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The Making of a Cathedral
Turner and Italy
Newman the Satirist
Extinctions Ancient and Modern
The Elephant Man and Leicester
Shakespeare's Histories in Performance
Protecting Vulnerable People

From the Amazon to the Eden Project
Observing the Earth from Space
History of Victoria Park
Henry Swain Bennett, Benefactor
The Harry Hardy Peach Lecture
Annual Reports
Membership Directory

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CONTENTS

THE MAKING OF A CATHEDRAL

Presidential Address by Canon Michael Wilson

TURNER AND ITALY

Professor Luke Herrmann

NEWMAN THE SATIRIST, OR POWELL'S PARADOX

Professor William Myers.....

EXTINCTIONS – PAST, PRESENT, AND FUTURE

Professor Michael J. Benton.....

THE ELEPHANT MAN AND LEICESTER

Dr D.A. Burns

SHAKESPEARE'S HISTORIES IN PERFORMANCE (ILLUSTRATED)

Professor Lois Potter

THE PROTECTION OF VULNERABLE PEOPLE FROM ABUSE: MORAL AND PROFESSIONAL DILEMMAS

Professor Olive Stevenson

FROM THE AMAZON RAINFOREST TO THE EDEN PROJECT

Professor Sir Ghilleen Prance, FRS

OBSERVING THE EARTH FROM SPACE

Dr. Sean Lawrence

THE HISTORY OF VICTORIA PARK

Dr Helen Boynton.....

HENRY SWAIN BENNETT (1858 - 1927): A MAJOR BENEFACTOR OF THE LEICESTER LITERARY & PHILOSOPHICAL SOCIETY

Professor Patrick J. Boylan.....

THE HARRY HARDY PEACH LECTURE

ANNUAL REPORTS AND LIST OF MEMBERS

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THE MAKING OF A CATHEDRAL

Presidential Address by Canon Michael Wilson

Delivered on October 1 2001

900 years ago to the day on Monday of last week the Cathedral Church in Norwich was consecrated for holy use. But that is not the whole story. The Saxon cathedral foundation at North Elmham dates from the year 800 or earlier. It was operative for less than 50 years before lapsing. The discernible ruins hint that there were two purposes to it: the worship of Almighty God and the domesticity of the bishop. The site and its life were revived around 855. Then it was abandoned for Thetford around 1075. It eventually settled in Norwich in 1096.

What happened in Norfolk is symptomatic of cathedral foundations, ancient and modern. There is endless debate about who was the first bishop of Leicester. Whether there is discontinuity or continuity, no English cathedral started out, or ever managed to become what generations of romantics and sentimentalists have wished: that immutable holy place, peacefully immune from the changes and chances of the world within and around it. The fifteen cathedrals of William the Conqueror's reorganisation of an England bereft of cities prompted mixed feelings of security and unease - reassurance due to a vast improvement in civic development, unease as symbols of colonising power. Cathedrals and their enclosures, with their "Closes" (where they have them), need to be alert to the tensions of their internal and external contexts.

Cathedrals are a fact of English life and landscape. All have chequered histories. All are different except that they are all bodies corporate by Order in Council. In this sense they are equal to one another, with the Church of England making sure that, large or small, each has a Dean and at least two Residentiary Canons. Chapters meet at a vacancy in see solemnly and obediently to elect the next bishop, who can only be the one whose name is recommended by the Sovereign. The impression can be easily given of a cathedral being a microcosm of episcopal power, a bishop's princely court, keeping the status quo for an imperial and colonising church and nation.

But what are they really for day by day? When Hensley Henson arrived in Hereford in 1918 as the new bishop, he sought from the cathedral chapter what its members saw as the purpose of their cathedral. As a result Henson claimed he received clearer and more useful information about the cathedral enterprise from his domestic butler. This myth that "Cathedral equals problem" is perpetual. Rumours of dysfunction may be attributed to every generation - and indeed every bishop - standing for different ideals and wanting their cathedrals to adapt and re-adapt. People generally want the cathedrals of our nation to stand for venerable continuity, to have

the "wow!" factor, to be publicly owned and accessible, somewhat "up marker" but not elitist.

Therefore the sensible cathedral is sensitive to how it is perceived but careful not to dance a jig to everybody's tune. Cathedrals are therefore loved and despised.

English cathedrals frankly cannot transmit much of a venerable past despite their sometimes-ancient historical foundation. Some have suffered real and sustained wreckage from politics. others owe their rise to wrecking tactics and the injustices of political expediency. Leicester's cathedral took its rise, it could be said journalistically, from a between the wars ecclesiastical version of "Blind Date", with the unsuccessful contestants still seen by some commentators as jilted. It is a tricky perception to live down.

English cathedrals today are largely a modern invention of the last 200 years, as are the functions expected to characterise them. In the early nineteenth century in London there was as yet no great Anglican Choral evensong. The immemorial English Cathedral choral tradition is a Victorian invention. Nor have cathedrals been long-term leading edges of

education. The Endowed Schools Act of 1869 forced cathedral chapters to turn their rather ad hoc Dickensian schoolrooms into organised educational institutions capable of achieving standards under inspection. The upkeep of cathedral fabric also emanates largely from the nineteenth century. It seems that cathedrals tend to arise from discomfort. Cathedrals are still in the making.

If so, what are cathedrals aiming for? The turmoil of ages gives evolutionary clues. Synagogues of the Jewish diaspora were often house churches and so it is likely that early Christian practice followed Jewish precedent. Paul of Samosata, bishop of Antioch (ca 260), when condemned for heresy, "refused to leave the church-house" which was likely to be his home and his cathedral. Nickolaus Pevsner comments that the ruins of the Saxon cathedral at North Elmham testify to this dual purpose: They "are confusingly mixed up with those of Bishop Despencer's [later] manor house".

The formative second century of the current era ensured "bishops" or "overseers" were busy. A quick culmination of history by a dramatic act of God was now being doubted. The Apostolic Church had to reshape itself for wider and longer-term business. Christian influence was spreading dynamically and widely. The growing Church had to develop a business plan with identifiable authority and leadership. This highly mobile Gospel affecting the sinews and tissues of the Mediterranean world needed a reliable heartbeat and nucleus in every city. The hurts and aches of these raw social, political and religious nerves were transmitted through the apostolic journeys of St. Paul and movingly unfolded in the growth from humble and fear-ridden beginnings of the cathedral of St. Peter in Rome. The Galilean fisherman who used the literate St. Mark as his intellect and scribe, came to Rome around the year 42 to join the small but growing household of Christians there. St. Peter 'was martyred in Nero's Circus in a style satirical of Christ's own execution, sometime between 64 and 67. His corpse was placed in a shallow grave in the necropolis nearby. The alleged spot is located seven metres below the papal altar in St. Peter's basilica today. Here is a cathedral hatched from struggle.

The conversion of Constantine was the turn-around for the identity the Christian Church. The Empire, it

seemed, had been placed irrevocably into the hands of the Christians' living God. Cathedrals are made on these premises, of Christian leaders ranking in the hierarchies of government establishment. The Christian Church clearly came to adopt the principle "one city, one bishop, one church" by the middle of the second century. The pattern was a group of clergy living with their bishop under rule (or "canon"). This idea was however honoured more in the breach than in the observance until the nineteenth century applied romantic vision to a golden age that never was.

One of the best documented "makings" of a cathedral in this romantic idiom is the rise of Liverpool's Anglican Cathedral. The diminutive bishop of Liverpool, Francis James Chevasse, explained the need for "visible witness for God in the midst of the great city", for a place "for diocesan and popular services" and to "express and deepen the spiritual longings and aspirations of many among us." For 22 years, despite opposition, his aims were the synergy of Diocese and Cathedral as a unifying and motivating force in all spheres of human living, influence and operation.

Bishop Chevasse's successor in 1923, Albert Augustus David, appointed Charles Raven to the Cathedral with hitherto no staff as a "provisional canon". Raven had a passion, deep scholarship and determined imagination to contribute to the making of a cathedral. The liberal bishop also added the creative genius of Frederick William Dwelly as the first Dean. With the Bishop, these two formed a creative alliance around and within Gilbert Scott's far from complete building. This simple chemistry achieved much, eradicating the relentless English quest for short-term utility and cheapness that brings vulnerable spiritual institutions to the point of inertia and inconsequence, as could be seen in the state and story of St. Paul's Cathedral in London in the mid-seventeenth century.

250 years later on in Liverpool, Dwelly was faced with the first consecration from scratch of a cathedral in England since before the Reformation. He wanted to get it right and entire. Prior to the building's consecration Dwelly succeeded in enlisting over 5000 to take part in a twelve-hour vigil through the night. Their prayerful task was to meditate on the global significance of the cathedral itself, the work of

the bishop, the clergy, and the faithful, and the service to be undertaken in the future to the city, the country and the world. Dwelly suspected places that stand for everything tend to communicate nothing. There 'was no exclusiveness of attitude. Raven discerned that "the great communal services, medical, educational and artistic, financial, industrial and commercial, were in fact ministries and vocations; and that the first task of the church was to arouse the consciousness of God." The cathedral community was determined to be outgoing and practical. Strong links were established with the arts and sciences, learned professions, industrial and social services. This Cathedral did not set out to function as a high-grade parish church, ministering only to its regular worshippers, but to attract into friendship many people who would see the bigger picture and respond.

To those of us engaged in the intricacies of the present Cathedrals Measure, it is interesting to note that a Liverpool Cathedral College of Counsel 'was installed. It included John Masefield, the Poet Laureate, who spoke at the dinner celebrating the foundation of the Dean and Chapter at the Adelphi Hotel on 4 October 1931 on what a cathedral should not be:

"To most of us a Cathedral is a big and beautiful building, made from four to seven centuries ago by men of extraordinary genius, as an offering to God, and as a house for the throne from which the Bishop might watch them draw near... Sometimes the sightseer is slightly inconvenienced by the presence of a few old infirm men and women, gathered in a corner to listen while a man in vestments gabbles something, but the inconvenience comes seldom and is always slight. The sightseer is usually more pestered by guides. Coming away from such a place, the sightseer sometimes reflects that the place is dead and had better be buried."

"...A cathedral should be... a place plainly to be seen by the citizens, and by those in the district... Cathedrals have been made great in the past because their citizens have believed in them, and have given greatly of their best to make them glorious.. They have used the best of their time."

"Certainly a Cathedral should be splendid within, with the best that all artists and citizens can offer"...

(with) many institutions attached to her, for teaching, healing and relieving. She should be the place to which all the generalities of her citizens, as well as those artists of the time, should turn and flow. Then since the main purpose of a Cathedral is worship, and the Dedication of a Cathedral is to some special attribute of what is ever to be worshipped.. .This Cathedral of Liverpool, the greatest of modern Cathedrals, is a Church of the Resurrection.. What has been muffled and in shrouds and buried down deep after being broken.. should emerge here and be triumphant. Then indeed it would be a Cathedral that Is and Is as it should be."

Will the dream ever be realised? 70 years ago, 4 years after the hallowing of Leicester Cathedral, Masefield spoke prophetically about the power and service of the Kingdom of God cathedrals could be capable of. His words still serve well to inform a new century, a new millennium, brought to the brink of 'war by terrorist atrocities, that, informed by experience, our remedy and renewal of the world is a spiritual task.

NEWMAN THE SATIRIST, OR POWELL'S PARADOX

Professor William Myers

Lecture Delivered on November 19 2001

A summary of the current view of Newman from an Anglican perspective appeared in a review in the *Weekend Telegraph* in August 1990. Newman is there represented as first transforming the Church of England with the discovery that it was 'the Church Catholic', and then deciding that 'the true Church Catholic was ...none other than the Church of Rome.' The reviewer was J. Enoch Powell, who went on to say how surprised he was by that Newman's 'sense of humour' and 'entrancing irony', an irony which Newman turned into 'a formidable controversial weapon'.

One of the most accessible examples of this irony is in the Lectures given by Newman to a group of lay supporters in 1851, known as *The Present Position of Catholics*. In the opening lecture, Newman parodies the excesses of current Protestant propaganda against Catholicism, by reading a fictional newspaper report supposedly appearing in a Russian newspaper, in which 'a Russian Count' denounces the hideous blasphemies of 'John Bullism' as evidenced in a notorious but authoritative document freely circulating among the ruling classes of England, namely *Blackstone's Commentaries on the Laws of England*. This infamous and irreligious work, the Russian Count reveals, represents that the English Sovereign as God. It says that the King 'can do no wrong', and that he is 'the fount of justice'. It also declares Parliament to be omnipotent—'it can make law, and that which is law it can make no law'. In any case, the Count concludes, Queen Victoria is evidently the Beast of the Book of Revelation, because she was 18 in the year '37 when she became Queen, and 18 times 37 is 666.

To appreciate the full irony of this passage, and of a second example of Newman's wit, we may cite a report of another public meeting, not a fictional one, in *The Times* of January 1841, about the opening of a public library in Sir Robert Peel's constituency of Tamworth. Newman, who was an admirer of Peel and of course still in the Church of England, was nonetheless shocked by the utilitarianism of the address. Peel's emphasis is all about useful knowledge and worldly self-advancement. Farmers can come to the library to find out about agricultural improvement; workers can inform themselves about colonisation; earnest young men can forego the 'vulgar amusements' of their class, and learn 'to walk in early life in a path that leads to virtuous fame'. Finally, Peel declares, 'the advantages of this institution' are to 'be open to ... the well educated and virtuous women of the town and neighbourhood' who are no 'less capable than their husbands or brothers of benefiting from the instruction' and 'should have equal power and influence in the management of the institution'. Newman's more serious objections to this sanctimonious claptrap will be identified later, but his eye for the telling weakness

of an opponent's argument can be illustrated by his ironic observation about the admission of women to the library. 'A very emphatic silence,' he notes, 'is maintained about women not virtuous. What does this mean? Does it mean to exclude them while bad men are admitted. Is this accident, or design, sinister and insidious, against a portion of the community?'

Before looking more deeply at 'The Tamworth Reading Room', it will be useful to return to Powell's review. Newman's 'fellow countrymen,' Powell claims, have reason to honour an Englishman 'who lived and died proving their secret paradox, that their Church is part of their patriotism'. What does this claim amount to? Part of what Peel says about women in the Tamworth Library gives us a clue. The 'influence which a virtuous woman can hold', Peel suggests, 'will always be exercised in favour of whatever is sound and profitable with respect to knowledge, and whatever is decorous and respectable in respect to conduct'. We may link this to his defence of the regulation that two local clergymen shall be *ex officio* members of the committee, their prime responsibility being to ensure

that 'no works of controversial divinity shall enter the library ... [and] the no matters connected with religion [or] politics ... be permitted to take place in the reading room.' Women and the clergy, in other words, will act as the Library's censors.

Of course Sir Robert is all in favour of religion in general and revealed religion in particular. He is convinced that the earnest young artisan, as well as learning how to become rich, will also be led 'to acknowledge the complete harmony of the Christian dispensation with all that reason, assisted by revelation, tells of the course and constitution of nature'. This exasperates Newman, who waged a lifelong war against Paley's 'watch argument' for the existence of God. A watch, Newman points out, can suggest nothing higher than a watchmaker's intelligence. The cosmos is vastly more interesting than a watch, but it too is finite, and so, if it does suggest a Maker, as Paley and Sir Robert claim, it does not suggest one who transcends finitude. But Newman's is emphatically a transcendent God. What the Tamworth Reading represents for him, therefore, is an institutionalised and desperate shallowness, both intellectual and religious. And this may have a significant bearing on Powell's paradox.

In 1854, Newman published another short work, 'Who's to Blame?', which, like 'The Tamworth Reading Room', has a social theme, the bureaucratic and military confusions of the Crimean War. These Newman attributes to the English 'Constitution' by which he means the social ethos which secures the country's national unity by strengthening and controlling the state. The essence of this English Constitution is, he thinks, a rugged individualism. The English man is 'rough, surly, a bully' but also 'generous, good, tender ... he forgives and forgets: forgets not only the wrongs he has received, but the insults he has inflicted'. British imperialism is the work of the adventurous individual 'walking restless about, abusing the natives, and raising a colossus, or setting the Thames on fire, in the East or the West'. In such an entrepreneurial culture, people don't want experts telling them what to do—hence the cult of the gentleman, of the educated amateur, which Newman sees as weighing particularly heavily on the Army and the Church. 'Neither theology nor the science of war,' he suggests is deemed 'compatible with the national regime.' 'A clergyman is ... the "resident gentleman" in his parish; and no soldier must rise

from the ranks, because he is not "company for gentlemen."'

This vision is wholly consistent with Powell's claim that the English church is part of English patriotism. Like Newman, Powell thinks that a patriotic Englishman goes to Divine Service simply because he is English, and not to hear true doctrine or divine admonition. But this is surely a deeply anti-Christian position, and many Anglicans would angrily repudiate it. However it touches on a more troubling paradox.

When *The Present Condition of Catholics* was republished last year Catholic reviewers were embarrassed—it seemed wrong to draw attention to the satirical component in Newman's writing, as if satire and religion were ill-suited to each other. But we need to remember the furious anti-Catholic hysteria that erupted when the Catholic Hierarchy was restored in 1850. This hysteria was urged on by the Government, Parliament, and the Press. It involved nuns being stoned in the streets of Loughborough, huge public protest meetings such as that parodied in the First Lecture, some of which were addressed by a notorious renegade Italian Dominican, Giacinto Achilli. The credulity of the public was represented for Newman in the massive sales of the awful revelations of Maria Monk, and the rumours that spread through Birmingham that cells had been built in his Oratory for the incarceration and even the torture of renegade Catholics. Moreover, when he attacked Achilli in *The Present Position* he was charged with criminal libel. It was widely anticipated that he would go to prison for a year. Instead he was convicted by the jury in spite of the manifest corruption of Achilli, lectured at length by the judge, and fined £100—possibly £15,000 at today's values. This explains some of the imagery of tying up, paring claws and keeping low in 'Who's to Blame?'.

In confronting these matters Newman is exposing the violence inherent in all satire, whether it is Swift's attack on war, or Thackeray's violent anti-Catholic contributions to *Punch*. In *The Present Position*, Newman's Russian Count moves from a wonderfully comic and irrelevant résumé of some of the more notorious episodes in English history to a sobering and apparently factual account of the appalling record of State violence in the reigns of the Tudors.

Later Newman himself, with the Swiftian elegance of style Powell must have envied, gives a astonishing account of Recusant sufferings in the Reigns of Elizabeth I and James II. But the really shocking thing about these passages, as indeed about the passages from Swift and Thackeray that I have mentioned, is that their violence is part of their attraction.

Which is why many people feel that a man of God has no business being satirical. But this is only

because we want our satire to be safe. Satire is comfortable with the Latitudinarianism of Swift, the sentimental cynicism of Thackeray, or even Powell's Paradox—his Nietzschean choosing of devotion to country and its established rituals over 'Ultramontane authority'. Newman reminds us, however, that there are rivers of blood running strong and deep within us all, and that we are in desperate straits unless God is doing something about it. No wonder Peel wanted thinkers of that sort locked out of his library.

EXTINCTIONS – PAST, PRESENT, AND FUTURE

Professor Michael J. Benton

Lecture Delivered on December 3 2001

It is commonplace to think of extinctions as a palaeontological phenomenon. But of course extinction is happening now, and will doubtless continue to happen in the future. It may at first seem a little strange to attempt to make a seamless link from the geological past, through the present day to the future, but a clear study of the past can inform us about what is happening now, and how things may proceed in the future.

In this brief review, I want to argue that the quality of the fossil record is adequate for many studies of extinction phenomena, that past mass extinctions provide some general ideas about what happens during such crises, that we are living through a major extinction at the moment, and that some aspects of the future may be predictable.

Quality of the record

An objection to this 'seamless' approach has often been that the quality of the fossil record is simply too poor to be sure about what happened in the past in any real detail. This debate began at the beginning of the 19th century, and it was a strong feature in Charles Darwin's thinking – indeed, one chapter of *On the Origin of Species* (1859) was devoted to 'the imperfections of the geological record'. In this Darwin set out the problems: too few fossils, fossils are only preserved for those plants and animals that have some sort of skeleton that can be preserved, the loss of anatomical detail, problems of dating the rocks, major gaps in the succession of rocks, and so on. These problems exist today of course, and the critics and sceptics still focus on the problem of missing data.

On the other hand, there are qualitative and quantitative arguments that the fossil record is

adequate – that is, good enough. The claim is not that it is perfect. The qualitative argument is that the fossil record has not sprung any surprises on us. In 1859, Charles Lyell, perhaps the leading geological theorist of his day, fully expected to find 'fossils out of place'. He did not accept that there had been a progression, broadly speaking, from simple organisms to ever more complex through time. He did not accept the observation by the stratigraphers that fossils occurred in predictable assemblages that changed through time, and which could be used to identify the dates of rocks. Darwin accepted progression and stratigraphy.

Since Darwin's day, the skeleton outline of the history of life has not changed substantially. Darwin knew about Jurassic mammals – their range has now been extended back to the Triassic. He knew of Devonian fishes – fossils now show that fishes first appeared in the Ordovician, or even the Cambrian. True, in the

twentieth century, astonishing advances have been made in our knowledge of the life of the Precambrian and of human evolution. Dinosaurs in abundance have been found all round the world, and in general museum collections have reached bursting point with the millions of new fossils collected since 1859. However, Lyell's expected Silurian human fossils or Tertiary dinosaurs have not come to light. The picture seems clear.

Quantitative studies bear this out (see chapters in Donovan and Paul, 1998) for an up-to-date overview. I mention only one. In a survey of 1000 phylogenetic trees (evolutionary trees, or segments of the great 'tree of life') of microbes, plants and animals, we (Benton et al., 2000) found that there had been no change in quality of knowledge of the fossil record through geological time. In other words, on the broad scale, the fossil record is equally well (or equally badly) known through the past 600 million years.

Extinctions of the past

Extinction is not unusual. It is indeed the fate of all species to die out – clearly no species, and that doubtless includes *Homo sapiens*, has an indefinite hold on life. Some species exist for only a few thousand years, but the norm is perhaps closer to 2-5 million years, depending on the group involved. So, through geological time, there has been a fairly steady rate of background extinction. Species come and go.

But there have been times of elevated extinction rate, which may be termed extinction events (Figure 1). During these events, whole groups perhaps were wiped out geologically rapidly. A good example was some 10,000 years ago, when many large mammals, such as mammoths, mastodons, woolly rhinos, and others disappeared at the end of the last ice age. Dozens of such events are known through the past 600 million years. On a larger scale are the mass extinctions, times when sizeable portions of the biosphere have been wiped out. Five such mass extinctions have been identified, the so-called 'big five'.

Attempts were made in the 1980s to link these mass extinctions, to suggest that there had perhaps been a single cause for all of them, even that they were somehow linked by a repeated process, such as

extraterrestrial catastrophes, that might even have occurred on a regular periodic pattern. This view has been largely rejected now, since (1) no such period can be identified, and (2) each event, when studied in detail, shows somewhat different patterns of decline, and (3) each event is linked to evidence of different processes.

The best known of the big five mass extinctions is the last, the KT event, at the Cretaceous (K) – Tertiary (T) boundary, 65 million years ago. The story began effectively in 1980, with the publication of a paper in *Science*, by Luis Alvarez and colleagues (Alvarez et al., 1980; see also Alvarez, 1997). This paper made the bold assertion that a 10 km meteorite (asteroid) had hit the Earth, the impact threw up a great cloud of dust that encircled the globe, blacked out the Sun, and caused extinction worldwide by stopping photosynthesis in land plants and in phytoplankton. With their plant food gone, the herbivores died out, and then the carnivores. This simple model was based on limited observational evidence and it was, needless to say, highly controversial.

Luis Alvarez was a physicist who had won a Nobel prize for his work on subatomic particles. He became involved in his son Walter's geological work in North Italy, where a relatively complete rock succession documented the KT boundary in detail. The geological team identified an unusual clay band right at the KT boundary, within a succession of marine limestones. They measured the chemical content of the clay band, and of the rocks above and below, and found an unusual enhancement in the metallic element iridium. This was the famous iridium spike, where the iridium content shot up from normal background levels of 0.1-0.3 parts per billion (ppb) to 9 ppb. Iridium was known then to reach the Earth almost exclusively from Space, on meteorites. The background low levels represent the results of numerous minor meteorite impacts that go on all the time.

Alvarez proposed that the iridium spike indicated an unusually high rate of arrival of iridium on the Earth's crust, thus a huge meteorite (asteroid) impact. He calculated, working backwards, that a killing impact would have to extend its effects worldwide, which meant a dust cloud that encircled the globe. Based on studies of experimental impacts, and on known major volcanic eruptions, he calculated that the

crater would have to be 100-150 km across to produce such a large dust cloud, and this implied a meteorite 10 km in diameter. The 1980 Science paper attracted instant press coverage on a huge scale, and scientists from all disciplines were alerted to the dramatic new idea immediately.

The paper was hugely controversial, partly because the idea was so outrageous, its chief author was a physicist, not a geologist or palaeontologist, and the evidence seemed flimsy in the extreme. But Alvarez and colleagues were vindicated. Since 1980, evidence has piled up that they were right, and indeed in 1991 the crater was identified at Chicxulub in Mexico.

Efforts have been made to find evidence for such a major impact in association with the other mass extinctions, but with only very limited success. The largest mass extinction of all time, at the end of the Permian, is associated much more with an environmental crisis caused by massive volcanic eruptions in Russia. The first, at the end of the Ordovician, may have been caused by a major glaciation, and the Late Devonian and end-Triassic events are not fully resolved.

Lessons from the past

Extinctions proceed apace today. It is a reality that certain habitats are being destroyed rapidly as a result of expansion of agriculture. The disappearance of rain forest really does cause extinction. Cutting down a few trees here and there causes few problems, since the animals can contract their ranges, but the loss of more than half of all rain forests in the past fifty years has doubtless caused huge numbers of extinctions, and this seems unstoppable.

Biologists have documented historical extinctions – the Dodo, the Great auk, the Passenger pigeon – and indeed historical extinctions, since 1600, blend seamlessly back into palaeontological extinctions. Going back from 1600, the Maories were exterminating the great flightless moas in New Zealand between 1000 and 1500 A.D. Before that, other species had been killed off by earlier peoples, and the loss of mammoths and other great Pleistocene mammals may have been hastened by hunting.

Estimates from documented extinctions have suggested that the current extinction rate, greatly enhanced by human activity, could be as high as 1% per annum – that is, the loss of one in a hundred species each year. Such may be the case for example for birds. Extrapolating, a loss of 1% per year means, by definition, that all life will be extinct in 100 years. Clearly, one must be cautious about such figures, but without being complacent. The estimate of 1% per annum comes from historical studies of largely extinction-prone species – birds restricted to single islands, perhaps with highly specialised diets. In reality, many species would take a much more sustained effort to kill off. But biologists cannot say whether most species are resistant to extinction, or only a small selection – the cockroaches, rats, and humans.

Past extinctions show that species losses can occur on all scales, from the background rate of 1-5% per million years to the mass extinction rate of 50-90% per million years. Biodiversity specialists are trying to establish a more reliable figure for the current rate, and that will help our understanding.

Study of past mass extinctions has established a few facts: (1) extinction is not restricted to habitats, and species losses occur on land and in the sea equally; (2) extinction is not limited taxonomically, and species of microbes, plants, and animals of all kinds are at risk; (3) geographically widespread species are more likely to survive than those with restricted distributions; (4) highly specialised species are at risk (e.g. restricted diets, large body size, unusual habitat preferences).

Palaeontology can offer some solace: life has (of course) always recovered after former mass extinctions, and will doubtless do so after all human depredation has ceased. But those recovery phases last for 5-10 million years. The surviving 10-50% of species are clearly a sufficient cross section of all life that they can found new evolutionary dynasties. The dinosaurs went, but the birds and mammals survived, and they eventually took over. Such phases of recovery are now heavily under study, and they show how at first, 'weedy' species move in, diversifying fast, and occupying the whole world. Then, after a million years or so, they give way to a more diverse array of forms that become established for longer, and found the new dynasties.

On the scale of human lifetimes, however, it is easy and quick to wipe out a species. I very much regret that I shall never see a Dodo waddling about. They were no use to man or beast, and they didn't even taste particularly good, having a 'hard a greasie flesh'. However, their extinction served no-one any benefit, and they will never come back. Life does recover after major extinctions, but we won't be around to enjoy this happy time.

Further reading

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THE ELEPHANT MAN AND LEICESTER

Dr D.A. Burns

Lecture Delivered on Jan 7 2002

Joseph Merrick (often incorrectly referred to as John), who was known as the elephant man because certain of his physical features supposedly resembled those of an elephant (areas of grossly thickened skin, and protrusion of the upper jaw and lip suggestive of a trunk), was born in Leicester in 1862. His parents, Joseph Rockley Merrick and Mary Jane Merrick (née Potterton) were living at 50 Lee Street, and they had 3 children, Joseph Carey, William Arthur and Marion Eliza. William Arthur died of scarlet fever at the age of 4. Joseph's first physical abnormalities were noticed when he was 2 years old. At the age of 4 he injured his left hip, and the joint subsequently became diseased – possibly with tuberculosis. This left him permanently lame, a situation which contributed to his misfortune in later life because he is said to have commented that when being taunted about his other deformities he could never run away.

In 1870 his father was the proprietor of a haberdashery shop at 37 Russell Square, and the family lived nearby in Birstall Street. His mother died of bronchopneumonia in 1873, at the age of 36, when Joseph was 10 years old. Thereafter his father moved the family into lodgings in Wanlip Street, and married their landlady, Mrs Emma Wood Antill, who was a young widow with children of her own. Joseph attended the Board School in Syston Street until he was 12, the statutory school-leaving age at the time. He subsequently found work in a cigar manufacturers in Lower Hill Street, but by the time he was 15 the deformity of his right hand made it difficult for him to roll cigars, and he left. After a period of unemployment, Joseph's father obtained a hawker's licence for him, and he was sent out to peddle haberdashery from door to door. It is not difficult to imagine how difficult this was for him and how unnerving for customers, because by now his physical deformities were becoming more

pronounced. Eventually, when he was unable to sell sufficient quantities of goods, he was severely beaten by his father, and left home.

He was taken in by his uncle Charles, who was a hairdresser in Churchgate, and continued to hawk haberdashery until his appearance was attracting so much comment that his licence was withdrawn. He was now unable to earn a living, and entered the Leicester Union Workhouse on Sparkenhoe Street (later Hillcrest Hospital).

During his workhouse years, probably in 1882, he had an operation at the Leicester Royal Infirmary to remove a large fleshy protrusion from his upper jaw.

In 1884 he left the workhouse to join a group of travelling showmen who specialized in the exhibition of freaks, and was taken to London by Tom Norman.

It was at this time that the paths of Merrick and Frederick Treves first crossed, because Joseph was exhibited as the 'Elephant Man' in an empty greengrocer's shop on the Whitechapel Road, opposite the London Hospital, where Treves worked as a Lecturer on Anatomy (he later became a respected surgeon, perhaps best known for dealing with Edward VII's appendix abscess, and delaying his coronation). Curious to see the object of the 'exhibition' Treves visited the shop and was so intrigued by what he saw that he gave Joseph his card, and arranged for him to be taken across to the hospital so that he could examine him at leisure and detail his abnormalities. By this time Joseph's appearance was grotesque. His head was huge and covered in bony and fleshy masses, and his mouth was so deformed that his speech was almost unintelligible. It was because of the speech impediment that Treves initially decided that Joseph was both physically and intellectually impaired. His right arm was grossly deformed, but the left was perfectly normal, and Treves commented that it was 'provided with a beautiful hand which any woman might have envied'. Huge, sack-like masses of flesh hung from the trunk, and both legs were grossly misshapen. There was, in addition, a repulsive stench emanating from his body. The fleshy overlapping folds of skin would have necessitated careful attention to hygiene, but it was likely that Joseph rarely washed. Later, when he was bathed daily, Treves noted that this unpleasant smell disappeared.

Having catalogued Joseph's abnormalities, Treves let him go, and thought that it was the last he would see of him. The police closed the 'exhibition', and Joseph departed, probably initially back to Leicester, but subsequently to Europe with another 'manager'.

It would appear that the European appetite for freak shows was becoming as jaded as that in Britain, because the enterprise was not a success, and Joseph was abandoned in Brussels. He managed somehow to return to England and to reach Liverpool Street station, where he was found by the police. He still had the business card which Treves had given to him, and a messenger was sent to the London Hospital. Treves collected Joseph from the station and took him to the hospital, installing him in a single-bed isolation ward in the attics of the building. Realising the hopelessness of Joseph's situation, but knowing that

hospital regulations did not allow for long-term care, Treves discussed his case with the sympathetic chairman of the hospital committee, Mr Carr Gomm. Carr Gomm wrote to the Times, describing Joseph's plight and requesting money for his support, and public donations rapidly provided an amount sufficient to pay for his care. There were two empty rooms at the rear of the hospital, on the ground floor, overlooking an area known as Bedstead Square, because it was the place where bed frames were cleaned and painted. One of the rooms became his bathroom and the other his living room.

This was a turning point in Joseph Merrick's fortunes. Treves spent a great deal of time with him, and discovered that contrary to his original belief, Joseph was not intellectually subnormal, but was remarkably intelligent, and perfectly capable of communication, although his speech was impaired by the abnormalities of his mouth. Gradually, Treves began to learn more about him and to understand how his life had been affected by his horrendous deformities. However, in spite of being comfortably installed in Bedstead Square, he was so used to moving from place to place that he anxiously asked 'When I am next moved can I go to a blind asylum or a lighthouse?'. The reasons for this poignant request are obvious.

The story is not only a testament to the remarkable resilience of the human spirit in the face of appalling adversity, but also to the inspirational humanity of Treves. In spite of his other commitments, Treves took time to provide Joseph with some of the comforts of a normal life which previously he had been denied. On one occasion he asked him what he would like for Christmas, and was surprised when Joseph asked for a gentleman's dressing-bag with silver fittings. This seemed rather unusual because he had very little hair to comb or brush, the razors were useless because he couldn't shave, and the other items in the bag were equally redundant because of his deformities. However, Treves realized that it was symbolic of normality, and happily bought it.

He was taken to a pantomime at Drury Lane Theatre, where the actress Mrs Kendal arranged use of the royal entrance to reach a box via a private staircase. Treves sat at the rear of the box with Joseph, while three sisters from the hospital, in evening gowns, 'dressed' the front of the box. He also arranged for

visits to a private estate in the country, where Joseph stayed in a gamekeeper's cottage which was hidden from view. The greatest care was taken to keep him away from unsympathetic public view but, at the same time, Treves was gradually introducing him to people, in what one might call a 'controlled environment', at the hospital.

Eventually, as the press took an interest in him, Joseph became a celebrity, and a succession of visitors passed through Bedstead Square, including Queen Alexandra – then Princess of Wales.

He continued to live happily in his rooms until, in April 1890, he was found dead in bed. It was surmised that he had dislocated his neck while trying to sleep 'normally' – he had been prevented from doing so for many years because of the weight of his head, and was forced to sleep sitting up with his head resting on his flexed knees. His death was announced in a letter to the Times from Mr. Carr Gomm.

Joseph Merrick's skeleton is preserved in the anatomy museum at the Royal London Hospital.

For many years, there has been speculation about the nature of his abnormality, and it was often said to be neurofibromatosis. This caused understandable anxiety in families who had members affected by this disorder. However, it is unlikely that he had neurofibromatosis, and more plausible that he suffered from Proteus syndrome (named after the Greek god who could change his shape at will). Equally, he could have been a 'one off' genetic mutation, as there do not appear to be any similar recorded cases.

I first learned of Joseph Merrick from Sir Frederick Treves' book *The Elephant Man and other Reminiscences*, before I came to Leicester, and I thought it was the most poignant and inspiring story I had ever read. Treves was an excellent writer, and the other stories in this book are also engrossing. I think every medical student and doctor should read it, paying particular attention to one tale called 'The idol with hands of clay'.

In all that I have read about Merrick there is a verse which he quotes in a pamphlet entitled *The Autobiography of Joseph Carey Merrick*, which I

think encapsulates the essence of his story:

Were I so tall to reach the pole,
Or grasp the ocean with my span,
I must be measured by my soul,
The mind's the standard of the man.

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SHAKESPEARE'S HISTORIES IN PERFORMANCE

Professor Lois Potter

Lecture Delivered on January 21 2002

A recent book on Richard III at the Royal Shakespeare Theatre (by Gillian Day for the Arden Shakespeare series) divides post-World War II productions into three categories: the political, the psycho-social (or psychological) and the metatheatrical. In attempting to analyse the recent theatrical history of Shakespeare's history plays, I began with the idea of using this distinction as an organizing principle. It soon became apparent, however, that the three approaches are rarely distinct. Perhaps their tendency to blur into each other is accentuated when we look at theatrical moments for which we have only visual evidence: paintings or photographs. Images without words are necessarily ambiguous. For example, the watercolour illustration of Charles Kean's 1859 production of Henry V could be used (and often is) to show the nineteenth-century's fondness for spectacular staging. But the scene, a wordless pageant of Henry's triumphal return into London, was meant to serve as a parallel to an equally wordless scene in Kean's earlier Richard II (1857), that of Richard's humiliating entry into London. Both scenes are described rather than shown in their respective plays. In choosing to stage them Kean was making sure that the parallel would be noticed. But the feelings of the leading actor, as he rides across the stage, are deliberately kept mysterious. The political meaning, likewise, is hard to decode: Kean might either be suggesting that Henry's success justifies the deposition of Richard; on the other hand, he might use the similarity of the crowd's behaviour to show the mindless fickleness of popular behaviour. The audience's ability to make the connection between the two plays depends on a metatheatrical rather than a historical awareness. They have to stop living in the present, and remember one play – or one production -- while they are watching another.

Despite its over-ambitious title, this lecture (originally illustrated with a large number of slides) confines itself to the three plays that are most clearly related to the over-all shape of the history cycle: Richard II, Henry V, and (an inevitable choice in Leicester) Richard III. I shall take them in historical order, rather than the order in which they seem to have been written, because this is the order in which they are usually performed in cycle productions. Franz Dingelstedt's cycle production of the histories at Weimar (for Shakespeare's tercentenary in 1864), though heavily adapted, was the first performance of the history plays as a sequence. The first English attempt, though not quite complete, was Frank Benson's at Stratford in the early twentieth century; the first complete production of the second tetralogy was in 1951 at Stratford, and the 1964 one by Hall and Barton was the first in Britain to do the entire sequence from Richard II to Richard III. The financial and logistical difficulties of producing so large a number of plays in a single season have made it inevitable that only a subsidized repertory company could do them, and thus they are associated with the

Royal Shakespeare Theatre. The cycle has in fact become part of the company's, and the country's, history and been re-produced at crucial points – most recently, to celebrate the millenium.

As the first play in the sequence, Richard II is the most self-contained; its production history was radically altered when it was performed as part of a cycle, since Bolingbroke, once a relatively minor character, became nearly as important as Richard when he was played by an actor who would go on to the more demanding role in the next two plays. But the images emphasized in the theatre have been relatively constant: the mirror, the crown, the soil of England, all of which are part of the play's densely poetic texture. John Barton's famous Richard II in 1973 was unusual, however, in taking these images out of a realistic context -- as when Richard and Bolingbroke (disguised as the groom in the prison scene) gazed at each other through the round mirror frame, whose glass Richard had broken in the deposition scene. The play's language took on a life of its own, with images that the characters themselves could not have

seen, like the melting snowman that appeared shortly after Richard had compared himself to a 'mockery king of snow'. In a 'pro-Richard' production with Jeremy Irons, Barry Kyle in 1986 used images of the zodiac, the sun, honeycombs symbolizing flattery, and, at the end, gardeners tending the red and white roses that would eventually give their name to a war. The English Shakespeare Company in the late 1980s played an unsympathetic Richard who was visually associated with the Prince Regent, and Alex Jennings at Stratford in the 1990s was a failed tyrant modeled on more recent examples in central and eastern Europe. But Steven Pimlott in 2000 used the play's images to emphasize mortality: a small pile of earth served as both a grave and a symbol of England's soil; the main prop was a coffin that also became the standing mirror into which Richard looked and the prison in which he spoke. In a memorable image, Sam West's Richard let the earth sift through his crown, as if it were an hourglass.

Henry V attempts to end the sequence of events begun by the deposition of Richard II, to which he refers on the eve of Agincourt, but, despite this reference, the play does not exploit the links with its predecessor as much as Charles Kean did; it fails, for instance, to point out that Aumerle, the ineffectual traitor of Richard II, is the same person as the Duke of York who dies heroically at Agincourt. Terry Hands' 1975 Henry V was particularly concerned to unify the sequence – for instance, by giving all Henry's brothers a strong family resemblance (though it omitted the Duke of Bedford – formerly John of Lancaster – because Hands considered him too unattractive a figure for the atmosphere he wanted to create around the English army). The object of the links with the past was not so much to clarify the structure of the cycle as to enrich the characterization of Henry himself. Underlining the relationships between the plays provides him with a subtext that otherwise might seem to be missing. If we are constantly being reminded of Prince Hal, we can see his apparent coldness and confidence as a struggle with the role-playing involved in being King. Moreover, the more obviously patriotic or chauvinistic aspects of the play can be blamed on others – say, the Archbishop of Canterbury or the Chorus -- thus allowing Henry himself to retain our sympathy. Kenneth Branagh, though he seems to set himself in opposition to earlier versions, really just establishes the same sense of internal struggle as Alan

Howard: what Henry says isn't what he feels, which is too deep for expression.

Even the anti-war English Shakespeare Company production of 1986 (revived through 1989) to some extent created sympathy for Henry by emphasizing his physical frailty and suggesting, in the comic characters, the audience's own complicity with chauvinism. Nym, Bardolph and Pistol, setting off for France, were clearly meant to recall football hooligans (the most recent British "invasion" of Europe). As they left the stage hooting, the French king remarked dourly, "Thus comes the English", a line that always got a big laugh. The play's most famous image, however, referred to popular support for the Falklands war: after the Harfleur victory, the Chorus appeared with a newspaper bearing the famous "Gotcha" headline. By comparison, the king was at least intelligent and honest about his desire for victory.

A genuinely unsympathetic Henry seems almost impossible; apart from anything else, a play so much dominated by a single character would be hard to take if that character were not interesting. But the interest results from a conflict that is largely metatheatrical: the hero is in conflict not only with his own public persona but with an acting tradition identified with Laurence Olivier's film of Henry V, generally stereotyped as patriotic, elitist, and militaristic. So the basic message of many productions often seems to be that 'this Henry V, unlike all the others, takes a realistic view of war.'

In this respect, as in several others, Henry V resembles the equally metatheatrical Richard III. Dingelstedt's experience of directing the entire sequence left him in no doubt that the two plays were intended as parallels, one showing an apotheosis of evil, the other of good. In Henry Shakespeare seems to be reversing the devices that had been so popular in Richard III: the hero's wooing of someone who has been both his enemy and victim; a scene where the hero eavesdrops to learn the morale of his army (only mentioned in the earlier play, developed extensively in the later one); major speeches about the divided self; orations to the army. Scenes that had been enjoyed as triumphant villainy in one play were to be treated as triumphant virtue in the other.

Another parallel between them is the tendency of

productions to set themselves up as oppositional. It seems as if every actor to play Richard III has felt the need to commit regicide, but the king who must die is the actor who had the biggest recent success in the part. Antony Sher had nightmares about Olivier; Olivier managed to forget Wolfitt's Richard only by imitating the imitations of Henry Irving that he had heard from old actors; I suspect that this kind of metatheatrical imitation goes all the way back to Burbage. What each actor is really imitating is not the historical Richard or even the previous actor, but the art of acting itself. It is obvious acting, because Richard is a role which no actor could play if he really suffered from the deformities that he is required to imitate. (Indeed, the crutches that Sher used for his performance were partly intended to help him avoid the physical damage that might result from holding a contorted posture for too long.) The first sight of the character – whether romantically good-looking like Edmund Kean, repulsive like Derek Jacobi, snakily fascinating like Olivier, a 'bottled spider' like Sher, or dessicated and military like Ian McKellen – already tells us much about how he is going to play the part. Since the play ends with a fight which used to be a famous moment in the theatre, traditional Richards did not greatly stress the character's disability. But there has been increasing interest in disability, as more disabled people are able to attend the theatre; there has even been a suggestion that the part ought to be reserved for disabled actors. But the main reason for playing down the crowd-pleasing aspect of the fight is political: Richard, as a tyrannical dictator, ought not to be allowed to become a swashbuckling hero. Moreover, emphasizing links with the earlier plays also makes the women more important, since Queen Margaret is Richard's principal antagonist. Some productions of the 1980s exploited the fact that her name was also that of Britain's first female prime minister. In any period where there is a common enemy, Richard is likely to take on his features.

At present, and perhaps always, then, the metatheatrical approach has subsumed the political and psychological ones. This is hardly surprising: drama is often used as a form of therapy, and politicians take lessons from actors. The most recent history cycle, that of the RSC in 2000, broke away from the homogenous style of earlier versions to give a postmodern emphasis on the differences among the plays. Some actors – for instance, David Troughton

as Bolingbroke and Adam Levy as Hotspur -- had to move from the starkly expressionistic style of Steven Pimlott's Richard II to the much more naturalistic and psychological approach of Michael Attenborough's Henry IV. But the production was dominated by metatheatrical issues. Both David Troughton and Samuel West, who played Richard II, were scions of famous acting families and thus mirrored in their rivalry the theatrical usurpation that I mentioned at the start. We were being invited to celebrate, not British history, but British theatre.

THE PROTECTION OF VULNERABLE PEOPLE FROM ABUSE: MORAL AND PROFESSIONAL DILEMMAS

Professor Olive Stevenson

Lecture Delivered on February 4 2002

This talk examines the protection from abuse of three vulnerable groups in society: children, adults with learning disabilities and certain vulnerable elderly people with diminished capacity.

The key areas considered are:

- **The rise of public awareness and concern about abuse.**
- **The social context which facilitates or hinders change.**
- **Political forces**
- **The legal context**
- **Dimensions of abuse**
- **Cultural issues**

An illustrative account is given of the interplay between these factors in the rise of awareness of, and concern about, abuse. The paper shows the great pressure which professionals in public service have been under to respond effectively to powerful and changing pressures from various quarters and the dilemmas it poses for them. These pressures have been of different kinds; some, including research based knowledge, reflect greater awareness of the dimensions of the problem itself, as when neglect and emotional abuse are recognised as categories of child abuse. Some reflect intense public anxiety, the flames often being fanned by the media. Some are a mark of progress since they identify certain groups, such as those with learning disability, as worthy of greater respect than has been accorded to them heretofore. Some signify persisting tensions, to be endured rather than resolved; for example, the proper balance between parental rights and those of the state to intervene in family life: or the balance between autonomy and protection for vulnerable adults. In these persisting tensions, political differences are significant. Thus, the professionals, although placed in seemingly powerful positions, can feel disempowered, especially when beset by major structural changes which requires extensive adaptation to ensure protection is effective.

Like many of the public services, the professionals

have felt under siege; undeniably, serious mistakes and grave errors of judgement have been made and Local authority Social Services departments did not, in general, manage well the managerial and organisational processes needed to support professionals and offer sound services to users. However, public opinion (and political utterances) have done little to identify professional successes in this complex field. Furthermore, the `story' of abuse shows how contentious it is and how resistant public opinion has been to acknowledge the extent and nature of abuse to children and adults alike.

Of the three groups considered, knowledge, policy, practice are most advanced in the protection of children. Appropriate laws have been in place since the 1900s, extended, consolidated thereafter through the century. But the subject has expanded hugely since the 1970s; professionals have been required to focus on many different facets of the problem, sometimes hitherto unrecognised. There is every reason to support that a similar process will be followed as concern about adult protection becomes more sophisticated.

In some ways, progress at raising standards of protection for learning disabled persons, though getting off to a much later start and without major legislation change dealing with abuse, is a hopeful

story. Despite increased numbers, this is still a relatively small group and community care is a viable option for the majority. This group has attracted dedicated workers, with a powerful commitment to achieve the 'normalisation' of such people. There are, however, problems in the balance between autonomy and protection, especially in the cases of women with children.

The scale and nature of the problems involved in the protection of vulnerable elderly people are daunting. Demographic changes have produced 'two worlds' of old people; on the one hand, the young elderly, increasingly fit, active and independent; on the other, the old elderly, many (but not all) of whom experience serious ill health, physical and mental, in later years. There is some tension between the academics and professionals who conduct the discourse on the two groups, perhaps because they represent each side of the autonomy and protection divide. Yet the need for more effective protection of some old people is unarguable, both in residential

and family settings. Research has highlighted that a significant amount of abuse by relatives is to be found amongst so called 'carers' who themselves suffer from significant mental or personality disorder. This raises important ethical questions about family responsibility for care of the elderly and the nature of social obligations to do so in contemporary British society.

The paucity of public law legislation to protect vulnerable adults is a source of concern. It is regrettable that the outstanding work done by the Law Commission in the 1990s has not yet found its way into legislation. The implementation of the Human Rights Act has introduced further complexities into judgements in these areas.

This lecture is not designed to defend professionals or to exonerate them where there is poor practice. Rather it is hoped to raise awareness of the dilemmas which they face, some of which go to the heart of the ethical responsibilities we bear for each other.

FROM THE AMAZON RAINFOREST TO THE EDEN PROJECT

Professor Sir Ghilleen Prance FRS

Lecture Delivered on March 4 2002

The Eden Project in Bodelva, Cornwall, was built to demonstrate the importance of plants to people and to promote sustainable development. The largest covered biome at Eden is the almost five acre rainforest. This lecture covered some basic aspects of rainforest ecology from experience in the Amazon and then on how these ideas are brought to the British public through the Eden Project. Many of the useful plants of the world's rainforest are on display at the Eden Project.

Rainforests are very different from the forests of the temperate regions. Most striking is the amazing diversity of species of plants and animals. a single hectare can contain up to 300 species of trees alone. Most rainforests grow on poor soil and exist through an efficient recycling system of all the nutrients. To cut and burn the forest, leaves a poor soil that is inappropriate for sustainable agriculture. The forest also is maintained through the delicate balance of the web of interactions between species. For example, the flowers of the important crop species the Brazil-nut (*Bertholletia excelsa*) are pollinated by large bees

which in turn depend on the perfume of orchids to attract female bees. The nuts which are produced in large round fruit are extracted by agoutis, terrestrial rodents. Hence to maintain Brazil nut production, bees, orchids and agoutis are all essential. The well-known royal water lily (*Victoria amazonica*) depends on scarab beetles for its pollination.

Rainforests around the world are being destroyed at the alarming rate of 50 acres a minute and so in some places such as Madagascar and the Atlantic coastal rainforest of Brazil, species are becoming extinct.

The immediate challenge is to slow down the destruction and to find ways in which rainforests can be used sustainably. This is not as easy as might be expected since most rainforests exist on very poor soils. They are able to sustain their luxuriant growth and high biomass because of the efficient way in which they recycle the nutrients. The roots are mostly shallow with many on the surface amongst the rotting leaves. With the help of mycorrhizal fungi they re-absorb all the nutrients. It is common to see roots of living trees inside rotting logs and tree stumps. When the forest is cut and burned, the nutrients in the ash are soon washed away and the soil becomes impoverished. It will only support a good crop for one or two years. Therefore uses that do not destroy the soil are much more likely to be sustainable than any method involving cutting, burning and clearing.

Rainforests are vitally important for many reasons, but especially for the environmental services that they provide. They are an important store and sink for carbon and to cut them down increases CO₂ in the atmosphere and contributes to climate change. Rainforests control local climates and rainfall patterns and reduce flooding by the amount of water they absorb. Increased flooding occurs in places where the forests have been removed, such as in Bangladesh and the Philippines. Rainforests are also the source of many industrial and vegetable products.

Rainforest products enter into our daily lives for example, rubber, vanilla, chocolate, coffee and many timbers and medicines come from rainforests. Wherever one lives in the world one is inextricably linked to the rainforest, both because of the effect it has on the environment and because of the products we use. Medicines such as quinine, curare, pilocarpine were all discovered because the local people used them. There is a great wealth of knowledge held by the indigenous inhabitants of the rainforest. Studies which I and my associates have carried out amongst some Amazon Indian tribes, show that they use most of the species of trees around them in some way or other. They also have relatively sustainable systems of agroforestry based on a diversity of crops and careful management of the soil. Like the forests, indigenous cultures are disappearing and the information which they know about the sustainable use of the forest is being lost. It is also important to preserve cultural diversity and not just biodiversity.

The Convention on Biological Diversity drawn up ten

years ago at the 1992 Earth Summit in Rio de Janeiro is a particularly important document. It has now been signed by 182 national entities as well as the European Union. It requires three main actions from the signatories: 1. The conservation of biodiversity; 2. The sustainable use of its components; and 3. The fair and equitable sharing of the benefits arising from the use of biodiversity. The latter is a most important condition because it ensures the return of benefits to countries and peoples whose biodiversity is commercialised. It is because of this that, most unfortunately, the United States of America has not ratified the convention due to pressure from their industry.

The Eden Project, located at Bodelva, near St. Austell in Cornwall, was built to be a showcase of the vital importance of plants to people and to promote sustainable development. The Eden mission is: "To promote the understanding and responsible management of the vital relationship between plants, people and resources leading to a sustainable future for all". The Project is located in a former China clay pit and currently consists of three main biomes, the humid tropics, the warm temperate Mediterranean, and the outdoors where Chilean and Cornish vegetation and temperate region crops are featured. The tropical and the Mediterranean biomes are indoors enclosed in large geodesic dome structures. All planting focuses on useful plants and man's dependence upon them. There are demonstrations of African alley cropping, Amazon agroforestry, Malaysian home gardens (Kebun) and Mediterranean vineyards. In addition to using plantings the Project is full of the work of local artists that also tell the same plant-based story in their own way. To me it is thrilling that crowds (2 million in its first year) have flocked to visit a Project whose main purpose is to show that plants are the basis of life on earth. Behind the public view of Eden there is a considerable amount of scientific research and an active education programme for school children to studies for Ph.D. thesis at various universities. A two-year Eden Diploma in horticulture is also offered in collaboration with Duchy College. The Eden Project tells the story of many of the rainforest plants that I have studied and of the wonderful peoples with whom I have had the privilege of visiting. If you have not been it is well worth a visit to learn more about rainforests and other ecosystems and the way in which we interact with them.

More information available on www.edenproject.com).

OBSERVING THE EARTH FROM SPACE

Dr. Sean Lawrence

Lecture Delivered on March 18 2002

Increasingly, technology is providing an excellent opportunity for scientists to understand the oceans, atmosphere, land and biology that make up the environment in which we live. Using computers and satellites, we can predict the weather fairly accurately up to a few months ahead. We can determine whether winters in Europe are going to be mild or cold, or summers wet or warm. Perhaps more importantly, we can predict whether some of the poorest countries in the world are going to experience drought or flooding, or whether the destruction of rain forests for agriculture is going to have a detrimental effect upon the world's climate. We can ascertain whether industry is going to change the climate irreversibly or if we can provide a solution to climate change. The list of scientific applications of satellite data, and the ways in which society can benefit, is practically endless. In this short summary, I will explore a few applications of satellite data.

One particular advantage of satellites is that they provide global measurements, as illustrated in a picture (Fig 1) of the Earth's ocean temperature during July 1996. The grey shades represent different temperatures, from 30 degrees centigrade (dark grey near Australia) to about 20 degrees centigrade (light grey) down to freezing (black).

The satellite instrument that provided the global map above, the British built ATSR instrument, also makes very high-detail measurements, to produce images of the earth. My particular favourites are of the Gulf Stream and a region of the Mediterranean Sea close to the Balearic Islands (Fig 2). These images give a sense of the dramatic nature of ocean currents.

At 2 metres per second, the Gulf Stream is the fastest

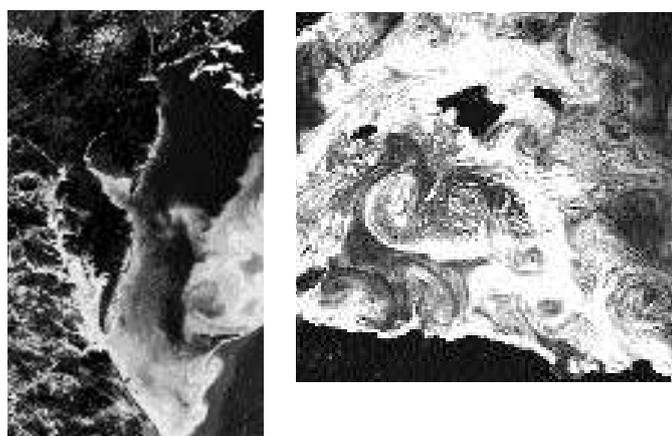


Fig 2: Satellite images of the Gulf Stream (left) and Balearic Islands (right). These images are particularly striking. The dynamical behaviour of the Gulf Stream comes out as a powerful current, bringing warm water towards northern Europe.

flowing ocean current in the world, whilst the image of currents near the Balearic Islands show wonderful filaments along the so-called "warm core ring", to the south-west of the islands (shown in black in the centre of the image). There is tremendous detail in this image, found only in satellite observation.

As well as supplying beautiful images, satellites have great scientific advantages. For example, we can measure deforestation, ocean biology (so-called primary production of plankton), oil spills etc. One particular application at the University of Leicester is to explore an important climatic phenomenon known as El Nino. El Nino is supposed to occur about once every 4 years, generally during wintertime. It is a warming of the tropical Pacific ocean, over an area of millions of square kilometres, where the temperature can rise by as much as 5 degrees Centigrade (about 9 degrees Fahrenheit).

To picture El Nino, it is useful to compare with the ocean in a normal year. For example, the map for 1996 has a colder patch of water (coloured light grey) off the coast of Peru (the East Pacific), along the equator. This is the East Pacific Cold Tongue. During El Nino, this cold water does not appear, as is shown in Fig 3.

This map shows the 1997 El Nino, the largest and most dramatic event of its kind ever measured. Compare this with the map for 1996, especially around the East Pacific region, to see that the temperature has warmed by several degrees centigrade over a very large area, corresponding to about 10 megawatts of power!

El Nino can have catastrophic climatic consequences, giving rise to flooding, droughts etc., as illustrated in Fig 4. Here, the dark rectangle represents broadly the region in which El Nino occurs.

It is important to be able to predict when El Nino is going to occur, how powerful it is likely to be and what the consequences are. This is where satellites can help, providing important observations for scientists exploring El Nino and its climatic impact.

In addition to El Nino, satellites can help detect and understand global warming and climatic change. Climate change occurs because of natural processes, such as ice ages. Perhaps of much more serious concern are the changes due to industrial activity. The generation of greenhouse gases such as carbon dioxide by industry appears to have had an immense impact upon climate in the last 100 years. Since the Industrial Revolution, the climate has warmed faster than at any time since the last ice age. The actual amount of warming and its cause are ambiguous. Is it a natural change or is it due to pollution? What is the

the North-west Atlantic is colder than average (light grey). This gives rise to warm wet weather over northern Europe and very cold dry conditions over Greenland and Iceland, a dramatic reversal of what we expect our wintertime climate to look like. In addition, this warm-cold temperature contrast indicates that the normal pressure patterns in the atmosphere have changed, so that, looking at this picture, scientists would expect particularly strong winds towards Britain during early 1992. Indeed, this is precisely what we have experienced in recent years – warm, mild winters, high rainfall and strong winds, giving rise to lots of wintertime flooding and little snow (in the South and Midlands anyway).

It is very surprising that these features come out in the satellite data, especially as previously they were evident mainly in computer models. For the first time, we may be seeing real patterns of climate change due to industrial activity!

It is clear that satellite data provide a wealth of information about our climate – much more than could be illustrated in a short summary.

Further information

1. Colour versions of the figures shown in this article may be seen at <http://www.leos.le.ac.uk/home/group/spl.html>
2. Dr Lawrence may be contacted e-mail at spl5@le.ac.uk or by telephone 0044 116 2525239.
3. There are numerous web sites as well, although one must be careful, since often the information has not been reviewed and may or may not be of high quality. For example, try:

<http://www.noaa.gov/> A very comprehensive site, written in a “public understanding of science” style.

<http://www.elnino.noaa.gov/> Discussion of El Nino, written in an uncomplicated way

<http://www.atrs.rl.ac.uk/> Images of the Earth from the ATSR instrument

<http://www.ipcc.ch/> Official reports from the Intergovernmental Panel on Climate Change, providing comprehensive summaries on climate change. The reports are quite technical.

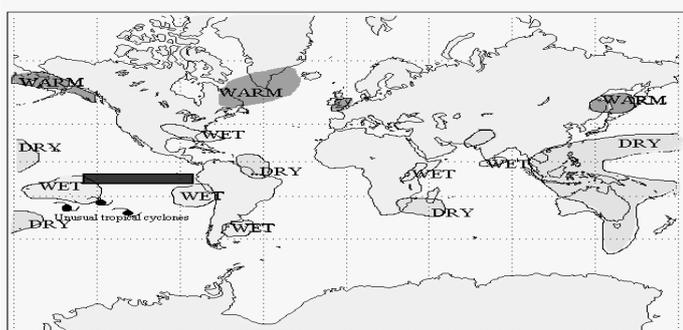


Fig 4: Typical climatic impact of El Nino

magnitude of warming and what regions of the globe are changing most? These are some of the outstanding questions that satellite data can help answer. Again looking at surface temperature, we can identify for the first time where the globe is likely to change most. Fig 5 shows a recent result obtained at Leicester using satellite data. Here, regions that are warmer (dark grey) or colder (light grey) than average are indicated for February 1992.

It is hard to make out the continents, but you should be able to see Spain and Northern Europe. Most importantly, in the North-east Atlantic, we find that the ocean is warmer than average (dark grey), whilst

Fig 1: Sea Surface Temperature: July 1996

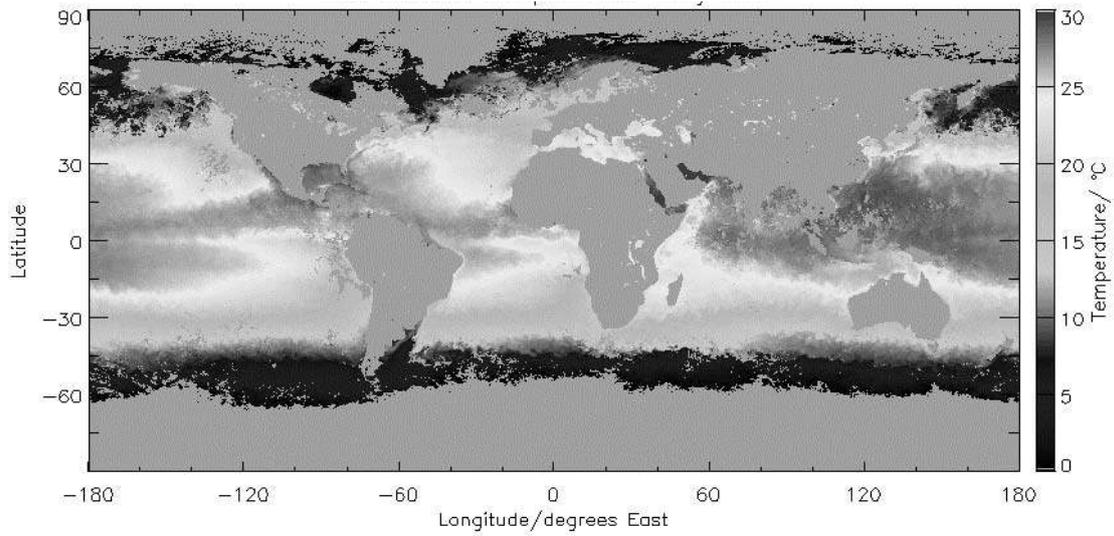


Fig 3: Sea Surface Temperature: July 1997

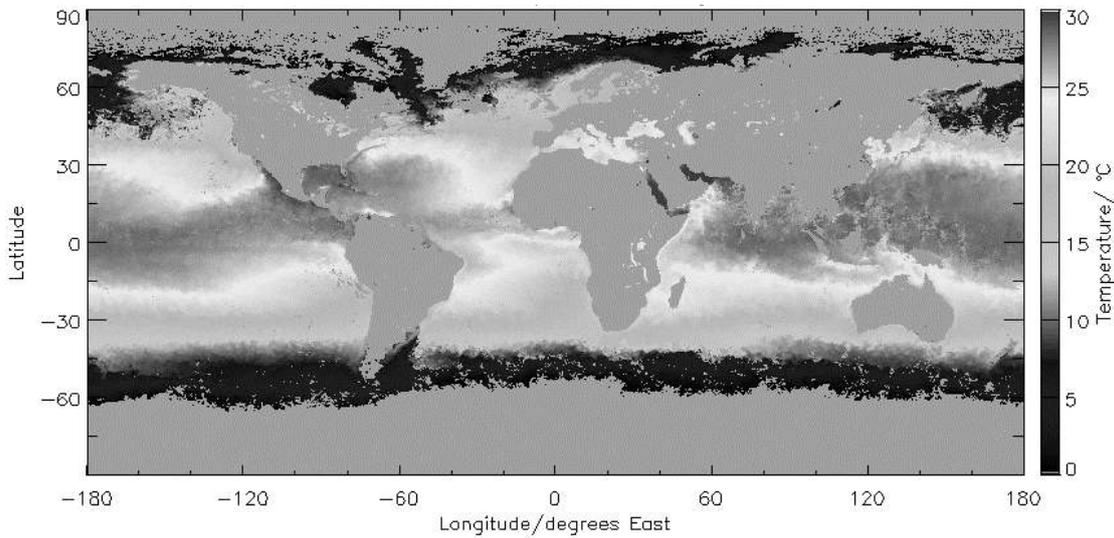
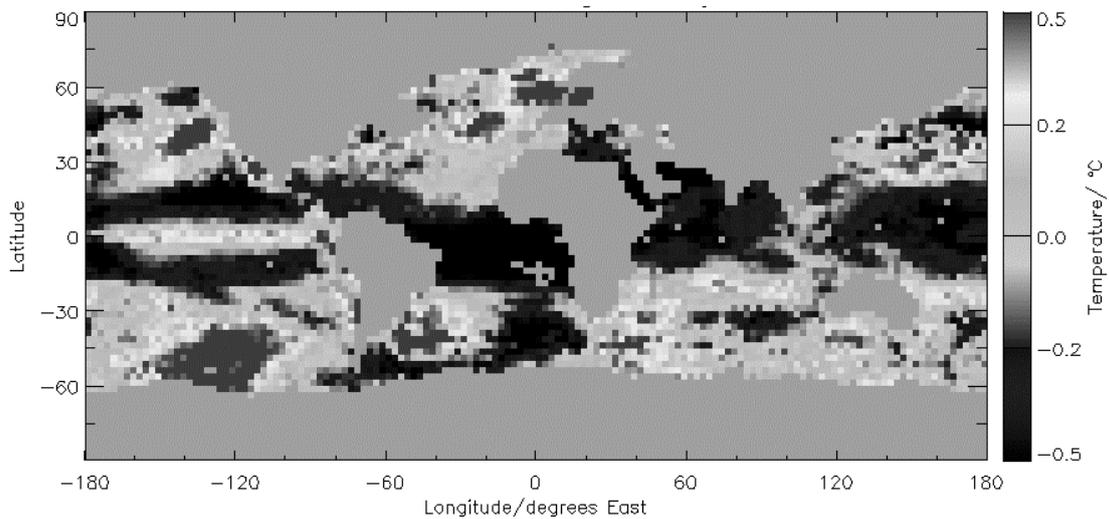


Fig 5: Patterns of climate change: February 1992



THE HISTORY OF VICTORIA PARK

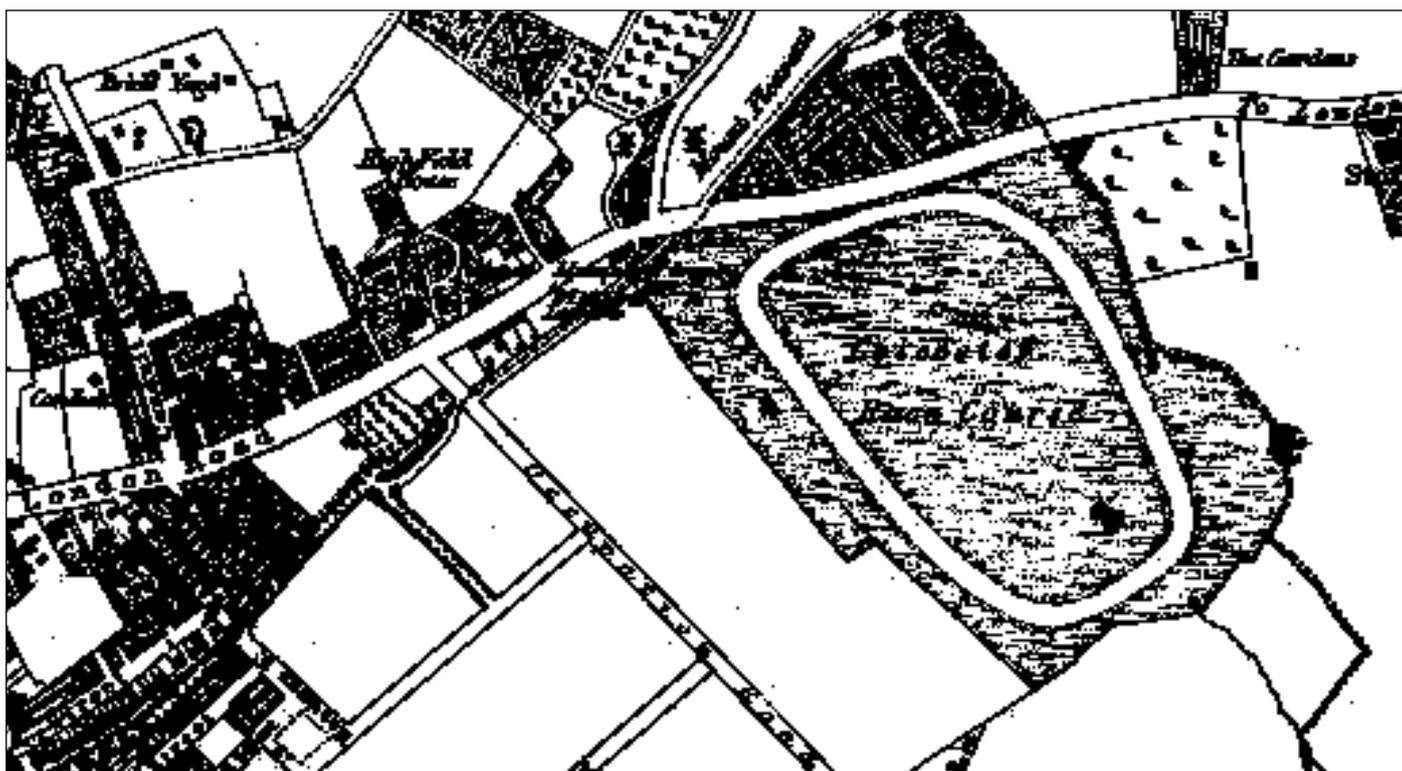
Dr Helen Boynton

Victoria Park is a pleasant open space of 70 acres on the south side of the city. It has had many uses in the past, particularly for leisure activities and is a Grade II registered park of considerable historic importance. It was developed on the South Field which originally lay outside the walls of the Borough. In 1630 the South Field extended from Horsefair Street to the old town boundary, now Victoria Park Road, then west to the River Soar and east to the Evington footpath. The South Field, reputedly, was given by Simon De Montfort to the Freemen of Leicester to grow their crops and graze their animals. Victoria Park was named as such in 1866 and John Biggs had much to do with its promotion by laying out gravel paths and planting trees.

The land of the Park between London Road and Welford Road slopes gently to the southwest with a fall of 40 feet and it is covered by glacial drift laid down by Ice sheets during the last Ice Age. This drift consists of boulder clay, sands and gravels to a depth of between 10 and 50 feet and overlies red marls (the Mercia Mudstones) of the Triassic period at the western end of the Park and Jurassic clays and limestones at the eastern side. This change in geology is reflected in the slope of the land. Layers of sand up to 10 feet thick are present in the boulder clay and can become saturated from time to time giving rise to springs.

Horse-racing commenced in the south eastern area of the South Field in 1806. The race-course (Fig 1) belonging to the Borough of Leicester let it out for six days in September after the corn had been cut. The annual racing was the focus of a holidays and fairs for the people of the town. The sideshows included roundabouts, shooting, photographic booths and coconut shies. In 1866 a grandstand (Fig 2) was built to accommodate eight hundred people. It was designed by E.L. Stephens the Borough Surveyor, in Italianate style and cost £2,500. It was built of beige bricks, possibly from Ibstock, and painted in green and cream in time for the Royal Agricultural Society Show in 1868 which was held on Victoria Park.

Fig 1. Map of Leicester Racecourse 1933



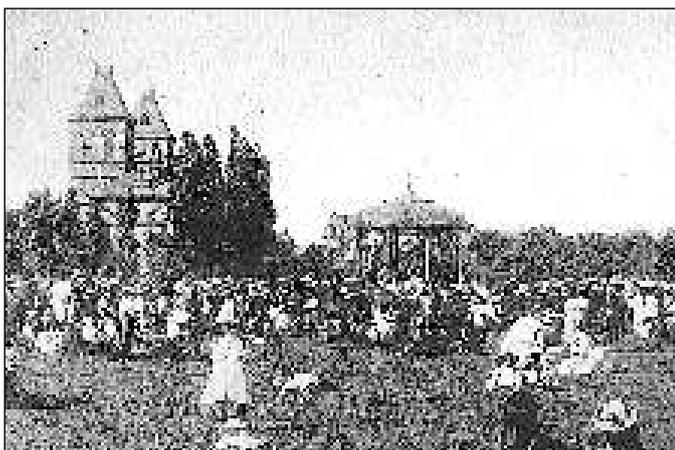


Fig 2. Victoria Park Pavilion, formerly the Race Course Grandstand

The Duke of Rutland, Marquis of Hastings, Lord Stamford and Earl Howe were regular visitors to the races and Leicester racecourse was known to be the only ground where the aristocracy could mix with the people of the town.

The racecourse was one mile long (the perimeter of Victoria Park today) with tight bends at the four corners which could prove difficult for the horses when racing, so the Jockey Club decided to move the course to Oadby in 1883. At the end of the last race meeting on a Friday in that year the course was closed with the band playing "Rule Britannia". Soldiers of the Leicestershire Yeomanry regiment were given the right to drill on Victoria Park in September after the racing and performed various manoeuvres.

In 1868 the Royal Agricultural Society Show was held on Victoria Park for six days in July. The weather was hot and a newspaper reported that 96,653 people attended. A single line railway half a mile long was built from the cattle market sidings on the main line, up to Victoria Park, to carry machinery and animals to the showground. The track probably went along the side of Welford Road Cemetery, through what is now the University campus, terminating in four platforms where the Physics building is today. After the show the railway was dismantled leaving no permanent trace of its existence. The show

covered the whole area of the Park and the event was recorded in the Illustrated London News of July 18 – 25th 1868. The Duke of Richmond as President of the Society and the Chancellor of the Exchequer are reputed to have paid it a visit. It must have been a very auspicious occasion for Leicester.

Victoria Park has always been the home for sports activities. On October 4th 1875 a roller skating rink was opened on the corner of the Park near the tollgate at the corner of Victoria Park Road and London Road. It had an open air and a covered rink. Roller skates had been invented by an American, Mr. James Plimpton, in 1863 and this rink on the Park may have been one of the earliest in the country. The proprietor was Mr. Louis Duprès who lived in New Walk.

Victoria Park was always an important area where cricket could be played. A space in the centre of the racecourse was levelled in 1866-7 at a cost of £149 and it became the main cricket ground of the town. It was enclosed by a canvas fence and two of its wooden posts are still there by one of the paths. W.G. Grace came twice to play in the South of England United XI against 22 players of Leicestershire (Fig 3). It is reported that Henry Nicholson's band struck up a merry tune every time a visiting wicket fell. Leicestershire County Cricket Club also played on Victoria Park regularly in the late 19th century. Between the First and Second World Wars local club cricket had its heyday and up to 400 players used between 20 and 24 pitches prepared by Mr. Chiswell ('Chissy') the park-keeper.

Rugby and Association Football were played on the Park in the winter. Rugby was the premier pastime



Fig 3. W. G. Grace with fellow cricketers at Leicester

for men in Leicester in the 19th century and Leicester Tigers played on the Park before going to Welford Road. Soccer took longer to establish a foothold in the town and was, at first, less popular and often Rugby players outnumbered those of soccer on the Park. Leicester Fosse Football Club (later Leicester City Football Club) played there from the late 19th century.

Fêtes and fairs have been held on the Park many times in the past. Because of the high ground of Victoria Park, overlooking the town, several balloon attempts, commencing as early as 1839 have taken place. The most eventful one was on the 11 July 1864 when Henry Coxwell came from London and was due to make his ascent at 5.30 pm. During the afternoon, however, a gentleman gave out that it was not Mr. Coxwell's largest and newest balloon that was present, but a smaller one. Temporary barriers were torn down and a mob rushed in, forced the car from the balloon, burnt it and tore it up. There were so few police that the mobsters could not be held back. Mr. Coxwell's cap was knocked off and his coat torn apart so he had to be taken to Samuel Stone's house in Elmfield Road nearby for safety. The fête ended, however, with a wonderful firework display organised by Mr. Darby of London.

Trees have been planted on Victoria Park to commemorate various important events, for example Queen Victoria's Diamond Jubilee in 1897, Edward VII's Coronation in 1902, the Silver Jubilee of King George V and Queen Mary in 1935, the end of the First World War, the visit of Queen Elizabeth and Prince Philip in 1958 and the Queen Mother's 80th birthday (with an avenue of 80 trees).

In 1976 General Matthew Ridgeway inaugurated a memorial to the US 82nd Airborne Division which served in Leicestershire prior to D Day in 1944. The plaque is attached to a large block of Mountsorrel granite standing near the Pavilion.

Ethelfloeda's fountain used to stand on Victoria Park near to Granville Road. It was a drinking fountain dedicated to Edith Gittins, the local artist and member of the Women's Suffrage Movement in Leicester. The fountain was designed by Mr. Fletcher and Mr. Cosland McClure of the Municipal College of Art. It had a Portland Limestone base with a bronze figure of Ethelfloeda who was Queen of Mercia and

daughter of Alfred the Great. She was successful in driving the Danes out of this part of Mercia in 918 AD but sadly the statue was stolen in 1978 and a replacement installed in the Market Place in 1980. This was stolen too but recovered and placed in the City Rooms.

At the end of the First World War the Corporation raised money to build the War Memorial Arch (Fig 4), which was designed by Sir Edwin Lutyens, the well-known architect. It cost £10,000 and was of Portland Limestone containing fossil shells, from Dorset.

(In 1925 two widows who had lost seven sons in the First World War, unveiled the Memorial. A parade of dignitaries, including the Mayor, The Duke of Rutland, Sir Jonathan North and Sir Edwin Lutyens led the procession for the opening ceremony.

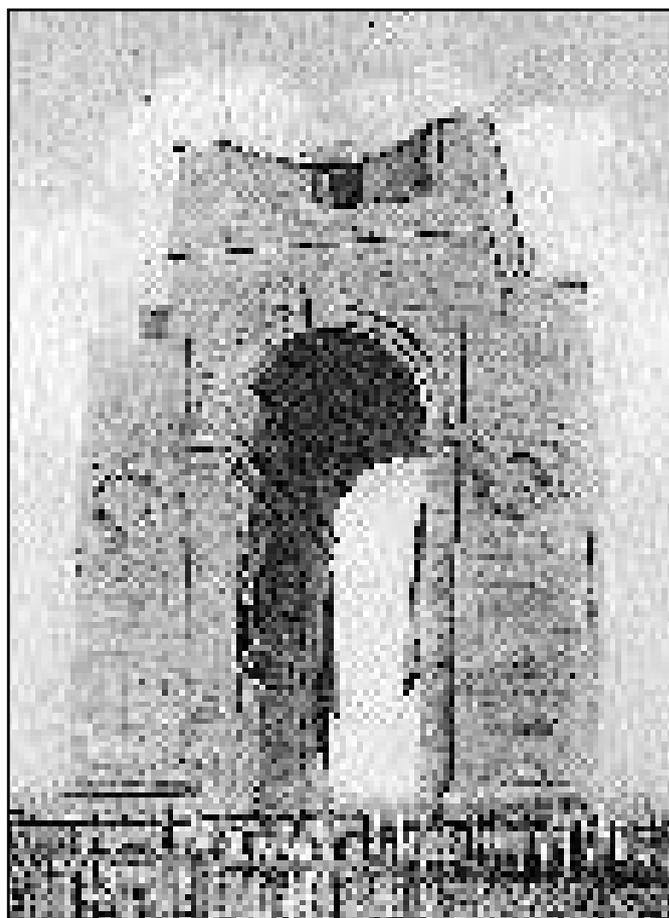


Fig 4. The Lutyens Memorial Arch in Victoria Park

The lodges at the Park entrance were also designed by Lutyens and opened in 1935 as homes for the park-keepers Mr. Chiswell and Mr. Barrow. The iron

gates between them were donated by Sir Jonathan North in memory of his wife Eliza who died in 1931. In the Second World War Victoria Park lost its railings which were removed for scrap metal to make munitions so sheep and other animals could no longer graze on the Park, as they had done for many years.

Three acres at the western side of the Park were turned over to allotments in 1941 and there was a rocket launcher site with three tiers, each with 6 foot rockets. The site was manned by the Regular Army by day and the Home Guard at night. The rockets were never fired and were later replaced by wooden dummy ones. There was also a search-light near where the tennis courts are today, an ack-ack battery and a barrage balloon.

The most important event of the Second World War on Victoria Park, was the dropping of a landmine by parachute and the subsequent damage to the pavilion which had stood for 74 years. On November 20th 1940 a German Heinkel bomber flew from Belgium carrying two landmines, one was for Steel & Busk's factory which made Spitfire parts and the other was intended to demolish the secret radio transmitter station housed in University College a quarter mile to the west.

The second land mine drifted in the wind away from the college and fell just by the north eastern corner of the pavilion damaging it so badly it had to be demolished. The mine made a crater 30 feet wide which was subsequently used as a water-storage reservoir for the Fire Station. The blast waves fanned out from the explosion and travelled across the Park damaging some of the houses in roads around. For example, the foundations of Mill Hill School on London Road were so badly damaged that the buildings were demolished in 1965. Several commemorative trees planted in earlier years were also badly damaged.

The bandstand nearby also fell to the blast and the only remaining part of the pavilion standing today is the ladies' toilet block which is now closed. There were three air-raid shelters below ground on the Park for the local residents. These were situated parallel to London Road near where the new pavilion stands today.

A number of Nissen huts were sited on the Park near Mayfield Road and were used for accommodation by the Home Guard. Their chestnut wood palings were used by the local boys for cricket stumps. Armoured tanks were displayed from time to time along the main drive of the park, one being called "Waltzing Matilda" after Matilda duck of cartoon fame.

A Messerschmitt 109, which had been shot down by a Spitfire near Lewes in Sussex in August 1940 was also displayed on the Park. It was touring the country to raise money for the War effort. The Me 109 had had its tail shot off and the fuselage was riddled with bullets. It stood on the Park near the corner of Regent Road for a few days before being taken to Loughborough.

After the old pavilion had been demolished in 1940, a new temporary one was erected to provide changing and café facilities. This was replaced by the present one in 1958 costing £70,000, much of the money being paid by the War Damage Commission. £2000 was given by a Leicester citizen for the clock to be placed conveniently on the building, so busy travellers could see it on their way to work or the Station.

There was once a small spinney of five Elm trees in the centre of the Park called Topper's Spinney. These trees became infected with Dutch Elm disease and had to be cut down. They were replaced by the five smaller ones which are present today.

Conclusion

800 years ago the South Field was meadow land given to the Burgesses of Leicester with London Road as a bridle track through corn fields.

During its history it has seen 77 years of horse-racing, the building of many houses around it, the development of the University of Leicester adjacent and the building of De Montfort Hall and the War Memorial Arch. The latest building adjoining it is the University of Leicester's Space Centre which opened in April 1998.

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HENRY SWAIN BENNETT (1858 - 1927): A MAJOR BENEFACTOR OF THE LEICESTER LITERARY & PHILOSOPHICAL SOCIETY

Professor Patrick J. Boylan

The Council of the Society has recently reviewed the Bennett Bequest Fund and has decided that this can still serve a useful purpose after more than 70 years. Enquiries and applications, especially from the students of the two universities in the City, should be addressed to the Secretary of the Society.

These biographical notes on Henry Swain Bennett explains the origin of the Fund. They were prepared with the help of the incoming President, Dr. David Bethel, CBE, who obtained a copy of H.S. Bennett's Will from the Principal Probate Registry, London.

Henry Swain Bennett was one of the most generous benefactors in the Leicester Literary and Philosophical Society's history although, surprisingly, he was never a member of the Society. He was born in 1858 and lived in or close to Leicester throughout his life. He inherited and then ran the family business, John Bennett & Son, "Corn Merchant, Seed & Flour Merchant and Corn Crusher", with premises at 76 Northampton Street, Leicester. He was recorded as the proprietor of the business in the various Leicester annual directories from before the First World War, through to his death in 1927.

By 1925 at the latest, Henry had also become a non-executive Director of Freeman, Hardy & Willis Ltd, one of the City's (and indeed the country's) most important boot and shoe manufacturers and retailers, with its headquarters at 57 Rutland Street, Leicester. In his Will made in 1925, he described himself as "Merchant and Company Director". His wife was Amy Eleanor Bennett, and their residence was listed in the business directories and on the local Electoral Roll as Holmewood, Kirby Muxloe, from at least the time of the First World War up to the time of his death. His wife continued to live at Holmewood until her death in 1930.

If Henry and Amy Bennett had any children none seemed to have survived to their later years, so between them they distributed almost all their not inconsiderable wealth to charitable purposes and to their former staff. (For example, in his Will H.S. Bennett directed his Executor to offer to sell the John

Bennett & Son corn merchant business to his long-serving general manager at a price far below the company's market value, and to offer a five year loan at a very low rate of interest to enable the manager to finance the purchase).

However, Henry Bennett had a younger brother who was well known in Leicester generally, and particularly as one of the founder supporters of the University College, and as a long-serving member of the Leicester Literary and Philosophical Society, and it was presumably this brother who was the link between H.S. Bennett and the Society, (and with whom he seems to have become confused in the history and traditions of the "Lit. & Phil."). This brother was the surgeon and distinguished local amateur geologist, Dr. Frederick William Bennett, B.Sc., M.D., (1864-1931), who lived in an imposing Victorian double-fronted villa at 104 Regent Road, Leicester, on the corner of De Montfort Street, but apparently also had Consulting Rooms in Hotel Street (listed in the 1925 Kelly's Directory to Leicester as "Billiard Saloon, Prudential Buildings, Hotel Street"!).

Dr. Bennett became a member of the Society 1894, and he was a long-serving member of the Society's Council (ex officio, as Geology Section Chairman, from 1908 to 1930), and a regular contributor to the Society's Transactions. His daughter, Miss Rhoda Bennett (1896 - 1985) was one of the first year's entry of students to the University College in 1921. She returned to the University as Assistant Librarian in 1931, and then served as University Librarian from

1932 to 1961. On the death of their father Rhoda Bennett and her sister Hilda donated the family home, 104 Regent's Road, to the University College in memory of Dr. Bennett, and this is still owned by the University, currently housing the internationally famous Centre for Mass Communication Research. The two sisters also made a gift of £6,000 to the College to endow a Lectureship in Geology, a gift now incorporated in the F.W. Bennett Chair of Geology at the University of Leicester.

Henry Swain Bennett also quite clearly had a special interest in educational matters, especially adult and higher education, and he seems to have had a particularly close involvement in the Sanvey Gate Adult School, where amongst other things he assisted in the setting up (and both initial and continuing funding) of a mutual saving bank for its members and other local residents.

Shortly after H.S. Bennett's death in 1927, probate was granted on the basis of his 1925 Will to the (appropriately named!) Mr. Arthur Walter Death, Chartered Accountant. Under this Will, the bulk of the estate and "Holmewood" passed in trust to his widow, for her to enjoy the interest etc. on the proceeds of the estate for her lifetime, though there were a number of immediate, mostly fairly modest, bequests to family, servants and a few charities, the latter including the Sanvey Gate Adult School. However, the Second Schedule to the Will provided that on Mrs. Bennett's death the Executor was to liquidate all assets including the house and business and distribute the proceeds plus the accumulated trust fund in accordance with a long list of further bequests in a Second Schedule to the Will. On this basis a sum estimated at well in excess of £10,000 (the equivalent of over a quarter of a million pounds at current values) was to be distributed after the death of Mrs. Bennett, largely to charitable causes, including the Leicester Literary and Philosophical Society. Following her husband's death, Mrs. Amy Bennett became a member of the Society, but she in turn died in 1930, and with the grant of probate on her own Will the Second Schedule of Henry Swain Bennett's Will came into effect.

This Second Schedule included bequests totalling £6,000 to the University College (including £1,000 for scholarships for former pupils of the Kirby Muxloe Council Schools), £5,000 to the Royal Infirmary,

£200 for the benefit of the Boy Scouts Movement and many similar sums for a wide range of local health and welfare charities. This Schedule also included the bequest to the "Lit. & Phil.", providing (tax paid) to "Leicester Literary and Philosophical Society £500, for research work at the discretion of the Council".

With the addition of a little interest, the Society received the sum of £506.5s.7d. (equivalent to around £14,000 if adjusted to current prices using the Retail Price Index scale) shortly after the proving of Mrs. Bennett's Will in May 1930. Although there were in fact no restrictions on the use of this money, which could for example have been spent straight away on one or two major research projects, the Council of the Society appears to have decided instead to invest the Bennett bequest and rely on the interest from this investment to assist with small research projects approved by the Council. The 96th Annual Report of the Society states that: "The Society recently received a generous bequest under the Will of the late Mr. H.S. Bennett by the terms of which a moderate sum is available annually to assist research work at the discretion of the Council" (Transactions vol. XXXIII, 1932, p.23), and since that year the "Bennett Bequest" or "Bennett Fund" has always been shown as a separate fund within the Society's accounts.

In fact, relatively few disbursements have been made from the Bennett Research Fund. In the 1930s donations of £50 each were made towards the costs of the publication of the Flora of Leicestershire and Rutland by A.R. Horwood and C.W.F. Noel [the 3rd Earl of Gainsborough] (1933) and Dr. (later Dame) Kathleen Kenyon's excavations of the Jewry Wall archaeological site in the centre of Leicester. More recently, just a handful of grants have been made to support Leicester University and Leicester Polytechnic (now De Montfort University) postgraduate and undergraduate student research projects.

HARRY HARDY PEACH LECTURE

The prestigious Harry Hardy Peach Lecture has been hosted for many years by the University of Leicester. It will in future be hosted by the Society. These biographical notes give some background to the benefactor.

The Dryad Cane Furniture Works was founded in 1907, by Mr. Harry Hardy Peach and operated from St. Nicholas Street, to make and market cane furniture, a business which continued to flourish until the late 1950's. From the outset quality was the watchword and has been the constant theme for all succeeding managements. He worked constantly to provide craft education.

Harry Peach himself was a founder member and a driving force of The Design and Industries Association which was created in 1914. Its aim was 'to instil a new spirit of design into British Industry'. If ever there was a man with fire in his belly that man was Harry Peach. His watchword was 'quality work', and it governed all his varied activities. It was expressed in his 'Dryad' products and in the numerous pamphlets he published on handicrafts of all kinds. His first love had been printing. He was an insatiable reader of books and other publications on art and design, both English and foreign. He travelled widely and kept himself abreast of all Continental development in handicraft and industrial design. In the 1920's he also kept Ramsey MacDonald (the Prime Minister) informed of industrial and craft design in Germany, comparing it to what was being done in this country. Ramsey MacDonald stayed with the Peaches when visiting Leicester.

During the First World War wounded soldiers were being nursed back to health in the nearby 5th Northern General Hospital and were provided with cane, left over from chairmaking, to keep them occupied during their convalescence - an early form of occupational therapy.

With other founder members of the Design and Industries Association their ethical approach came from Morris - 'What part was labour to play' - the dignity of labour. D.I.A. felt that 'education in design should not stop at the manufacturer, salesman or consumer, but be carried through to the worker at the bench. An early pamphlet - 'The Workers' Right to

Pleasure' and they appealed to the trade unions to support D.I.A. Strictly non-political. But they had a radical approach to industrial design and architecture.

Harry Peach wrote articles, made speeches and generally vigorously pursued the goals of the D.I.A. Among Peach's many endeavours to improve the quality of life was his campaign for the preservation of the countryside. By lectures, pamphlets and new approach by showing photographed examples of bad against good, as in his book 'The Face of the Land (1930), his indictment of brash advertising, ribbon development, litter, pollution and ever growing scrap heaps as products of profit-making objectives,

PRESIDENT'S ANNUAL REPORT

Presented at the Annual General Meeting on April 22 2002

My report as President is chiefly an expression of sincere thanks to many people who, seen or unseen, have been of unfailing ready help to the Society in maintaining and developing active interest in the lively arenas of the sciences and the arts. The Society is a forum where people of diverse disciplines and views may meet and discover new or common ground for wider benefit of mind and heart. Long may this continue for the good of Leicester and Leicestershire.

The Society has a network, the extent of which is not obvious until fulfilling a presidential year and whose sponsorship is untiring. Sponsorship depends on good relationships, and we have benefited from the generosity of the Leicester University Bookshop, the Royal Society of Chemistry, the Geology and Natural History Sections of the Society, the "Leicester Mercury", De Montfort University and the British Association for the Advancement of Science. In February of this year the Society held a lecture to mark the 80th anniversary of the admission of the first students to University College, Leicester. The annual Lecture for Schools was also held with great success at Leicester University and the Society is grateful for the help of Jackie Wetzig. Here the "Leicester Mercury" was of great help with our Society's flagship project appealing to young people. We are also indebted to the "Leicester Mercury" for according recognition to the Society by inviting three members of Council to participate in a debate on cultural diversity. In help of a different kind, I acknowledge the kindness and generosity of the Leicester jewellers, George Tarratt, in refurbishing the President's badge to almost mint condition.

Chief among those to be thanked are the Society's members who have attended each meeting in great or satisfying numbers to encounter a wide ranging spectrum of expertise and informed wisdom from nationally and internationally known speakers. We have encountered genuine celebrity given willingly by some of the best practitioners of their respective fields.

Supreme in connectedness in this respect is our Honorary Programme Secretary, Dr Geoffrey Lewis who is maintaining his inimitable momentum in the programme we have enjoyed and in the programme we look forward to next year. Thanks go to Mrs

Patricia Silver who has kept her customary eagle eye on a membership that shows no reduction. As Honorary Treasurer, Mr David Beeson has ensured happy outcomes in the Society's utilisation of the Bennett Fund and the taking over by the Society of the Harry Hardy Peach Memorial Fund in trust. He receives the thanks of us all for this and the week by week running of the Society's finances, and in this vote of thanks I include our Independent Financial Examiners, Mr Barker and Mr Smithson.

Professor Khan is doing a meticulous job as editor of the Society's Transactions. Keeping enthusiasts within limits with tact and diplomacy, together with chasing scripts and ensuring clarity, are valuable skills, and on everyone's behalf I thank him warmly. I owe a continuing debt of gratitude to Mr Sandhu, the Society's Honorary Secretary, for his utmost patience, attention to detail, speedy action when required, and a quality of friendship in Council that have made the meetings a privilege.

Council has demonstrated at every meeting that nearly all requisite skills and enthusiasms are covered. Responsible policy and documented history, prudent investment and thoughtful strategy, new avenues of publicity and intellectual clarity, prompt guidance and cogent advocacy of the Society have been ensured. Not least I thank Council and members for their welcome of speakers meeting by meeting. I am also particularly grateful to Council for perspectives regarding the emerging cultural strategy of the Local Authority and advice about the future role of the Society within a changing context locally.

One aspect that never changes is the high quality of refreshments ensured for every meeting by Mrs Beeson and her helpers. Thank you very much indeed. Hospitality is important in the regular

exchange of insights and wisdom, ideas and information. Thanks also go to the Museums staff for all that is done in preparation for and aftermath of every meeting – for all that makes the Society continue to feel at home here.

I mention with great sadness the death of Mr Maurice Bailey during the year. I record a personal as well as the Society's sense of loss because of my touch with Gateway Sixth Form College over the past twenty-five years. Maurice brought much to Leicester and to

this Society, as a past President and a member of Council.

Finally, thank you for giving me the privilege of serving as President of the Society in its 160th year. It has been a unique and enjoyable experience. I am delighted that in the coming autumn I shall be investing Dr David Bethell as President. I wish you all a happy summer and then a happy reconvening for the Society's ensuing year.

Programme for the 2001-2002 Season

Except where indicated, all lectures were held in the Art Gallery of the City Museum, Leicester, on Mondays at 7.30 p.m.

October 1, 2001

THE MAKING OF A CATHEDRAL

President's Address

Open meeting followed by a social gathering.

The Lord Mayor will be present.

October 15, 2001

TURNER AND ITALY

Professor Luke Herrmann

Emeritus Professor, University of Leicester

(Sponsored by University of Leicester Bookshop)

November 5, 2001

SCIENCE AND PARLIAMENT

Dr Stephen Benn

Parliamentary Affairs Officer,

The Royal Society of Chemistry

(Sponsored by The Royal Society of Chemistry)

November 19, 2001

NEWMAN THE SATIRIST

Professor William F.T. Myers

Emeritus Professor of English Literature,

University of Leicester

December 3, 2001

EXTINCTIONS ANCIENT AND MODERN

Professor Mike Benton

Department of Earth Sciences, University of Bristol

(Joint lecture with the Geology Section).

December 19, 2001 (Wednesday)

LECTURE FOR SCHOOLS

DNA: MICROBES TO MAMMOTHS TO MAN

Dr Liz Sockett

Institute of Genetics, Queen's Medical Centre, Nottingham

Ratray Lecture Theatre, University of Leicester.

(Sponsored by The Leicester Mercury)

January 7, 2002

THE ELEPHANT MAN AND LEICESTER

Dr D.A. Burns

Emeritus Consultant Dermatologist.

January 21, 2002

SHAKESPEARE'S HISTORIES IN PERFORMANCE (ILLUSTRATED)

Professor Lois Potter

Department of English, University of Delaware

(Sponsored by the De Montfort University).

Feb 4, 2002

PROTECTION OF VULNERABLE PEOPLE FROM ABUSE: MORAL AND PROFESSIONAL DILEMMAS

Professor Olive Stevenson

Professor Emeritus of Social Work Studies

Held in the Ken Edwards Building, University of Leicester. Lecture to celebrate the 80th anniversary of the admission of the first students to University College, Leicester.

February 18, 2002

ON NOT BELIEVING EVERYTHING YOU READ IN THE PAPERS

Dr J.R. Le Fanu
Doctor and Writer
(Sponsored by Leicester Mercury).

March 4, 2002

FROM THE AMAZON RAINFOREST TO THE EDEN PROJECT

Sir Ghillean Prance,
Science Director, Eden Project, Cornwall.
(Joint lecture with the Natural History Section).

March 18, 2002

OBSERVING THE EARTH FROM SPACE

Dr S. Lawrence
Department of Physics and Astronomy,
University of Leicester
(Sponsored by the British Association for the
Advancement of Science).

April 22, 2002

ANNUAL GENERAL MEETING

Followed by a recital given by the Chamber Choir,
Cantamici.

Annual Report of the Geology Section

Officers 2001/2002

Honorary Life President: Dr Bob King
Honorary Life Vice-President: Dr Trevor Ford O.B.E
Chairman: Andrew Swift
Vice-Chairman: Professor John Hudson
Secretary: Joanne Norris
Treasurer: Doug Lazenbury
Field Secretary: Dennis Gamble
Publicity Officer: Mark Evans
'Charnia' Editor: Graham Stocks
Student Representative: Ben Ennis

Committee

Paul Monk Mick Steele
Dr Roy Clements John Webster

Co-opted:

Sue Flude Elaine Smith
Margaret East

The Geology Section continued to thrive through the last year despite having to overcome a few problems. Chief amongst these was the outbreak of foot and mouth disease which effectively put the countryside 'out of bounds' for much of 2001. A late re-shuffle of the summer programme was necessary but thanks to some (only slightly desperate!) phone calls and

maneuvering Dennis Gamble was able to keep the programme running, which went well despite the weather doing its best on a couple of occasions to ruin things. Both in the Welsh Borderlands and at Cleeve Hill the rain teemed down, but the members, as ever, were undaunted. Attendances at all the field trips were very good, peaking at around 25 on the Welsh Borderland excursion. The weekend excursion, this year to the Yorkshire Coast, again proved popular, and the unusual theme, that of dinosaur footprints, created much interest. The trip to Ketton Quarry was originally requested by the Geologists' Association as a joint venture as part of an 'East Midlands weekend', but in the event most of that programme was cancelled due to lack of interest from GA members. However, lots of our members turned up at Ketton Quarry, as might be expected.

The Winter Programme ran very smoothly with only the minimum of disruption when the advertised speaker was forced to withdraw on March 13th. However, he 'did the right thing' by arranging an able substitute, who spoke very well. The Parent Body lecture was very successful, and we continue to persuade some excellent speakers to turn out for that one. Indeed, quality is very much the watchword of the indoor programme, and this year we had no less than five professors, all leaders in their field, on the programme. The two social evenings held at the New Walk Museum, the Member's Evening and the Christmas meeting, both went well, although we

would very much like to see more people turning out for these informal occasions. The only black spot in the indoor programme was the enforced cancellation of the Saturday School one day seminar on March 2nd, it simply proved impossible to attract enough speakers for the proposed planetary geology theme, despite intensive efforts.

Membership held steady over the year, although we had the inevitable comings and goings, and stands at around 125.

Summer Programme 2001

Saturday May 19th

The British Geological Survey collections at Keyworth, Nottingham.

Host: Dr Mike Howe (British Geological Survey)

Friday June 22nd - Sunday June 24th

Weekend excursion to the Yorkshire coast (based at Scarborough). Middle Jurassic sequences with the focus on fossil footprints.

Leaders: Drs Mike Romano and Martin Whyte (University of Sheffield)

Sunday July 8th

Ketton Quarry, near Stamford. Jurassic sequence from the Northampton Ironstone Formation to the Oxford Clay Formation.

Leader: Andrew Swift (Department of Geology, University of Leicester)

Saturday August 18th

Welsh Borderland. Silurian sequences at Coates Quarry (Wenlock Edge) and Lincoln Hill (Ironbridge).

Leader: Dr Gary Mullins (Department of Geology, University of Leicester)

Sunday September 16th

Hunstanton. Cretaceous sediments in the cliffs and actuo-palaeontology of the foreshore.

Leader: Dr Roy Clements (Department of Geology, University of Leicester)

Sunday September 30th

Cleeve Hill, Cotswolds. Middle Jurassic sequences. Leaders: Mark Barron (British Geological Survey) and Joe Angseesing (Cheltenham College)

Winter Programme 2001 - 2002

2001

Wednesday October 10th

Dr Michael H. Stephenson (British Geological Survey, Keyworth) - 'The Permian of the Arabian Peninsula: tracking climate change after the great Permo-Carboniferous glaciation of Gondwana'

Wednesday October 24th

Dr Keith J. Duff (English Nature, Peterborough) - 'Geological conservation - why bother?'

Wednesday November 7th

Dr David T. Wright (Department of Geology, Leicester University) - 'Dolomite - a major geological enigma'

Wednesday November 21st

Professor Peter Andrews (Department of Palaeontology, Natural History Museum) - 'Laetoli and the early stages of human evolution'

Monday December 3rd

Joint Meeting with the Parent Body (held at New Walk Museum). Professor Michael J. Benton (Department of Geology, University of Bristol) - 'Extinctions ancient and modern'

Wednesday December 5th

Professor David J. Siveter (Department of Geology, University of Leicester) - 'Ostracod ecology and palaeobiology - sex through time'

Wednesday December 19th

Christmas meeting, held at the New Walk Museum

2002

Wednesday January 16th

Paul C. Ensom (Department of Palaeontology, Natural History Museum) - 'Walking on eggshells: evidence for reptiles breeding during the deposition of the Purbeck strata of Dorset'

Wednesday January 30th

Professor Alan Dyer (Department of Chemistry, Salford University) - 'Zeolites - or how an inorganic chemist discovered the Highlands and Islands'

Wednesday February 13th

Members evening, held at the New Walk Museum

Wednesday February 27th

Professor Bob A. Spicer (Open University) - 'Fossil leaves - nature's ancient meteorologists'

Saturday March 2nd (whole day)

Saturday School. CANCELLED (insufficient speakers)

Wednesday March 13th

Richard Phillips (Department of Earth Sciences, Oxford University) - 'Arguments in modern geology - how the Himalayas and Tibet were built'

Wednesday March 27th

AGM and Chairman's address - Andrew Swift (Department of Geology, Leicester University) - 'Small, but beautifully formed - the world of microfossils'

Annual Report of the Natural History Section

Officers and Committee

President	Miss J.E. Dawson, M.A., A.M.A.
Chairman	Mr I. Pedley, B.Sc, B.Ed., B.A.
Vice Chairman	Mrs M. Frankum
Hon Treasurer	Miss R.M. Ewen
Hon Sec	Mrs G.M. Ball, B.A.
Hon Minutes Sec	Mrs D. Thompson, B.Sc.
Hon Programme Sec	Miss J.E. Dawson, M.A., A.M.A
Hon Editor	Mrs D. Thompson

Committee

Dr A. Bevington	Mr A. Brooks
Mrs E.J. Harris	Mr R. Illiffe
Mr M. Mawson	Mrs E. Penn-Smith
Miss D. Phillips	

The general committee met twice during the year.

The coloured cover of the Newsletter was approved and the Editor made her usual plea for more articles.

Alan Bevington most kindly offered to put us on the Web. Since professional help is expensive, he will design a web site for us.

The winter programme had a wide variety of talks, of which 'The Amazing Tales of a Worm Farmer' was

possibly the funniest we have ever had! The summer programme was curtailed by the Foot and Mouth epidemic. In one case an alternative venue was found but two meetings were cancelled at relatively short notice.

This year the committee decided to help Jan with programme planning by taking on the job of devising the summer programme. A sub-committee was formed of Ivan Padley, Maggie Frankum, Alison Gregory, Richard Illiffe, Alan Bevington, Pat Heighway and Gill Ball. Members undertook to make arrangements individually for outings and their 'phone numbers were to be given at the end of each trailer in the 2002 summer programme. We await reaction.

Thanks are due to Ivan Pedley as Chairman whose wide knowledge and clear thinking have much benefited the Section. Thanks are also due, as always, to Jan her programme arrangements, to Doreen for all her work taking notes of our winter meetings and particularly with editing the Newsletter, to Bidy for looking after our finances and Gill for her sterling work as our secretary. Alison and Pat continue with their noble efforts to ensure that coffee is available to members after the winter meetings. We are indebted to all of them.

Winter meetings were held at fortnightly intervals, the average attendance from January to March was 33 to hear the following speakers.

The Summer Programme of Outdoor Meetings which was affected by Foot and Mouth Disease, was as follows:

2001

May 5th

Cloud Wood (instead of Wymondham Rough)

Alan Peters

May 19th

Short Wood & Glapthorn Cow Pastures was cancelled

June 9th

Barnack Hills and Holes

Chris Gardiner

June 24th

Castor Hanglands was cancelled

Sue Timms

July 7th

Loughborough Big Meadow

Peter Gamble

July 18th

Derelict Land, Leicester - unable to get on site!

Sue Timms

July 21st

Groby Walkabout

Ivan Pedley

August 4th

The Drift and King Lud's Entrenchments

Jan Dawson

August 11th

Launde Big Wood

Jenny Harris

September 23rd

Eco House and Garden

Ase Wilson and Rob Carter

October 6th

Watermead Country Park North

Dale Osborn

November 4th

Roecliffe Manor-Fungus Foray

Richard Illiffe

Winter meetings began on October 17th with a Members' Slide and Exhibition evening

2001

October 31st

Pacific Island Bats

Phil Richardson

November 14th

Wildlife Crime in the County

Neil Hughes

November 28th

Twenty-Ninth Sowter Memorial

A Bryologist in Africa

Nick Hodgetts

December 12th

Amazing Tales of a Worm Farmer

Martin Clarke

2002

January 10th

Selling the Green Image

Colin Green

January 24th

The Wilds of Cuba

Mark Mawson

February 7th

Farmers Grow Greener

Dr Anthony Biddle

February 21st

Dormice - to introduce or not to introduce?

Mike Miley

March 5th

Joint Meeting with the Parent Body

"Trees and Woods in Art and in Reality"

Dr Oliver Rackham

March 7th

Conserving Leicester's Wildlife

Sue Timms

March 21st

Australia - the Unpredictable Continent

Dave Bodger

April 4th

A.G.M., Quiz and Social Evening

The Average attendance for these meetings was 29

Mrs D Thompson

Minutes Secretary

Mrs G Ball

Secretary