complexity of primates

November 16 2015 - Ms Judith Wilshaw
Baronies, Manor & Royal Hunting Forests

December 9 2015 - Professor Sir Ivor Crewe
Why is Britain badly governed? And what might be done about it?

January 19 2016 - Dr Mike Nevell
Excavating Engels: exploring the archaeology of Manchester's industrial housing

February 24 2016 - Professor Richard Knowles
Supertrams & Metros: Key to urban regeneration or vanity projects?

April 12 2016 - Ms Dorothea Kazounis
Actions speak louder than words" – an introduction to non-verbal communication

May 10 2016 - Ms Elaine Griffiths
The regeneration of Gorton Monastery

May 26 2016 - Professor Hillel Steiner
Silver Spoons and Golden Genes: Talent Differentials and Distributive Justice

Judith Ross
Chairman, Social Philosophy Committee

Lectures arranged by the Young People's Committee

Our Section's programme consisted of the usual three lectures delivered by high quality speakers who are equally at home giving talks to school students or the general public. Typically, our speakers were leaders in their fields with active involvement in research. Hence, they were well qualified to deal with current issues related to their topic and speculate on likely future developments and their importance both for science in general, and for applications of the technology for the benefit of society. Such speakers are attractive, not only to students at the start of their careers, but also to our membership, whose knowledge of the subject matter can be some years out of date.

Margot Brazier (Professor of Law, Centre for Social Ethics and Policy, University of Manchester) works with Dr Danielle Griffiths (Research Fellow in Interdisciplinary Bioethics, Institute for Science, Ethics and Innovation, University of Manchester). Together, in the RNCM on Wednesday November 12th 2014, they spoke on *Wombs for Sale – Legal and Ethical Aspects of Surrogate Pregnancy*. This outlined the current surrogacy situation in the UK and compared it with the position in some other countries. They referred to legal and practical problems that could occur during surrogacy, including children born parentless and stateless, and the exploitation of impoverished women recruited as surrogates. They made several suggestions to improve the current situation in the UK, some requiring legislative changes, others being mainly administrative.

Steve Furber (ICL Professor of Computer Engineering, University of Manchester) spoke on *Building Brains: bio-inspired massively-parallel computing* in the RNCM on Tuesday February 3rd 2015. He described how the project aims to contribute to unravelling the secrets of brain function by building a computer with a million mobile phone processors for real-time brain-modelling applications. However even a million processors gets us only to 1% of the scale of the human brain. Like all good models that help us to a better understanding of real life situations, this multi-processor model stimulates thought and provides ideas for further experiments to shed light on the functioning of the human brain. Those who attended commented very positively on this lecture.

Jonathan Green (Professor of Child Psychiatry, University of Manchester and Honorary Consultant at the Royal Manchester Children's Hospital) spoke about *Becoming Social – Development and Experience through Childhood and Adolescence* at the RNCM on Monday March 2nd 2015. This was a fascinating account of interactions between newly-born infants and their contacts in early life. Ideally, these interactions result in positive feelings of well-being, though sometimes they result in negative feelings. Patterns of emotional development are being studied together with the areas of brain activity detected by brain scans. There is particular interest in the patterns of emotional development and brain activity recorded in individuals who subsequently show signs of autism or attention-deficit/hyperactivity disorder. If features of early development or life experience prior to the appearance of these conditions can be identified as factors predisposing to these conditions, then it might be possible to modify the child's early experiences in

a way that produces a more favourable outcome. It was not surprising that the audience of all ages was keen to engage in the question and answer session that followed this presentation.

Lectures planned for next year include:

Space Probes to Titan and a Comet

Professor David Southwood, Imperial College, London; 11 November 2015

The Sense of Smell

Professor Matthew Cobb, University of Manchester; 12 January 2016

Anaesthetists at Work

Dr Peter Nightingale's team of Consultants, University Hospital of South Manchester; 2 February 2016

In addition, we are planning a joint event with the University of Manchester's Student Recruitment (Widening Participation and Outreach Section) at which Dr Amy Hughes (Clinical Academic Lecturer in Emergency Response at the Humanitarian and Conflict Response Institute (HCRI), University of Manchester) will speak on "Healthcare in Humanitarian Emergencies" on 3 March 2016.

We also have made progress with planning at least two of next year's three lectures.

The YPS Committee proposed for 2015-2016 includes Chairman Stuart Thompson, Deputy Chair Dr Angus McDougall, Dr Robert Boyd, Professor Derek Crowther, Gina Galli, Dr Francisca Wheeler, George Baker, Margaret Ross and Helen Thompson. The committee is always willing to consider suggestions for meeting topics from individuals or for joint events with other Sections – contact Stuart or Angus for an informal discussion.

Dr Stuart Thompson
Chairman, Young People's Committee
 May 2015

Honorary Curator and Librarian's Report

Work on the data input from the card index of members up to c.1981 has continued and the results can be viewed on the Society's website.

A detailed report was received from MOSI on the provenance of the 'Dalton' items bequeathed to us from New Zealand. Sadly, authentication proved to be difficult.

During the year, several academic enquiries and visits have been made, one involving inspection of our only apprenticeship indenture!

Stella Lowe
Honorary Curator and Librarian

Treasurer's Report

You will find overleaf a simplified income and expenditure account for the year ending 30 June 2015. The Statutory Accounts are presented in the Society's Annual Report. Some additional information may help your understanding:

- I have continued to review the provisions in the Society's books and have released approximately £6,500 of provisions for 'supper costs' relating to prior years, this has had the effect of reducing the costs of *Functions and meetings* by this amount.
- We have looked more carefully at the Gift Aid claim and have included an additional claim so that the *Subscriptions and Gift Aid* entry shows in the account at £5,000 higher due to this adjustment.
- Our investment managers, Brewin Dolphin, stated in early July that our current estimated annual income is £52,000 with a gross expected yield of 3.9%. They also state that the "floundering negotiations of the Greek government and its creditors further eroded investor confidence, reversing much of the year's stock market gains". Together with the additional withdrawal of funds (see below) the accounts show only a minimal level of *Net Investment Profits*.
- As we approached year-end, I was conscious of the need to have more funds available than normal. An additional £7,500 was withdrawn from the portfolio and explains why the bank balance has risen. Reasons for this include the possible office move, new bankers, etc.
- Certain of our costs have increased; these include the cost for the Trustee Indemnity Insurance, Council meeting costs at St James's Club was £215 and maintenance costs for the long-awaited blinds for the office, to mention just a few examples.

D S Brown
Honorary Treasurer

The Manchester Literary & Philosophical Society
Income and expenditure account for the year ended 30 June 2015

	2015 £	2014 £
<i>Incoming Resources</i>		
Voluntary Income		
Subscriptions and Gift Aid	34,442	28,700
Sponsorship	6,000	6,000
Investment Income		
Income from listed investments - UK	43,803	45,833
- Overseas	4,075	3,070
Bank interest receivable	22	15
Sundry income and donations	747	271
<i>Total Incoming Resources</i>	89,089	83,889
<i>Resources Expended</i>		
Charitable expenditure:		
Cost of activities in furtherance of the Society's objects	69,812	67,445
Governance costs	14,880	13,090
<i>Total Resources Expended</i>	84,692	80,535
<i>Net Incoming Resources</i>	4,397	3,354
<i>Other Recognised Profits</i>		
Profits on the revaluation and disposal of investments assets:		
Profits/(Losses) on sale of investments	18,477	49,486
Previously accounted for as unrealised (profits)/losses	(19,100)	(33,922)
Profits/(Losses) realised on investments sold	(623)	15,564
Unrealised profits on investments	2,234	68,382
<i>Net Investment Profits/(Losses)</i>	1,611	83,946
<i>Net Movement In Funds</i>	6,008	87,300
<i>Total Funds Brought Forward</i>	1,354,845	1,267,545
<i>Total Funds Carried Forward</i>	1,360,853	1,354,845

All the above results derive from continuing operations. There are no other recognised gains and losses other than the results for the above years.

The Manchester Literary & Philosophical Society
Balance Sheet - 30 June 2015

	2015	2014
	£	£
<i>Fixed Assets</i>		
Tangible assets	375	987
Investments	1,347,646	1,367,046
	<u>1,348,021</u>	<u>1,368,033</u>
<i>Current Assets</i>		
Debtors	2,226	4,503
Tax repayment due	9,880	-
Prepayments and accrued income	520	740
Cash at bank and in hand	18,295	11,267
	<u>30,921</u>	<u>16,510</u>
<i>Creditors:</i>		
Amounts falling due within one year	18,089	29,698
	<u>18,089</u>	<u>29,698</u>
<i>Net Current Assets (Liabilities)</i>	<u>12,832</u>	<u>(13,188)</u>
<i>Net Assets</i>	<u>1,360,853</u>	<u>1,354,845</u>
<i>Funds of the Charity</i>		
Unrestricted funds		
Expendable endowment fund	1,360,853	1,354,845
<i>Total Funds</i>	<u>1,360,853</u>	<u>1,354,845</u>

These financial statements were approved by the Trustees at a Council meeting held on 3rd August 2015.

JOHN S BUCKLEY Secretary

D S BROWN Treasurer

Company Registration Number 9330.

Officers and Council 2014–2015

President

Sir Netar Mallick

Immediate Past-President

Kenneth Letherman

Vice-President and President-Elect

Diana Leitch

Vice-President

Constance Holland

Honorary Secretaries

John Buckley David Astbury

Honorary Treasurers

David Brown David Costley-Wood

Honorary Curator and Librarian

Stella Lowe

Memoirs Editor (Ex-Officio)

Graham Booth

Members of Council

Janet Argust Chris Boyes Ronald Catlow Albert McMenemy
Angus McDougall Patricia McWilliam Fowler David Shreeve

SECTION OFFICERS

Arts

Chairs: Albert McMenemy Patricia McWilliam Fowler
Minutes Secretary: Tony Jackson

Science and Technology

Chairs : Keith Ross Chris Baker
Secretary: Rod Sandler

Social Philosophy

Chair: Judith Ross
Secretary: Peter Barnes

Young People

Chairs: Stuart Thompson Angus McDougall

Administrators

Julie Brockenshaw Kathryn Slater

Presidents of the Society

Date of Election

1781	Peter Mainwaring, MD; James Massey
1782-1786	James Massey, Thomas Percival, MD FRS
1787-1789	James Massey
1789-1804	Thomas Percival, MD, FRS
1805-1806	Rev George Waler, FRS
1807-1809	Thomas Henry, FRS
1809	*John Hull, MD, FRS
1809-1816	Thomas Henry, FRS
1816-1844	John Dalton, DCL, FRS
1844-1847	Edward Holme, MD, FLS
1848-1850	Eaton Hodgkinson, FRS, FGS
1851-1854	John Moore, FLS
1855-1859	Sir William Fairbairne, Bart, LLD, FRS
1860-1861	James Prescott Joule, DCL, FRS
1870-1871	Edward William Binney, FRS, FGS
1872-1873	James Prescott Joule, DCL, FRS
1874-1875	Edward Schunck, PhD, FRS
1876-1877	Edward William Binney, FRS, FGS
1882-1883	Sir Henry Enfield Roscoe, DCL, FRS
1884-1885	William Crawford Williamson, LLD, FRS
1886	Robert Dunkinfield Dabishire, BA, FGS
1887	Balfour Stewart, LLD, FRS
1888-1889	Osbourne Reynolds, LLD, FRS
1890-1891	Edward Schunck, PhD, FRS
1892-1893	Arthur Schuster, PhD, FRS
1894-1896	Henry Wilde, DCL, FRS
1896	Edward Schunck, PhD, FRS
1897-1899	James Cosmo Melvill, MA, FLS
1899-1901	Horace Lamb, MA, FRS
1901-1903	Charles Bailey, MSc, FLS
1903-1905	W. Boyd Dawkins, MA, DSc, FRS
1905-1907	Sir William H. Bailey, MIMechE
1907-1909	Harold Bailey Dixon, MA, FRS
1909-1911	Francis Jones, MSc, FRS
1911-1913	F.E. Weiss, DSc, FRS

1913-1915	Francis Nicholson, FZS
1915-1917	Sydney J. Hickson, DSc, FRS
1917-1919	William Thomson, FRSE, FCS, FIC
1919	G. Elliot Smith, MD, FRS
1919-1921	Sir Henry A. Miers, DSc, FRS
1921-1923	T.A. Coward, MSc, FZS, FES
1923-1925	H.B. Dixon, CBE, PhD, FRS, FCS
1925	†Rev A.L. Cortie, SJ, DSc, FRAS, FInstP
1925-1927	H. Levinstein, DSc, MSc, FIC
1927-1929	W.L. Bragg, OBE, MA, FRS
1929-1931	C.E. Stromeyer, OBE, MInstCE
1931-1933	B. Mouat Jones, DSO, MA
1933-1935	John Allan, FCS
1935-1937	R.W. James, MA, BSc
1937-1939	R.H. Clayton, MSc
1939-1940	D.R. Hartree, PhD, MSc, FRS
1940-1944	H.J. Fleure, DSc, FRS
1944-1946	M. Polanyi, PhD, DSc, MD, FRS
1946-1948	T.B.L. Webster, MA
1948-1950	E.J.F. James, DPhil
1950-1952	H. Hayhurst, FRIC, AMIChemE, FRES
1952-1954	Sir Geoffrey Jefferson, CBE, LLD, FRCS, FRS
1954-1956	P.F.R. Venables, PhD, FRIC
1956-1958	F.C. Toy, CBE, DSc, FInstP
1958-1960	C.E. Young, MSc
1960-1962	H. Lipson, DSc, FInstP, FRS
1936-1964	L. Cohen, BCom, FBIM
1964-1966	Margaret Pilkington, OBE, MA, FMA, JP
1966-1967	H. Hayhurst, MSc, CEng, FRIC, AMIChemE, FRES
1967-1969	Brian Rodgers, BSc(Econ)
1969-1971	G.N Burkhardt, PhD, FRIC
1971-1973	G.J. Kynch, PhD, MScTech, ARCS, DIC, FIMA
1973-1975	E.N. Abrahart, PhD, FRIC, FSDC
1975-1977	A.E.R. Goulty, MA
1977-1979	H. Lipson, CBE, DSc, FInstP, FRS
1979-1981	H.M. Fairhurst, MA, FRIBA
1981-1983	D.G. Wilson, OBE, DL, FIB, FBIM
1983-1985	L.J. Postle, PhD, FInstP, FInstMC

1985-1987	Sir Netar Mallick, MB, ChB, FRCP
1987-1989	B.S.H. Rarity, PhD, FRAS
1989-1991	P.G. Livesey, FCA
1991-1993	D.S.L. Cardwell, PhD
1993-1995	E.F. Cass, MA, ACIB
1995-1997	A. Donnachie, PhD, CPhys, FInstP
1997-1999	Dianne Wilson
1999-2001	I.E. Gillespie, MD, MSc, FRCS
2001-2002	A.G.D. Yeaman, JP, CEng, MIMechE
2003-2005	K.D. Buckley
2005-2007	Vivienne Blackburn, BSc
2007-2009	Mary, Lady Mallick, JP, BA
2009-2011	David J Higginson, LI B
2011-2014	Kenneth M Letherman, BSc, MSc, PhD, DSc, CEng, FIEE
2014-2016	Sir Netar P Mallick, BSc, MB, ChB, FRCP

* Elected 28 April, resigned office 5 May 1809

† Died 16 May 1925

Honorary Members

As at 30 June 2015

1990 Professor J M Ashworth
2013 Professor J Brooks
1987 Professor I Butterworth
1989 Mr M N G Evans
2013 Professor M Hall
1992 Professor S Hawking
1968 Reverend Dr R L Hills
2013 Professor L Merrick
1999 Professor Sir Ghillean Prance
1990 Sir M Richmond
1990 Dr R Schlich
1994 Sir R Scott
2004 Dame J Smith
1987 Dr T Sommer
2012 Professor Linda Merrick
2012 Professor Martin Hall
2012 Professor John Brooks
2012 Professor Dame Nancy Rothwell

Elected Corresponding Members

As at 30 June 2015

1972 Professor A Thackray
1946 Mrs R Williams

The Dalton Medal

The Dalton Medal is the Society's highest award and a distinction only rarely bestowed. It is given to those who have made a distinguished contribution to science.

The Medal has been awarded to:

- 1898 Edward Schunk, FRS
- 1900 Sir Henry E Roscoe FRS
- 1903 Professor Osborne Reynolds FRS
- 1919 Professor Sir Ernest Rutherford, OM, FRS
- 1931 Sir Joseph J Thomson, OM, FRS
- 1942 Sir Lawrence Bragg, CH, MC, FRS
- 1948 Professor P M S Blackett, OM, FRS
- 1966 Professor Sir Cyril Hinshelwood, OM, FRS
- 1981 Professor Dorothy Hodgkin, OM, FRS
- 1997 Professor Sir Harold Kroto, FRS
- 2002 Sir Walter Bodmer, MA, PhD, FRCPATH, FRS
- 2005 Professor Sir Roger Penrose, OM, FRS
- 2009 Professor Sir Bernard Lovell, OBE, FRS
- 2012 Professor Lord Martin Rees, OM, Kt, FRS

Ordinary and Corresponding Members as at 30 June 2014

* Denotes corresponding members † Deceased

We are not including Members' addresses due to the requirements of the Data Protection Act, but these are being published in a separate booklet for Members.

2011 Mr G P Abraham
2014 Mr J Adams
1955 Mrs M E Ainsworth
1989 Professor ST S Al-Hassani
2013 Mrs J Anderson
1981 Mr V J Andrews
2000 Mrs J E Argust and Mr J P Argust
2013 Mrs J M Armit
2013 Miss W Ashmore
2009 Mr D Astbury
2013 Mrs J Atherton
2008 Mr G Baker and Mrs C Baker
2008 Mr C E J Baker and Mrs J Baker
2011 Dr R Baldwin and Mrs C Baldwin
2002 Mr N P Barnes
2010 Dr P C Barnes
2009 Mr W Bates
1991 Dr B Benster
1986 Mr P K Berry
2012 Mr C Bezer
2011 Dr A Bingham
1994 Mrs V Blackburn
2013 Mr G Blomeley
2013 Mr W Boardman
2008 Professor J G Booth and Mrs M C Booth
2009 Mr E Bor
1991 Mrs A Boulton
2014 Mr A Bowen and Mr M Knowles
2010 Professor Sir R Boyd
1999 Mr C J Boyes
2008 Mr I Bradford
2004 Mrs H M Bradshaw
2003 Mr D Brailsford

2009 Mr J Brandrick
2014 Mrs P Broadhead
2005 Mr D Brooks
2012 Mr D Brown and Mrs Y Brown
2003 Mrs L Brown
2011 Mr M R Brown
2012 Mr GR Bruce
1990 Mr K D Buckley and Mrs N Buckley
2000 Mr J S Buckley
2009 Dr C Burke
1985 Dame Sandra A V Burslem
2003 Dr R Butler
2006 Mr D Caldwell and Mrs J Caldwell
2010 Mr I C Cameron
2009 Mr N O Campbell
2000 Miss S E A Canney
1981 Mr J L Carroll
2012 Dr M Carter
2007 Dr J E Cassidy
1981 Dr R E Catlow
2012 Mr J Cave
2009 Mr T Cheetham
2014 Dr R Chisholm
1997 Professor M Chiswick and Mrs C Chiswick
2011 Mr R Chiverton
2004 Mr D Christensen and Mrs E Savaton
2013 Mr B Clark
2009 Ms L Clarke and Mr R Turner
2004 Mr J Clegg
1998 Dr P J Collier
2010 Mrs C Collins
2012 Professor C Cooper
2011 Mr D Cooper
1995 Mr G A Corkill
2014 Mr D Costley-Wood
2005 Mr M G Cotgreave
2010 Mr B C Crebbin
2012 Mr A Crowther
1999 Professor D Crowther and Mrs M Crowther
2014 Mrs M R Crumpton
2013 Dr M Cunningham

1993 Mr R A da-Costa
2010 Dr W Darlington
2011 Mr S Datta
1968 Mr J H W Davidson
2012 Mrs J Davies and Mr W Davies
2009 Professor J K Davies
1959 Mr D H de Maine
2014 Mr C J Deacy
2013 Mr A Dean and Mrs L Dean
2004 Dr A Deiraniya
2013 Ms A Dellow
2013 Mr A Denton
2013 Dr M Desai
2008 Dr J Dewey
2013 Ms K Dibble
2012 Mr P Dixon
1986 Professor A Donnachie and Mrs D Donnachie
2006 Dr P Donnelly and Mrs A Donnelly
2014 Ms B Duffy
2013 Mr E Durkan
2013 Mrs E Dyson
1978 Mr J C Eagle and Mrs Eagle
2013 Dr W Ebenezer
2009 Ms S Egan
2010 Ms B Eliot
1984 Mr T A Elliot
1994 Professor M Elstein and Mrs C Elstein
2013 Dr N Emekwuru
1988 Mr P Emerson Jones
2010 Dr B Eyden and Mrs F Eyden
2003 Mrs V Fahey
1983 Professor P G Farrell
2013 Miss A Fazackerley
2012 Mr B Fazakerley
2012 Dr P Fenn
2010 Mr F L Fernley
2013 Dr J Fisher
2004 Mrs A Fitzpatrick
2004 Mr P L Frank
1990 Mr R Frost
2011 Professor C Galasko

2009 Ms C Gandey Briggs
2013 Mr D Gane
2012 Dr G V Garner
2014 Mr M Garrity
2012 Mrs M Gethic
1986 Professor I E Gillespie and Mrs M Gillespie
2012 Mr S Glover
2010 Mr W Godwin
2014 Mr P Good
2011 Mr I W Grant and Mrs A M Grant
2011 Professor J Gray
2007 Professor J Green
2007 Mr J Grieve
1994 Mr S H Halsall and Mrs M Halsall
2010 Mr M Hancocks
2013 Mr M Hanley
2007 Professor D G Harnden
2013 Miss E Harper
2014 Mr A Harrison and Mrs S Harrison
2013 Mrs L Hart
1971 Dr M G Hartley and Mrs C Hartley
2003 Mr G Hayes and Mrs A Hayes
2009 Judge T B Hegarty and Ms I L Hegarty
1989 Professor J R Helliwell
2008 Mr P Hewitt
2009 Miss G Heyworth
2010 Mr C H Higgins
1989 Mr D J Higginson
2011 Mrs EB Hill
1988 Mr A Hillier and Mrs D Hillier
2007 Mrs J Hillier
1986 Mr P G Hilton and Dr S R Hilton
2008 Mr R Hirschkop
2013 Mr J C Holland and Mrs H Holland
2003 Mrs C L Holland
2014 Mr J Holt
1970 Mr V St G Holt
2014 Mr J Hook
2009 Mr B Hooley
2000 Professor A Howell and Mrs S Howell
2009 Mr J Howell

2009 Dr P Howes
2013 Mr J Hui
2006 Mr P E Hulme
2014 Mr J Hunt
2012 Mr M Hunt
2009 Mrs G Irvine
1985 Professor I Isherwood and Mrs J Isherwood
2011 Dr B Isherwood
2014 Ms F Jackson
2001 Mr J S Jackson and Mrs M Jackson
2009 Professor J D Jackson and Mrs L A Jackson
2010 Professor A R Jackson
2013 Mr S R Jackson
2013 Mr T Jackson-Baker
1991 Professor M I V Jayson
2010 Mr D W Jenkins
2002 Mr S Jennings
2003 Dr G Jessup
2013 Mr R S Johnson
2007 Mr L Jowsey and Mrs D Jowsey
2014 Mr Y Kansal
2000 Professor J Keaton
2012 Mr B N Kendrick
2008 Mr J Kennedy CBE, KSG, DL
1997 Mr M P Kershaw and Mrs E Kershaw
2013 Dr J King
2010 Professor P M Kumar
2014 Mr W Lamb
2011 Ms G Lambie
2013 Professor J Langrish
2008 Dr J Latchford
2012 Professor B E Launder
2010 Mrs J Lavelle
2007 Mr M J Lees
1988 Mr W R Lees-Jones
2008 Dr D Leitch and Dr D M Leitch
2003 Professor K M Letherman and Mrs R Letherman
2000 Ms B M Lett
2012 Professor G Levermore
2010 Mr R Lewis
2012 Mr G Lloyd and Mrs J Lloyd

2008 Dr M Lloyd
2011 Dr E S Long
1962 Miss S J Lowe
2012 Dr P Lund
2013 Mr A Lynham
1990 Mr N M MacPhail
2008 Mrs P Mainprize and Mr I Mainprize
1981 Mr C E Makepeace and Mrs H Makepeace
1999 Dr P J Makin
2010 Mr C Malkin and Ms C Brice
1975 Professor Sir N Mallick and Lady Mary Mallick
2013 Dr H Mamtora
1971 Mr R G Manders
2008 Professor J Marsden
1994 Mrs R Marsh
2013 Miss J Marshall
2009 Dr M A Martin
2014 Miss A Maskell-Aparycki
1975 Miss M R Mason
2014 Mr O Matovu
2013 Mr G Mauchline
2006 Mr D McAuley
1983 Mrs M McCauley
2012 Mr D McCulley
2010 Dr A McDougall
1999 Dr S McKeown and Mrs A McKeown
2014 Mr A McKinnon
2013 Mr A McMenemy
2013 Mrs P McWilliam-Fowler
2014 Mr D Mehta
2014 Ms B Meredith
1988 Dr J P Miller
2013 Mr G Mitchell
2004 Mrs G Mitchell
2013 Miss E Moore
1998 Mr B P Morris and Mrs E Morris
2012 Mr D Morris
1988 Dr J J Moscrop and Ms C Orgell-Rosen
2002 Dr J G Mosley and Mrs J Mosley
1979 Professor I H Munro
2001 Mr J D Naylor

2005 Mr G A Needham
2009 Mrs Y Neild
1997 Dr P Newton and Mrs K Newton
2013 Mr R Niaz
2014 Miss C Noone
2014 Mr P Noone and Mrs J Noone
2014 Dr L Norbury
2013 Miss E Nowell
2008 Mr M Oglesby and Mrs J Oglesby
1995 Mrs E O'Grady
2013 Ms T O'Neill
2007 Mr J O'Neill
2002 Mr J Owen
2013 Mrs J Parker
2011 Mr A Parsons and Ms K Parsons
2013 Mr D Peat OBE
2013 Dr J Peel
2009 Dr R Pickering and Mrs J Pickering
2001 Mrs B Piper
1981 Dr J E B Ponsonby
2014 Mr R Poole
1998 Mrs V C Poole and Miss H M Poole
1986 Dr T Porter and Mrs MR Porter
2013 Mr A Postill
1985 Reverend Dr W P Povey
2008 Mr D Poyner and Mrs J Poyner
2013 Mr P Prinsloo
2011 Mr S Procter and Miss C Rigg
2014 Mr R S Pryor
1998 Dr B R Pullan
1982 Mr F R Purslow
2014 Mr B Purvis
1986 Mr D L Raffle
2005 Mr A Rahman
2008 Dr J Rees
1981 Mr R C Rees
2002 Professor B Richards
1981 Mr R W Richards
2004 Mr W N B Richardson
2012 Mr D Riste
2009 Mrs M E Riste

1981 Professor T E Roberts
2007 Miss P R Roberts
1966 Professor A C Rose-Innes and Mrs B Rose-Innes
2006 Mr I A Ross
2001 Professor D K Ross and Mrs J Ross
2007 Mrs E M Ross
1983 Mr R K Ross
1992 Dr P Rowlands
2004 Mr P Rubery
2013 Ms H Sacco
2005 Mr M R Sanderson
2008 Dr R Sandler and Mrs L Sandler
2013 Mr J B Sangster
1971 Mr M H J Sargent
2008 Dr C Saunders
1992 Mr P G Schaefer
2004 Mr R Schofield
2003 Mrs S M Sharp
1995 Mr G A Shindler
2011 Dr D R Shreeve
2010 Professor M L Sinnott
2014 Miss R Smith
2013 Dr A Smith
2007 Dr T F Smith
2009 Mr T Smurthwaite
2009 Miss C Spencer
1989 Mr J Spencer
1986 Miss D J Stenson
2013 Mrs H Sullivan
2012 Mr M Suss
2001 Mr R N J Sutton
1998 Mrs P Swanston
2004 Dr R A Symes
2011 Ms M Taylor
1975 Mrs M A Taylor
2005 Miss M A Taylor
2000 Ms W Taylor
2012 Mrs C Taylor-Bruce
2000 Mrs N E G Tennant
2009 Professor D G Thompson and Dr H F Thompson
1981 Dr J S Thompson and Mrs H Thompson

1988 Dr J M Thomson
2011 Dr J Tipping
2008 Mrs C Treasurer
2013 Ms D Turner
2014 Mr R Turner
2010 Mrs H M Turner
2010 Dr B J Tyler
2004 Mrs P Verdin
2005 Mrs J M Wainwright
2013 Ms S Wakefield
2009 Professor T W Warnes
2008 Professor J Waterton
2013 Mr B Watson
2014 Mr N P Webb
2010 Mr P E Webb
1992 Mr T L Webster
1964 Professor G Wedell
2014 Dr C Weinkove
2013 Mrs J Westerdale
2011 Dr F P Wheeler and Dr F Wheeler
1999 Mrs S A Whitaker and Mr P N Whitaker
2013 Mrs E Wilkinson
2010 Mr B D Williams and Mrs E M Williams
2001 Mr E R Williams
2012 Dr P C Williams
2004 Dr G Wills and Mrs J Wills
2008 Mr P Willson
2008 Mrs B Wingard
2013 Professor D Winterbone
2014 Mrs S Wisniewski
1994 Mr A J Wood
2014 Ms B Woodyatt
2013 Mrs C F Wright
2009 Mr B Yates
1981 Mr A G D Yeaman
1983 Mr R O Yeo and Mrs C M Yeo
2013 Mr R Young and Mrs B Young
2013 Mr M Zanganeh
2010 Mr L Zastawny

For the Record

In volume 152, at the end of Patricia Fara's article 'Under Newton's Apple Tree' the last three lines of her pen-picture on page 69 were omitted by a fault in type-setting. The pen-picture in its entirety is reproduced here:

Patricia Fara read physics at Oxford University and has a PhD in History of Science from London University. She lectures in the History and Philosophy of Science department at Cambridge University, where she is the Senior Tutor of Clare College. A regular contributor to popular journals as well as radio and TV, she has published a range of academic and popular books on the history of science including Sex, Botany and Empire (Icon Books, 2003) and Pandora's Breeches: Women, Science and Power in the enlightenment (Pimlico, 2004). Her Science: A Four thousand Year History (OUP, 2009) has been translated into nine languages and was awarded the Dingle Prize by the British Society for the History of Science. Her most recent book is Erasmus Darwin: Sex, Science and Serendipity (OUP, 2012). This article is based on her book: Newton: The Making of Genius (Macmillan, 2002).

Correspondence to pf10006@cam.ac.uk

At the end of the Obituaries section (page 163) **Other Deaths 2012-13** should have read **Other Deaths 2013-14**.

Rachel Smith was listed as Miss Smith in the list of Ordinary and Corresponding Members (page 193).

The back-cover mis-spelled Dr Elena Barabantseva's name in referring to her article on Manchester's Chinatown.



The Manchester Literary and Philosophical Society was founded in 1781 for the advancement of literature and science and the widening of interest in public affairs.

The Main Society meetings are open to the public as guests of the Society, as are the Society's
Young
People's Lectures.

The Memoirs have been published since 1785.
A combined author and subject index
up to 1999 is available.

Cover illustration: a mosaic panel of sulphur-crested cockatoos, created for an international exhibition in 1909 by Joseph Briggs, the subject of Douglas Jackson's article.
(copyright: Haworth Art Gallery)