The Rutland Dinosaur

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Cover picture: *Cetiosaurus medius* - The Rutland Dinosaur in Leicester Museum

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May I begin by thanking the Past Presidents and the Council for the great honour they have bestowed upon me by electing me as President for this 155th season. I am conscious of the enormous stature of many of the people who have held this position, which I cannot match, and of the part the Society has played in the evolution of the City, and so approach the task with some apprehension.

The first graduating class from the University of Leicester, then the University College had, as one of its students, C.P. Snow. His degree was in Chemistry and his final papers were so impressive that, despite being a less than brilliant experimentalist, he was awarded a 1st class honours degree. This may have contributed to his decision not to stay with Chemistry because, as you know, he became a novelist and the writer who spawned the notion of the 'two cultures,' the sciences and the arts. I have never been an adherent to Snow's ideas and, indeed, find much in common between these two areas of human inquiry.

This lecture is about the visual order in the things we see and has its origins in an exhibition I created in 1968 with the Scottish artist and designer, the late Fred Steven called 'Integration - Common Denominators in Science and Art.' The theme of that exhibition and this lecture is that natural things seem to 'look right', whether on the macroscopic or microscopic scale and a similar phenomenon is evident in good visual art and design. That is, artists create visually consistent worlds in which the constituent parts add up to a whole. The eye rarely encounters any natural object or scene which is visually displeasing. Each cloud in the sky seems to relate to those around it. The juxtapositions of mountains and the variations of arrangements of strata in a cliff face are endless and yet they all seem to 'belong' to one another. The arrangements of a bird's feathers, the lines of grain in a piece of wood and the inter-relationships of fronds on a palm or leaves on a tree reveal similar tendencies. Even when the tools of the scientist are used to examine the natural world beyond the realms of ordinary sight, the same underlying harmony is revealed.

Sometimes we see recognisable order, the near five-fold symmetry of a star fish, the clockwise and anticlockwise spiral forms in the florets of Daisy heads or the petals of a Dahlia or the Fibonacci sequences found in the chambered structure of a nautilus shell. Sometimes, the regular visual patterns are such that they can be easily described in simple mathematical terms. Thus, all crystals can be described in terms of 230 space groups or patterns.

We respond to these patterns and this order. Love of precious stones is largely because of our response to the symmetrical arrangements of the faces and the way they catch the light. The order underlying cloud formations, the way leaves are organised on trees strata in a rock face are more difficult to describe in simple mathematical or symmetry terms, but we are undoubtedly able to decipher such order and respond to it.

Interestingly, the external appearance of crystals is determined by the arrangements of atoms within crystals and the tools of the chemist allow us to examine the patterns produced in terms of atomic positions or electron density maps (which are related to geographical contour maps). Our response to these images formed the basis of the, so-called, Crystal Design Project in the Festival of Britain Exhibition of 1951 and patterns for lace and other fabrics, wall paper, carpets and surface decorations were all derived from the atomic arrangements in crystals or their revelation in terms of electron density representations. These designs are clearly designs of the 1950's but we still find many of them attractive and pleasing and would still welcome many of them about us.

Although the patterns in natural phenomena are not always readily described in simple mathematical terms, we possess extraordinary ability to recognize within them patterns of shapes and colour and relate them. The character of the images produced in the area of field ion microscopy are related but quite distinctive. We would not confuse them with photomicrographs of inorganic or organic crystalline material (which themselves are distinguishable) or from photomicrographs of a leaf section of dune grass, hela cells in myotis, a microscopic image of an amoeba, or the stress lines in glass or plastics observed under polarised light. Each have their own character and we can distinguish one from another.

In other cases, certain specific forms appear to have definite functional roles. For example, the vascular systems in animal tissue, an electric discharge passing through the air, the roots or branches of trees and plants, river systems, or the patterns left when the tide goes out on a sandy beach, all tell us something about the diverse flow processes involved. It is evident that these 'branching systems' occur when some influence diverges from a single point or when an effect converges from many points to a single terminus. Other examples include 'wave forms', which occur when an effect is transmitted from one point to another and are evident whenever light, sound or a liquid is in motion, and polyhedra and polygons which arise when more or less regular grains, bubbles, cells and the like are packed together to form arrays.

Humankind is part of nature and, throughout history, has reflected his or her intuitive or intellectual awareness of the harmony in nature and a desire to comply with the demands of natural order. In decorative art, regular patterns are found which, at their most formal, can be analogous to the crystalline atomic structures found in nature. The deliberate use of branched systems or waves or polyhedra and the like is rare though they may appear as an underlying component of a painting. The artist may use a branching system to bring an onlooker's eye to the focus of the painting. Nowhere is this more evident than in Rembrandt's painting 'The Anatomy Lesson of Dr. Tulp.' It is no surprise that in trying to express the notion of 'The Cry' that Edward Munch used wave-forms in his painting, not that the Op Art of Bridget Riley and many others of that school were full of wave forms.
Some of the 96 slides shown in the lecture.
Similarly, wave forms are clearly evident in Duchamp's painting 'Nude Forms of Continuity in Space' in which he so successfully produced a feeling of movement forward in a static piece.

Perhaps we are now taking significant steps towards understanding visual order with the study of fractals. A fractal is a geometrical figure in which an identical motif repeats itself on an ever diminishing scale. They were discovered by the Franco-American mathematician Benoit B. Mandelbrot. The simplest images are the H-fractal, a dendritic structure in which a trunk separates into two branches, each of which acts as a trunk for two smaller branches, and so on, and the Binary-Tree fractal. In the latter at every level the vertical branches split in two with a reduction factor of \( \frac{1}{2} \). The vertical branches double in number at every level, whilst their individual lengths are simultaneously halved. Each horizontal line is twice the length of the vertical branch below it. Ferns often have structures which are essentially composed of identical motifs repeated on a diminishing scale and a variety of mathematical derived fern fractals can be produced. Indeed, every tree and spiral pattern counts as a fractal.

Extraordinarily, fractal images are not just valuable for their beauty (they underpin much computer art), but they are at the heart of chaos theory. They can be used to analyse the population growth of insects or the movements of elementary particles or the planets in our solar system and they can be used to analyse the visual content of pictures in a uniquely simple way such that a CD ROM of an encyclopaedia can contain 8,000 pictures. This ability to analyse pictures fractally, which was recognised by the British scientist and entrepreneur Michael Brady who formed the company Integrated Systems Incorporated in the U.S.A. to develop his ideas, may be at heart of our own ability to recognise the most complex of patterns and may be a new unifying principle in science and art.

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WHAT THE PRINCIPAL OBJECTIVE OF THE NHS SHOULD REALLY BE

John Harris

Summary of the lecture delivered on October 14th 1996

Patients rationally want three things from health care. They want the treatment that will give them maximum life expectancy coupled with the best quality of that life, and above all they want the best possible opportunity or chance of getting the combination of quantity and quality of life available to them given their personal health status. I believe that each citizen has an equal claim on the protection of the community as expressed by its public health care system and that this means that each is entitled to an equal chance of having their, necessarily individual and personal, health needs respected by any publicly funded health care system.

It is common ground I suppose that we have to think about the ethics both of means and of ends. Even if it were to be accepted that the health care system ought principally to aim at maximising aggregate health gain, it does not follow that the most effective ways of achieving this are legitimate. If all seriously ill people were to be allowed to die, this might dramatically improve the aggregate health of the community at large. I hope such a policy would not seem ethically defensible. And yet this is precisely what measures which use a quality adjusted life-years approach do, they systematically accord preference to those who have better health prospects, and by selecting against those with worse prospects, tend to improve the aggregate health status of the whole community at the expense of the life chances of those with poorer prognosis.

We should notice that to make aggregate improvements a principal objective, even if not the only objective, is to imply the subordination of the health needs of individuals to something very abstract, and in some circumstances something very trivial indeed, namely the improved health status of the whole community. For this could imply sacrificing the life of one person who was very ill and expensive to treat, if doing so would make even a tiny improvement to the aggregate health status, an improvement which no individual would even notice.

DISTRIBUTIVE JUSTICE

Distributive justice must be built into any articulation of principal objectives for the NHS, but it cannot be enough to define the relevant principle of distributive justice in terms of a more equal distribution of health across populations, because such an objective could be achieved as much by levelling down as by levelling up. One method of allocation of a scarce resource which apparently satisfies the requirements of justice is of course not to allocate that resource to anyone! All are then treated equally, in the sense that they are all left equally without benefit of the resource in question.

The fallacy of such a supposition is easily illustrated. The principle of justice, and indeed the principle of equality, are moral principles, principles that are designed to be more than impartial, that are designed among other things to respect and to do justice to persons. In some sense this must involve some benevolent attitude to persons which is often abbreviated as 'respect for persons'. Such an attitude to others is as different as is possible to be to that of simply showing an equality of lack of respect or an equal indifference to the fate of others.

So, neither the failure to allocate resources that would save lives or protect individuals, nor the simple attempt to move towards a more equal distribution of health, could be part of a claim to satisfy the requirements of equality or justice conceived of as moral principles (and how else are we to think of them?) because equality or distributive justice have at their heart the claim that people's lives and fundamental interests are of value, that they matter. Anyone who denied resources which would protect life and other fundamental interests, is not valuing the lives of those to whom she denies these protections. Although she might be treating people equally in the sense of treating them all the same, she is not treating them as equals and hence matter equally.

Now this brings us close to the positive part of my account, because I believe it to be an integral part of any principle of distributive justice that people's moral claims to resources are not diminished by who they are, or how old they are, or by how rich or poor, powerful or weak they are or by the quality of their lives. A principle of justice worth its salt covers young and old, healthy and sick weak and strong regardless of race, creed, colour, gender, quality of life and life expectancy. Before further articulating the basis of this principle and what it means for the objectives of the NHS we must take a brief look at the concept of efficiency.

EFFICIENCY

Efficiency in the delivery of health care is often defined in terms of maximising beneficial health care or in terms of the maximisation of health outcomes. These styles of definition of efficiency simply beg the question at issue. This question is: what is the good to be delivered by health care? They beg the question because they imply that the greater the health gain per treatment the greater the efficiency of that treatment. This implication is true in one context or application but false in another and it is the conflation of applications, either negligently or deliberately, which gives such plausibility as it has to the proposition that the NHS ought principally to maximise aggregate improvements in health status.

It is true that in order sensibly to maximise health outcomes you need an acceptable measure of success or failure. However, prioritising those outcomes you can best measure and calling it "maximisation of health outcomes" is letting the tail wag the dog. Any measure of what health care tries to maximise which counts life years following treatment faces a problem. The problem turns on the difference between selecting between different treatments for the same patient and selecting between different patients for the same treatment. This distinction is of the first importance. If you are choosing between rival therapies for the same condition you would be wise to choose the therapy which maximises health outcomes. However it is a fallacy to suppose that the measure of
what is the best or most efficient treatment for a particular patient or condition can also be the measure of the most efficient or best way of distributing resources for care amongst patients when this amounts to prioritising patients for treatment rather than treatments for patients. The question of which is the most efficient treatment for this patient or condition is not the same question as the question: which patients or groups of patients is it efficient or beneficial to treat? This is because there is an equivocation over the meaning of “beneficial” in the two contexts and a problem about incompatible ways of quantifying size of benefit.

If the millionaire and the pauper both lose all they have in the stock-market crash, on one way of thinking about the loss, each has suffered the same degree of loss, each has lost everything. On another, each has suffered a different quantity of loss measured by the total sum lost. There is no straightforward way of reconciling these different approaches to the assessment of loss. If we are searching for an equitable approach to loss, it is not obvious that we should devote resources allocated to loss minimisation to ensuring that the millionaire is protected rather than the pauper. The same is true of health gain. Even if it is agreed that resources devoted to health care are resources devoted to minimising the loss of health or maximising the health gain, it could not be demonstrated that the person who stands to lose more life years if they die prematurely, stands to suffer a greater loss than the person who has less life expectancy. Nor can it be shown that the measure of health gain must equate to the number of life years, quality adjusted or not, which flow from treatment.

If you and I are competitors for treatment and I will have a better health outcome from treatment than you, but both of us will make a health gain that is significant and important to us, and automatically preferring to satisfy my needs rather than yours, seems unfair. Why should my life be judged more worth saving because I'm more healthy rather than more intelligent, or more useful?

Arguments can (and have) been made on both sides, but to define need, for example, in terms of capacity to benefit and then argue that the greater the number of life years deliverable by health care, the greater the need for treatment (or the greater is the patient's interest in receiving treatment), is just to beg the crucial question of how to characterise "need" or "benefit". Equally, to define "efficiency" in terms of "the maximisation of health outcomes", and then argue that efficiency demands that the NHS aim at maximising aggregate health gain across the whole community, is just to beg the question as to how we should think of the gain or benefit to be delivered by the NHS. Efficiency is like motherhood and apple pie, no one can admit to being against it. Arguably health outcomes are maximised and a health care system operates efficiently when more people who can derive significant benefit from it are given their chance of access to health care.

I suggested at the start that patients rationally want three things from health care. They want the treatment that will give them maximum life expectancy coupled with the best quality of that life, and naturally they want the best possible opportunity or chance of getting the combination of quantity and quality of life available to them. Maximising aggregate improvements in health status of the whole community will not necessarily be a rational strategy for achieving these three objectives. Whether it is or not will depend on one's existing or probable health status. This in turn will depend on many things, including one's genetic constitution. If one principle aim of the NHS ought to be to give the people it serves what they want for themselves, then this is unlikely to be the maximisation of aggregate improvements in health status. People tend to want the best for themselves and those they care most about, and a policy aimed at maximising aggregate improvements in health status will tend to favour those with the best prospects of large improvements, those with a 'healthy' genome for example. People would only be likely to choose such a policy if they could be sure that they themselves would likely benefit.

THE NHS IS THERE TO PROTECT LIFE AND LIBERTY

Imagine an industrialised state that has big conurbations where millions of citizens are concentrated, many smaller towns and thousands of tiny villages. It has vast sparsely populated tracts of agricultural land and vast mountainous areas and wilderness where few people live. How should it distribute its access to health care? Probably it will place the major hospitals and medical schools in the major centres of population, but smaller hospitals and medical centres will serve the smaller towns and isolated villages. For the remotest areas there will probably be an air rescue service or even a "flying doctor" or "flying hospital". For geographical reasons if for no other, those in the most remote regions will be generally more expensive to treat, for the cost even of primary health care for the remote farmer or backwoodsman will be higher than for the inhabitants of the major cities. To fly such people to the major centres of excellence for specialised treatment will be naturally more costly and hence less cost effective than to use suburban commuters 'downtown'. We will assume, what is probably true, that the funds devoted to servicing the health needs of citizens who are geographically remote from major centres would have treated more people had they been allocated to urban populations. Why do societies divert resources available for healthcare away from the more numerous city dwellers in a way which must adversely affect their ability to maximise aggregate improvements in health status or indeed to maximise numbers treated?

I believe the ends subserved by public health care systems are broadly the same as those which justify the high priority given to national defence. All governments and would-be governments boast the strongest commitment to national defence. The question that is seldom asked is what is national defence for, what justifies its prominent place in national priorities? The simplistic answer is of course that without national defence there might be no nation and hence no national priorities. But pressed further it is reasonable to ask for the underlying values and interests it subserves?

EQUAL PROTECTION

Arguably protecting citizens against threats to their lives, liberties and fundamental interests is the first priority for any state. When in 1651 Thomas Hobbes wrote: "The obligation of subjects to the sovereign, is understood to last as long, and no longer, than the power lasteth, by which he is able to protect them" he was providing an answer to this question. On this view, any citizen's obligation to the State and to obey its laws is conditional upon the State for its part protecting that citizen against threats to her life and liberty.

If we reflect on what citizens today want and need in the way of protection I believe we will find that in most contemporary societies the most significant threats to life and liberty come not from the threat of armed aggression from without, but from absence of health care and other social welfare measures within. For most citizens threats to their lives and curtailment of liberty looms not in the form of soldiers with snow on their boots, but from illness, accident and poverty. This is why it is arguable that the obligation to provide health care, and in particular life-saving health care, to each and every citizen, regardless of its affect on
the aggregate health status of the community, takes precedence over the obligation to provide defence forces against external (and often mythical) enemies.

There is a very good principle which states that real and present dangers should be met before future and speculative ones. If this is right the health care system should have first claim on the national defence budget. After all, we are often willing to spend limitless amounts on rescue and less on longer term measures which would protect greater numbers of lives, the NHS is in the rescue business, the armed services protect for the most part against future and highly speculative enemies.

Another feature the nation state's obligation to defend its citizens which is often overlooked is its egalitarian nature. Just as each citizen owes his or her obligation to obey the law regardless of such features as race, religion, gender or age, quality of life or prognosis, so the state must discharge its obligation of protection with the same impartiality. If we expect people to obey the law even though their life expectancy is short and the quality of their life poor, we must not deny them the equal protection that is an essential part of the social contract. I have suggested that the protection of the health care system is one of the principal elements of the nation state's side of this contract and that discrimination against those with poor scores in the allocation of such resources is a betrayal, not only of those citizens, but of the social contract.

Where all cannot be treated and priorities must be set, the basis of prioritisation should not be the effect on the aggregate health of the whole community, for this will tend to discriminate against those arguably most in need of health care.

The principal objective of the NHS should be to protect the life and health of each citizen impartially and to offer beneficial health care on the basis of individual need, so that each has an equal chance of flourishing to the extent that their person health status permits.

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THE FLATULENT CRETACEOUS WORLD

PETER W. SKELTON

Summary of the lecture delivered on October 28th 1996
to a joint meeting of the Society and the Geology Section

Climatic warmth seems to have been virtually ubiquitous throughout the Cretaceous Period (146-65 million years ago), with lush forests extending up to polar latitudes. Although several factors probably contributed to such conditions, one that is postulated to have been especially important is an increased content of carbon dioxide in the atmosphere, producing a pronounced "greenhouse effect". Direct evidence of atmospheric composition is of course hard to come by, so we need to look at the Cretaceous carbon cycle to see how this might have come about. We can at least attempt to quantify the net fluxes of carbon from the atmosphere into its two major geological sinks, buried organic material (as C_{org}) or carbonate rocks (as C_{carb}), in order to identify the likely longer-term influences on the atmospheric carbon budget.

There has been much emphasis in the literature on the recognition of enhanced rates of C_{org} burial in the Cretaceous, probably because of the readily detectable carbon isotopic (δ^{13}C) signal left in marine sediments. Much less attention has been paid, however, to empirically quantifying the relatively even greater C_{carb} burial rates of the period. Yet the increasingly well documented stratigraphic record, particularly of the prominent Tethyan carbonate platform deposits, offers considerable scope for so doing. Estimates of annual rates of C_{carb} burial in the Tethyan carbonate platforms for these platforms alone can reach around half the estimated rate of C_{carb} burial in all modern carbonates (including oceanic as well as shelf deposits), which lies between 0.21 and 0.25 Petagrams\(^1\) C_{carb} per year: for the early Aptian (around 120 Ma ago) preliminary calculations yield a value of 0.144 PgC/yr, and for the late Cenomanian (around 93 Ma ago), one of 0.09 PgC/yr. Allowing also for the other massive carbon sinks of the period, such as the extensive chalk deposits and organic-rich sediments, it is already clear that total rates of carbon burial in the Cretaceous were considerably greater than those of today's icehouse world.

Such excessive geological burial of carbon must have been matched by a commensurate supply, or the atmosphere would soon have lost all its CO\(_2\), causing a huge fall in temperature, which we know did not occur. One of the main sources for the excess CO\(_2\) was probably the widespread intraplate volcanism in the Pacific now attributed to a 'superplume' of magma rising from deep within the mantle. Temporary lags between increased volcanic influxes to the global carbon cycle and the compensatory growth of the major C_{carb} sinks (such as the carbonate platforms) could account for elevated levels of CO\(_2\) in the atmosphere over the period.

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\(^1\) Petagram = 10\(^{15}\) grams, i.e. 10\(^{13}\) kilograms.

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THE UNIVERSITY IN THE NEXT CENTURY

Professor Kenneth Barker

Lecture delivered on the 27th of November 1996

INTRODUCTION: This presentation reviews the development of the university system in the United Kingdom, contemporary concerns about higher education and suggests developments and changes that will take place. Descriptions of activity in other parts of the world provide indications of the options for universities to consider.

BACKGROUND

Five phases mark the development of higher education in the UK.

1. the establishment of the ancient classical universities in the thirteenth century
2. the Victorian federal and civic universities
3. the early twentieth century expansion of London University
4. the new universities of the sixties
5. the 1992 transmogrification of former polytechnics into universities.

Growth has been a feature of each phase, most particularly since 1939 with a system of 50,000 students expanding to the 1.4 million today.

LOOKING FORWARD

In the early 1960s Lord Robbins established the principle that all those qualified and able to benefit from higher education had a right of entry to it and through the next two decades higher education was generally regarded as a "good thing". Now, neither society nor the profession are so sure and there appears to be four main reasons for that:

- enormous growth
- reducing per capita funding
- change to a demand-led economy
- developments in information and communication technology

And, it is the need for transformation that induces anxiety and uncertainty in members of faculties up and down the country. The acceleration in the use of modern information and communication technology is increasing everyone's access to courses that have, in the past, only been available through attending a University. High quality, didactic presentations are readily available from many sources; the Open University and the shelves of W H Smiths are but examples. Good lectures are no longer the sole provenance of the don. Yet the good lecture - carefully prepared - well presented - has been a pillar of confidence for the don in the past. So I ask: what are the alternative sources of confidence and self-fulfilment. There are some - but they may imply a new understanding of how a don adds value for a student who can access good lectures captured from the best sources globally. Surely, they can only add that value through developing the capability to engage in discussions with the student that take his understanding to new levels, where the accommodation of concepts and knowledge can be applied fluently by the student to problem solving and new constructions.

Then there are concerns about quality and the extent to which the employer can rely on the graduates having the core skills to be effective in the workplace. It comes out in anxiety about the still rising cost of higher education and whether more means worse. At a time when the elders of our community still remember the intense competition of the fifties and sixties when only about one in seven were successful in gaining entry to a university, it is often impossible for them to accept that a third or perhaps even more of the eighteen year old population can participate in higher education without it having a harmful effect on standards. But there is a counter argument and it is without prejudice to the need to preserve standards.

Sir John Daniel, in his recently published book on Universities in the next Millenium, emphasises the importance of an educated and competent people and the need to ensure that the young, in particular, are given the education and skills for work. He argues that without sufficient numbers having the education and skills to be effective in the working contexts of the world, the security of humankind may well be threatened. Large numbers of uneducated, unskilled young people are dangerous. The sense of what he suggests is seen in cities across the world. But how many of us realise that "already 50% of the world's population is less than 20 years old"; that "in developing countries the proportion is much higher, rising to 70% in Palestine and 80% in South Africa".

The size of most UK universities is small by comparison with some in other countries. Most are in the range of 9-15,000
students compared with Cairo with 101,000 students and PennState in North America with 70,000. And they are growing all the time. In addition, a new university campus is established somewhere in the world about once a week. Nevertheless, the world's population is outpacing its capacity to provide higher education on a scale thought to be reasonable and this will continue until well into the next century.

From this and other pressures, I think some UK universities will grow significantly in size in the next century. The other pressures relate to demography, changing market characteristics, globalisation and cost.

**Demography:** It will be necessary to provide 25% more places in universities to sustain the present level of participation of 18 year olds in the UK by 2003. If the 30% participation rate in England, Wales and Northern Ireland is increased to 40% as advocated by the CBI and others, the number of places will then have to increase by something approaching 60%.

**New market segments:** Increases in continuing professional development, mid-career retraining and education for leisure are adding to the total volume of work available to the universities.

**Globalisation:** The universities of the UK have recruited students from other parts of the world for many years. Some such as the London School of Economics depend on these students for 60% of their fee income. However, whether the steady growth over the past two decades will continue is an important question. I believe it will but different patterns of educational interaction with the rest of the world are emerging. On the one hand, the growing and successful economies of the Pacific Rim are pursuing their own policies to be providers and exporters of higher education. Singapore, Malaysia and Thailand all have 2020 visions of a higher education system that is largely their own though with some pivotal connections with the rest of the world. On the other hand, 'third world' countries can not afford education and will only get higher education if it is taken to them. Emerging ambition and desperate poverty will change the relationship of higher education with the rest of the world but the outcome will be to stimulate growth in some institutions.

**Cost:** It is generally assumed that the Dearing review will make proposals to transfer more of the cost of higher education from the State to the beneficiary, the student. Higher education will become a service for which one pays. The cost of most of what universities do will not reduce and the fees they can charge will be strongly influenced by the market's reaction. This will lead to a reconsideration of the critical mass needed to do things efficiently and a desire to compensate through growth.

At this point, let me stop to reflect on the nature of a University. A university - defined in the Shorter Oxford English Dictionary - is a community or guild of masters and scholars pursuing at a particular place, the higher branches of learning. I make this point because I want to release the definition from some of its normative limitations. It has been assumed that the higher branches of learning include scholarship and its extension through research - with which I concur. But it has also been assumed that the higher branches of learning can only be accessed at or after the age of 18 through A levels or similar qualifications with which I do not concur. It has been assumed that the pursuance of the higher branches of learning in a particular place has meant attendance, physically, at a particular institution for a sustained period. It is my view that this is a norm that will be greatly moderated in the future.

Let me make two assertions which I will argue set directions for the future and which - if accepted - release the don from the anxiety that if things change all is lost.

The first is that higher branches of learning will be open and accessible to all. The Lords Report published this year on the Information Society makes it clear digitised libraries will be accessible to all who want to penetrate them "a wondering". Education, at all levels, will become more accessible and more associated with achievement that is measurable in a defined way. Real competence is not restricted so sharply by age as the stages in our education system suggest. A 15 or 16 year old, keen on the History of Art, will be able to follow a course on a CD-Rom, successfully submit for examination and gain credit worthiness recognised by a university. A 17 year old member of a bilingual family will be able to demonstrate a competency in language measured against higher education standards before entering university as will the young musician, mathematician, sports person or any other able person in the pursuit of their interests and development.

The second is that the realm in which some universities - perhaps the most successful - have to operate is global. The combined effect of advances in communication technology and the continuing and growing need for higher education throughout the English speaking world challenges universities to decide whether to enter these global markets. To appreciate the strength of this challenge it is necessary to know something of the developments taking place in other parts of the world.

Singapore - undoubtedly in terms of its objectives - the most advanced and clearly focused city in the Pacific Rim intends to be fully cabled by the Millennium. That will enable Singaporeans to order goods, pay bills and enjoy a wide range of entertainment in their homes. It will also enable them to access the classes and the libraries of the local universities who are working hard to become members of international consortia collaborating in research, authoring course materials and in teaching both 'on campus' and 'off campus'. Manifestations of that collaboration are there for all to see but I was most impressed by a huge wall poster advertising a Master of Science course which said, boldly and explicitly, the course included the PennState module in advanced logistics. That module was authored in PennState by American academics, is offered and tutored at the National University of Singapore under licence and is occasionally enriched by real time contributions from PennState faculty via the internet.

On the other side of the Atlantic, 'surfing the net' is a greater preoccupation than it is here. There are already over 2,000 educational products on the Internet. At present, access can be tediously slow and frustrating and the net can handle only text and data. The Americans, however, know that such technological limitations are a short-term hindrance and that within two to three years it will be possible quickly to transmit images, sound and data of high quality. They are, therefore, preparing for the day when more people within the US and many more people globally in the English speaking world will be attracted to American educational products.

IBM, from the experience gained in networking a consortium of universities in the Western States, has now launched through the States and in Europe a Global Campus Network. The objective is to establish a huge family of about 200 universities world-wide
that will use IBM technology to disseminate higher education. The use of the technology will promote collaboration in research, the authoring of course materials and will deal with registering, tutoring and examining students. Through such collaboration the ‘man on the Clapham omnibus’ will be able to read for a Cornell or Harvard degree without ever putting the US Department of immigration to the test.

The use of modern communication technologies allows universities to provide services to a greater number and range of students. Such services can be available through modules of study that can be pursued flexibly ‘on campus’ or ‘off campus’, in a business, factory, school, further education college or university, in sustained three or four year programmes or as discrete, separate learning experiences. And that will encourage universities to build larger ‘off campus’ communities.

In the long term it is my belief that more mega-universities will emerge as a consequence of this opportunity but with the recognition that distance learning systems have to be high volume to be cost effective. That is why the University of South Africa, the oldest mega-university in the world, registered 130,000 distance learning students in 1995 and why in the same year Anadolu University in Turkey with 17,190 students “on campus” registered 577,000 students “off campus”.

In my opinion, Sir Ron Dearing’s committee will make a recommendation to provide more access to higher education but at no increase in public expense. It will reinforce the need for diversity of provision and it will point to the opportunities to achieve more for less. Universities have a responsibility to suggest answers. That involves having a sense of purpose – a mission – and striving in the pursuit of it to reach and sustain the highest standards. So a sensible strategic plan for the next century has to be developed by all universities setting a course that is appropriate for the university in question in relation to the type of institution it wishes to be. And in developing that plan, each university I believe must presume:

- patterns of student choice will change as a consequence of the cost to them
- competition from overseas providers will increase through the development of broadband communication technology
- critical mass will be an important issue
- more students will access higher education through distance learning

Professor Kenneth Barker CBE
Chief Executive and Vice-Chancellor,
De Montfort University,
Leicester.
THE WITCH OF EXMOOR

Margaret Drabble

A presentation made on December 9th, 1996

Begin on an autumn evening. Let them have the comfort and assurance of familiar surroundings. The walls of the room are hung with some of the city's collection of Victorian paintings. The audience sit in close-packed rows, on bright tweed-covered chairs. Their minds are open to receive the words of a notable writer who up to this moment has been for them no more than a name and a portrait photograph on a dust-jacket.

She walks on to the platform confidently. She could be an academic or a magistrate. A professional hair-stylist seated in the back row notes (with satisfaction) that she gives evidence of regular visits to the hairdresser.

This is England. It is a meeting of Leicester Literary and Philosophical Society, ready to welcome Miss Margaret Drabble.

The introductions completed, Miss Drabble starts with a disclaimer. Despite her acceptance of the society's kind invitation, she is not, she says, a philosopher. As we shall see, this is unwarranted modesty.

She is to talk about her newly published novel The Witch of Exmoor, to explain its theme and how it came to be written, and to read from it excerpts that are to delight her listeners and give them foretastes of both the seriousness and the humour of the book.

For a Christmas gift one year, her eldest son, Adam Swift, has given her what he calls "an improving work". It is a volume comprising two critical essays, written by himself, on A Theory of Justice, a philosophical treatise by John Rawls, a noted Harvard professor.

Rawls' book is, she says, one of the most significant and important contributions to the study of social justice since John Stuart Mill, and has enormously influenced the thinking of politicians on both the Right and the Left.

Miss Drabble explains that having read her son's excellent commentary, she thought it only right to read the volume on which it was based, and did, much to her son's amusement and amazement, for Rawls' book, 600 pages of close argument and analysis, is a forbidding exercise.

The search for the definition of social justice underlies the theme of The Witch of Exmoor, and emerges cleverly in various ways in the lives of the characters who feature in the story.

Rawls holds that a conception of justice cannot be deduced from self-evident premises or conditions on principles. Instead, its justification is a matter of the mutual support of many considerations, of everything fitting together into one coherent view.

Lest the individual define justice so that it is to his own advantage, he places much initial emphasis on what he terms "the original position", a hypothetical situation in which "no-one knows his class position or social status, nor does anyone know his fortune in the distribution of natural assets and abilities, his intelligence, strengths and the like."

Rawls describes this pre-condition as "The Veil of Ignorance", and Miss Drabble uses this as the title for her first chapter, though she transmutes it into "The Vale of Ignorance", as though it were a part of rural England.

The same chapter, which she now reads charmingly to her audience, introduces the topic of the defining of justice in society as a subject for after-dinner discussion round a farm-house kitchen table. Throughout the book the same theme is to recur in the lives of many of the characters, not as vague philosophical inquiry but in harsh application in their activities.

The main characters are the Palmers, one brother and two sisters, and their spouses, children and acquaintances. The brother's wife is Patsy Palmer, a name which, so Miss Drabble has been told, belongs to one of the characters in a current television soap. She asks if anyone in the audience can confirm this, but the members of the Lit. and Phil. Society sit tight-lipped and profess never to have heard of her. The "witch" of the title is the Palmers' mother, an eccentric social anthropologist of some standing, and the story of the book is the impact made upon them severally by the mother's decision to assume the life of a recluse in a large and bleak mansion on Exmoor.

Miss Drabble explains that most of her writing is done in a home which she has at Porlock Weir, and that for some years she has promised herself that she will use the adjacent moor as a setting.

Those who wish to follow the ingenious intricacies of the plot, and to know its final haunting dénouement, will have to read it for themselves.

As for Rawls' conclusions, they can make what they will of this, the principal parts of his definition of "justice as fairness".

First principle
Each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all.

Second principle
Social and economic inequalities are to be arranged so that they are both:
(a) to the greatest benefit of the least advantaged, consistent with the just savings principle, and
(b) attached to offices and positions open to all under conditions of fair equality of opportunity.

Her audience have at that moment no view. Their whole sentiment is one of delight and admiration, and five of them buy all the copies of the book that Dillons have brought along.

In the discussion that follows her presentation, Miss Drabble reveals that she has devised a coda for her book, in which all those characters who have not already met a watery death meet again on the Isle of the Dead, and continue through all eternity the pursuit of the meaning of justice in society. Her publishers rule against including it, and her son thinks it might trivialise the story (which, she says, is not meant to be serious anyway), and she may try to get it past her American publishers for the trans-Atlantic edition.

Margaret Drabble
JOURNEY INTO SPACE

Helen Sharman O.B.E.

Summary of the Lecture delivered on January 27th 1997

One day I was driving home from work at Mars confectionery, where I was working as a research technologist, flicking through the stations on the car radio, when I heard an advertisement: "Astronaut wanted. No experience necessary". I got home and I applied along with 13,000 others.

After lots of tests they eventually chose two of us to go to Russia to begin our training. I was given four days notice to leave, in which time I had to sell my car, get rid of my house plants, buy thermal clothing, meet Margaret Thatcher and have photo calls with sponsors. I arrived exhausted and couldn’t understand a word anybody said. We started with three months of learning Russian, followed by lessons in the planetarium, learning about the stars - in an emergency I would have to steer the spacecraft using the stars as a map. Then we had lessons in classrooms: astronavigation, ballistics, the theory of flight, leading on to more practical subjects: the space station itself and the technologies involved in operating a spacecraft. There was emergency training to prepare for what would happen if we landed in the sea, and physical training to teach us how to manoeuvre our bodies in weightlessness. This involved what the astronauts call their 'hamster wheel'. You stand inside the wheel all the way over. Then you must keep it spinning and spinning as fast as you can. It makes you so dizzy that you don’t know up from down.

In February 1991, about 15 months after my initial training had started, I was selected to be the prime candidate from Britain to go into space - much to my surprise. Even when it was the day of the launch, I still didn’t believe it could be me. After a last minute press conference we made our way to the launch pad. By now the rocket was erect, full of liquid fuel. We said our final farewells and climbed inside our capsule. We strapped ourselves in, closed our hatch and, with a thud, they closed the hatch on the outside. And then there was this wonderful, ultimate sense of relief that, at last, after 18 months of training, we were now getting on with it.

After sitting on top of that rocket for two and a half hours we felt a very faint rumble from a long way below us. There was this slight vibration and slowly, painfully slowly at first, we started to move away from the launch pad.

It took 530 seconds before all the fuel had been used up, but at that second, as we jettisoned the final rocket stage, instead of being pushed down into our seats under three and a half G Force with a bang we were floating, feeling weightless, above our seats. I didn’t sit down again for eight days.

We spent two days inside the Soyuz space capsule, gradually increasing our orbit of the Earth so that we could catch up with the space station. But as we approached the station, Sergei the engineer looked out of the window and said, "Something doesn’t feel right". We kept checking all the monitors and screens. The amount of fuel that we’d used compared to the time taken and the speed we thought we had just didn’t add up. We had to use manual control to dock into the space station.

I operated a periscopic television camera so that Tolya, the commander, could see where he was going. We knew if we made a mistake we would all be dead. We eventually made contact with the station and floated in, knowing that we had done it together.

My job was to do experiments, one of the reasons I’d applied to go into space. You can grow protein crystals large enough so that you can analyse them back on Earth and then base future medicines on them. You can grow seeds in different magnetic fields, and you can mix lead and aluminium, a brilliant bearing material which would simply separate upon cooling if you tried to mix those metals on Earth.

The views I had from my bedroom window were spectacular! We were orbiting the Earth 16 times a day, so for us 16 times a day it was dark, 16 times a day it was light. Sunrise lasted just eight seconds. The Earth wasn’t a globe in the distance, as in pictures from the moon. I was only 220 miles above the Earth’s surface, and the moon is about a quarter of a million miles away, so the Earth is quite close.

If you look away from the Earth you can see the stars. When you look into space, at first all you can see is inky blackness, because your eyes are used to the very bright lights inside the station, but gradually the stars start to appear, and the more you look the more stars you can see. There are millions and millions of stars out there.

I really did feel as though I could look straight through them, through those stars, right to infinity. I know that I was only able to experience all that because one day, as I was driving my car home from work, I heard an opportunity. Sometimes you have to take a few chances. You get out there and you go for it.

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TWO POEMS FROM SALTWATER

Andrew Motion

Examples from the poetry reading given on February 10th 1997

On the Table

I would like to make it clear that I have bought this tablecloth with its simple repeating pattern of dark purple blooms not named by any botanist because it reminds me of that printed dress you had the summer we met - a dress you have always said I never told you I liked. Well I did, you know. I did. I liked it a lot, whether you were inside it or not.

How did it slip so quietly out of our life?
I hate - I really hate - to think of some other bum swinging those heavy flower-heads left to right.
I hate even more to think of it mouldering on a tip or torn to shreds - a piece here wiping a dipstick, a piece there tied round a crack in a lead pipe.

It's all a long time ago now, darling, a long time, but tonight just like our first night here I am with my head light in my hands and my glass full, staring at the big drowsy petals until they start to swim, loving them but wishing to lift them aside, unbutton them, tear them, even, if that's what it takes to get through to the beautiful, moon-white, warm, wanting skin of you.

A Severe Absence of Fish

Even the most masterful of Zen Grand Masters might lose patience and want to run faster

if, waist-deep like me in this bitterly cold river all week, he had cast his truest cast over and over -

casting with all the passionate concentration of will a person can possibly have when they are trying to kill something they love, and leaving no secret lic untouched by the slick, expressionless, heartless fly,

no lee of a dark rock, no pool, no plausible run,
no mysterious shadow, no patch of sleepy sun -

which means (remember: I'm casting over and over) all day my head is my own, intent on the river,

and also clean off my shoulders, full of whatever else might come along next: the wall-eyed head of a grilse

an otter chewed off and left on its feasting stone bleakly to catch the light, then the otter alone

and playing, in and out of the water so fast, so deft I am always agog at the place it has suddenly left;

then one silly Canada goose flying miles above my head, the creak of its wing-beat like you turning over in bed.

Yes, that's right. What comes along next. One thing just slithering after another like beads down a string

and away into nothing, the nothing that day after day I carefully enter and wade through, finding a way

to bring its cold surface to life, to fill empty space with a rising, drawn, dead-pan, strenuous face reflecting my face.
MEDIA FREEDOMS AND CONTROLS IN THE NEW INFORMATION AGE

David Newell

Lecture delivered on February 24th 1997
Sponsored by the Leicester Mercury

I would like to thank the Leicester Mercury, and Nick Carter, in particular, for inviting me to give the Leicester Literary and Philosophical Society lecture. It is great honour to have been invited back a second time.

In March, I become Director of the Newspaper Society - the association of regional and local newspaper publishers. The industry which I represent provides a unique range of editorial coverage throughout the UK, is its most read and most advertised medium; and is a forward-looking, locally based, technically advanced industry.

Regional and local newspapers continue to provide a reference point of enormous social, economic and political value to the communities which they serve. Those communities form the geographic basis of our parliamentary democracy.

In the areas which I have lived - Shrewsbury (the Shropshire Star and Shrewsbury Chronicle) - Birmingham (the Birmingham Post and Birmingham Evening Mail) - Loughborough (the Loughborough Echo) - Guildford (the Surrey Advertiser), - Southampton (the Evening Echo) - Leicester (the Leicester Mercury) and London (the Evening Standard and the Ham and High) - each of these papers has been distinctive in its local role, and in its regional and local editorial and advertising coverage. Indeed, the regional newspaper industry is now at the forefront of meeting consumer demands for the electronic delivery of advertising and editorial information and for more customised interactive services.

The industry publishes some 1400 newspaper titles, read by 90%, of the population; has advertising revenues of £2 billion and sales revenues of £650 million; and employs directly 30-40,000 people. It has a central role in the UK information and communications industries. This sector when you add print, radio, broadcasting and electronic services and software products all together - generates £31 billion per annum, employs directly 400,000 people and is responsible for UK exports of £1.85 billion.

The information industries sector is a growing one - well within the top ten of leading industrial and service sectors in the UK - of which the UK is a world leader. The European Commission believes the European information industries will contribute to the growth of national economies and employment levels, and to the political, social and educational development of Europe.

Traditionally, the information industries have been fragmented in their ownership structures, skills base, and product and customer orientation. They have not been viewed as related to one another by themselves - yet alone by consumers or regulators.

The age of satellite, cable, digital television and multi-channels, PCs, the telephone revolution, and the Internet has changed that traditional view for all time. Consumers have growing variety of means of accessing information and advertising content. The editorial and advertising content producers have a growing variety of delivery systems for their products. The owners of communication delivery systems have a variety of content to distribute and to package in new formats, creating new content forms. Content producers and delivery system owners have to reassess constantly their business rationale and, in so doing, will increasingly find themselves as being both content and delivery system owners. New media products, as they develop, will challenge the traditional media's economic base which relies on advertising revenues to pay for programme and editorial content.

The globalisation of information provision, its speed, and the increasing diversity in its organisation and delivery methods pose a special challenge for national governments and their regulatory agencies. Editorial and advertising content has been regulated in the UK by reference primarily to how it is distributed to the consumer. Media ownership has been regulated, not primarily by reference to content type, but by reference to how content is distributed to the consumer. As distribution methods have expanded, so have the systems of regulation become more fragmented and anomalous.

I must give some examples to demonstrate my point:

a) Book Publisher

* subject to general UK laws e.g. libel law, competition law;
* no licence required;
* no special ownership laws;
* no self-regulatory regime for content.

b) Magazine Publisher

* subject to general UK laws e.g. libel law, competition law;
* no licence required;
* no special ownership laws;
* self-regulatory regime for content (PCC and ASA).

c) Newspaper Publisher

* subject to general UK laws e.g. libel law, competition law; no licence required;
* special ownership laws - newspaper transfers, cross media ownership of radio, television and cable;
* self-regulatory regime for content (PCC and ASA).
d) Television and Radio

- subject to general UK laws e.g. libel law, competition law,
- ability to broadcast dependent on a licence;
- special ownership laws - broadcasting ownership and cross-media ownership;
- regulatory regime for content (Government, ITC and Radio Authority).

Whilst telephone-based information provision systems do have their own discreet forms of regulation via OFTEL and ICSTIS, publishers operating via the Internet, PCs or CD Roms remain outside the web of ownership and content regulation. This web has focused on distribution mode first, and content second, and assumes that regulation can be operated at a national, as opposed to an international level.

It will appear increasingly anomalous that a controversial biography of a public figure published in book form, might only be able to be serialised selectively in a newspaper or magazine as a result of the application of the Press Complaints Commission's Editors' Code of Practice; and might appear or not appear in different and varying forms on the BBC, satellite, commercial television or radio as a result of the application of the various different statutory broadcasting codes and guidance - and yet might also be available in full via PC, CD Rom or on the Internet. In practical terms, for a combination of reasons, freedom of speech can now be most fully exercised, without restraint, around the dinner table or from a safe haven abroad via the Internet.

It will also appear increasingly anomalous that the traditional content industries - newspapers and broadcasters - but not books and magazines - have specific ownership regulations which have restricted their development as multiple-media and multi-media companies. Whereas the new information industries are, essentially, unregulated and will remain so provided that they do not distribute content via newsprint or on the traditional airwaves.

This gives the new industries an unfair competitive advantage in the regulatory stakes. Television, radio, and newspapers do not have a unique position of power or influence - relative to the new information industries. And, with the proliferation of broadcasting outlets, broadcasters will no longer be regional state-licensed monopolies.

The 'old' media are no longer treated as different by the consumers and advertisers to the 'new' media. The way out of the regulatory maze is not to complicate it further by the government inventing new discreet forms of content and ownership regulation, with their own codes and domestic jurisprudence, to apply to each and every form of new content distributor or provider. The tussle is right for regulatory barnacles to be scraped away, not added to. Such an approach recognises the near anarchic reality of the media revolution. The multiplicity of media outlets, which change media markets and media choice more quickly than any regulator can absorb, and the international origins of much content, will strain current media-specific editorial and ownership regulations, to breaking point.

A central policy decision which will need to be taken at an European and national level is whether or not the new media should float free of specific regulation or whether attempts, however imperfect, should be made for them to be brought within it. The current debate focuses rightly not only on the new media, but also on the rationale and extent of regulation of existing media. At the European union level, the policy agenda includes:

- The future regulation of media ownership, consumer communication (advertising, marketing, sponsorship, public relations).
- The development of EU-wide copyright and data protection laws.
- The protection of minor's and human dignity in audio-visual and information services, and illegal and harmful content on the Internet.

Within that agenda, more extreme calls for further regulation have been heard:

- The establishment of an European Media Council to regulate and police editorial ethics on an European basis.
- The taxation of successful media companies to establish new media companies.
- Newspapers should not be run as commercial enterprises to make a profit and editors should be elected by a newspapers' journalists. Newspapers should be subjected to content regulation on a par with broadcasters and required not to show political bias.

Within the current debate over constitutional reform and the possible, full incorporation of the European Convention on Human Rights into UK law, it is often forgotten just how temuously your freedom of speech is guaranteed under UK law. And just how difficult it is for citizens to challenge official secrecy in the absence of freedom of information legislation both nationally and locally, where many public services have been privatised and their decision-making processes have become more private as a result.

The traditional media in the UK operate in a highly regulated environment. In contrast to the position in the US and many European countries, they do so without the backdrop of any enshrined right to freedom of expression. The absence of such a right helps explain the UK media's opposition to the introduction of privacy laws. There are at least 50 or 60 pieces of legislation in the UK, which currently impact on freedom of expression. That list could well grow still further with the incorporation of the Data Protection Directive into UK law - as it places the individual in a strong position to have prior access to unpublished news stories, photographs and even his or her own obituary, when they are in preparation; to delve into journalists' notebooks; and to prevent the publication of stories or photographs about them. Furthermore, the directive may well provide legal cover for the government, local authorities, or the public services to hide behind when refusing to respond to press inquiries for information. An individual's freedom of information can be stifled as a by-product of regulation which might be designed to protect an individual's privacy.

The theoretical and practical relationships between individuals' freedom of expression, privacy, access to information, and the individuals' ability to have access to communicate and be communicated to on new communication channels are all too often looked at in isolation in the UK. There needs to be a wider debate which places the individual citizen at its centre. That citizen in the UK lives in a democratic market economy which has produced one of the most competitive media and information sectors in the world which, with the exception of the BBC, is
privately funded out of advertising and consumer sales. Its vigour, independence, plurality of voice and the developing choice it offers the citizen are underpinned more by the operation of a free market than by media regulation or ownership controls. The development of the new media provides more reason rather than less reason to reduce media-specific government controls over content and ownership of the old media - particularly as they distort competition and consumer choice providing the new media with freedoms from restrictions which should not be denied to the old.

What does this all mean in practice? Progressively, media ownership, cross-media ownership, access to media issues should not be regulated by specific media type, but by reference to the general UK and EU competition and monopolies and mergers legislation of application to all industry. Furthermore, just as the profit-based media have progressed from being dependent on a government-based licence to publish, so too the broadcast media should be less regulated through a process of licensing, subject to conditions. There should be freedom to broadcast which matches as far as possible the freedom to publish which has been the cornerstone of freedom of expression in newspapers; magazines and books.

The multiplicity of media outlets and types renders it increasingly impracticable for government to regulate media ownership in accordance with its variety or type. It also obviates the need to regulate the broadcast media ownership on the basis of limited spectrum or channel availability or the particular influence of television in the home, or newspaper ownership on the basis of newspapers' influence on the democratic process.

What of the regulation of editorial and advertising content? Here too, I believe the case for government regulation according to media type is progressively more difficult to justify. The essential need is to analyse more fundamentally the rationale for intervention. The starting point must be the wider context. What should the constitutional settlement be between the individual and State within Europe; what limit does the State put on the individual's freedom of expression and by what criteria should limits be challenged or judged? What should the balance be between freedom of expression and privacy? Should freedom of expression when exercised in the media - in all its new forms - be regulated by more onerous standards than those which apply to individuals, in their homes, their workplaces, or in their leisure, if so, why and, on what basis? Should commercial speech - what ever that means precisely for it encompasses more than advertising - be regulated in different ways to other speech? Can such questions be answered without reference to democratically agreed basic principles, such as the International Standards embodied in the European Convention on Human Rights which attempt to codify conflicting basic rights?

I am beginning to stray into territories which exceed my prospectus and your patience, but I do so because I believe these questions will have an increasing relevance as the UK constitution continues to evolve and becomes a more direct focus of political debate than at any other time for the last twenty years.

Legal limitations on freedoms of expression in the media should increasingly have to be justified by reference to a wider jurisprudence, which has not been developed in the UK in any detail. Within that process, issues such as access to the courts; the ability to rely on international conventions and standards; the need to restrain courts' ability to grant temporary legal orders banning publication; the scope and purpose of damages in libel actions; and the balances between privacy, freedom of information and freedom of expression all need to be examined.

It would be the ultimate irony of the new information age, if the growth in media outlets and communication systems, led to individuals freedom of expression and access to real information, becoming more regulated or restricted, and the media becoming more subject to government controls. Above all else, the citizen needs access to media which are not subject to State control. And are subject to a legal regime which, whilst not putting them above the law, so far as is practicable, enables them to exercise the same freedoms, and subjects them to the same restrictions, as apply to individuals.

I believe that, increasingly, the legal regime governing programme and advertising content of application to the broadcast media should emulate that of application of the print media. I doubt whether the current system of government regulation of television and radio advertising content, which, of itself, differentiates between the different broadcast media should endure. Is it the place of the broadcasting statutory agencies to restrict advertising of lawful products or services? And, for example, to decide on the appropriateness or otherwise of broadcast advertisements for contraception, tobacco, female sanitary products, charity and religious advertising or even, political advertising?

In a multi-channel age, I doubt whether it should remain the place of the broadcasting statutory agencies to regulate channels in a way which is so restrictive of freedom of expression - particularly in respect of broadcasters' freedom to be opinionated or to be political? Statutory requirements mandating broadcasters to be balanced and unbiased which impact a freedom of expression surely need review.

The law's primary focus should be to delineate clearly universal restrictions which should be placed on freedom of expression in such areas as incitement to genocide or racial hatred; incitement to the commission of criminal offences - particularly involving physical violence or cruelty to children; fraudulent or negligent misrepresentations about goods and services which induce sales by "duping" the consumer; defamation; and contempt.

Progressive removal of the statutory bases of the restrictions on individuals freedom to broadcast, and to advertise on the broadcast channels should be made conditional on the broadcasters setting-up their own independent systems of self-regulation. They would be analogous to those operated by newspapers and magazines in the form of the Press Complaints Commission and the Advertising Standards Authority.

My argument is that the media should be subject to higher standards than those expected by the law of the land. Those standards of application to each media sector should not be imposed by the State. They should evolve through codes of practice applied by independent adjudicatory bodies established by relevant media sectors as a result of citizen/customer demand. Some media sectors - such as the book publishing sector - may continue without any system of self-regulation. Others, including the new media, are creating their own systems.

These self-regulatory bodies should be subject to judicial review and supervision by the courts and legally challenged if they do not follow due process, comply with the principles of natural justice.
and apply their relevant codes to individual cases of complaint. My suspicion is that self-regulatory codes may actually be subject to legal challenge because they impose standards that unjustifiably restrict freedom of expression, rather than because they err too greatly on the side of such freedom. It is at this point jurisprudence will evolve which determines the extent to which it is permissible legally to restrict individuals' freedom of expression on or in the media to a greater extent than it is restricted in the lecture hall, the school play ground or the supermarket car park.

This all seems a long way from where I started this evening. However, in a sense, nothing could be further from the truth - because the regulatory environment in which newspapers such as the Leicester Mercury operate is vital to their future development as newspapers - the stories they can dig out and run - in the photographs they take and publish - the opinions - their's and their readers - they carry in their editorials, features and letters columns - in their information and advertising - in the way in which they serve, inform, and entertain their community of readers - the way they debate significant local issues. And in the way they compete with all other media.

Regional newspapers compete with all media - the national and local media - old and new - print and broadcast. That competition which is a competition for readers' time and interest and for advertisers commitment to the regional and local newspapers as the most trusted and successful way of communication with consumers has never been greater.

My confidence in the enduring role of my members' newspapers as responsible, successful, entrepreneurial, evolving businesses which serve the needs of their readers and advertisers is dependent on one qualification - that is that the regulatory environment in which they operate is even-handed. It should allow them the freedom to diversify into the electronic media so that they can compete to maintain the reader and advertising bases which underpin their editorial roles.

Thank you.

David Newell.
Director of the Newspaper Society,
Bloomsbury House,
Great Russell Street,
London. WC1B 3DA.
CHIMPANZEES: THE LIVING LINK BETWEEN MAN AND BEASTS

Jane Goodall

Summary of the lecture delivered to a joint meeting of the Society and the Natural History Section on 11th March 1997.

My first interest in natural history was at the age of four when I spent several hours in a hen-house waiting to see how an egg was laid. The stories of Tarzan and Dr Dolittle fuelled my interest further. After jobs with a film company and as a waitress a friend invited me to have a holiday in Africa. Before I had been in Kenya very long I met Dr Louis Leakey who played a pivotal role in fulfilling my dream of studying animals. One of his plans was to study wild chimpanzees in order to gain insight into the evolutionary past of humans. I was fortunate in being chosen for this pioneering task and, though critics thought I would not last more than three weeks, the project is still going after 35 years!

One of my first observations at the chimpanzee reserve I set up at Gombe on the eastern shore of Lake Tanganyika in Tanzania was that chimpanzees made tools. They were simple tools such as defoliated sticks for "fishing for termites" but they were made with forethought. Suitable flat stones were chosen for cracking nuts. Small branches and leaves were fashioned into overnight nests, and occasionally larger branches were used in disputes and to threaten other chimpanzees. The use of tools had previously been thought an essential feature separating man from "beasts".

With patience I was able to gain the confidence of the chimpanzees at Gombe and so to observe their family life through several generations. Communication between individuals and groups was by a series of grunts, cries and howls; hardly a language but coupled with facial expressions and behaviour it was evident that they experienced most of the emotions known to man and could communicate these feelings to other chimpanzees. The interest of the community in new-born babies paralleled that of human mothers. Though mainly vegetarian, occasional meat-eating followed co-operative attacks on monkeys. Dominance by strength and experience gave rise to pecking orders and each chimpanzee knew its place - up to a point where fights occurred. Banging empty cans together to make a noise served as a bluff to challenge older chimpanzees. Rarely, even warfare and unwarranted attacks on youngsters occasionally took place, another parallel with human activity.

With the backing of Louis Leakey and later the National Geographic Society I have been able to set up a research institute to continue the study far into the future. The Jane Goodall Institute now has branches in several countries. It has four spheres of interest:

Research: The Institute will ensure the continuation of research into the behaviour of non-human primates particularly at the Gombe Reserve.

Conservation: The Institute promotes better public understanding of matters relating to wildlife conservation, particularly those concerning non-human primates and their environment.

Sanctuaries for young orphan chimpanzees taken illegally from the wild serve as a focus for this.

Animal welfare: The Institute will establish programmes to improve the welfare of non-human animals by creating a better understanding of their nature, emphasizing that the ability to reason and to have emotions are not unique to humans, but are shared by mammals and birds. We also promote the understanding that mammals and birds can experience pain and we try to discourage the practices of trapping young animals for entertainment or, in some areas, for food.

Education: The Institute encourages and fosters a better public awareness, particularly amongst children and young people, of issues relating to the above three aims. This is accomplished through writing and distribution of books, through magazine and newspaper articles, through radio and television, as well as through lectures and special events.

I close by saying that, in spite of the dreadful cases of imprisonment and even torture of chimpanzees for "entertainment", their use in medical research and in spite of the ever-increasing pressures for man's own living space in Africa, there is some evidence for hope that all will not be lost. Chimpanzees will continue to flourish in the reserves set up for them and, in so doing, will continue to provide us with insights into the evolution of our own ancestors.

Dr Jane Goodall,
The Jane Goodall Institute (UK),
15 Clarendon Park,
Lymington,
Hampshire S041 8AX.
BRINGING DINOSAURS TO LIFE

John Martin

Chairman's address to the Geology Section on March 12th, 1997.

Ever since the first dinosaur remains were found - perhaps by early humans 30,000 years ago but certainly in 14th century China and 16th century Europe - people have tried to understand fossils by drawing, painting or modelling the animals they thought the bones had once been part of.

Palaeontologists still do this today. We call the results "reconstructions" and we still draw or paint them to help us understand how dinosaurs worked as living animals. We also use them to persuade the public that the science of palaeontology is worth doing, in books, TV, exhibitions and talks like this one.

As an illustrator and exhibit-maker, as well as a palaeontologist, I am especially interested by two things in dinosaur art: first that it should be so persuasively powerful, with its ability to influence science and popular thinking for years and, second, that most dinosaur art, believe it or not, is based on guesswork rather than pure science.

The first dinosaur art, by early 19th century pioneers like Richard Owen (the inventor of the dinosaurs) shows what I mean. Their reconstructions look obviously "wrong" to us now, the reason is they had only odd bones, not complete skeletons, so they were obliged to "make-up" the shapes of the dinosaurs by guessing what the missing bits were like. Those same informed guesswork methods, which we call analogy and interpolation work are still in use today, using well-known dinosaur reconstructions and real fossils and bones. I suggest these "scientific" methods have as much to do with fashion, politics and the artist's prejudices as they have with science.

I show how artist-Palaeontologists reconstruct guts, muscle and skin to flesh-out the bare bones of dinosaur skeletons. What colour were they? We still have no idea.

The problem is always this: if I don't know what it was like, how can I draw it?

Finally, I show that some dinosaur artists don't bother at all - they just copy earlier work. But I balance that with a selection of fine, well-researched reconstructions which are technically so good they almost qualify as "art" as well as "science".

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John Martin.
Leicestershire Museums.
Annual Report and Programme for the 155th Session
1996 - 1997

PRESIDENT'S REPORT

Truly both literary and philosophical, the lecture programme this year has been catholic, ranging from renderings of contemporary poetry and prose to insights into the writings of our most eminent and enduring dramatist and poet. We have been made acutely aware of the bioethical problems attending the implementation of a national health service, the difficulties in meting out justice and appropriate punishment within our judicial system, and the challenges confronting tertiary education. We have been treated to fascinating encounters with the worlds of geology and primatology and we have come close to living the experience of journeying in space. Common to all has been the impressive quality of the presentations. It has been immensely enjoyable and we have been extraordinarily privileged, and I would like once again to acknowledge our debt and express our thanks to all of our speakers. I find myself wondering where else has any group or club or society enjoyed such a feast in such surroundings.

Our programme secretaries, Hillary and Geoff Lewis have done a splendid job and, on behalf of everyone in The Society, I would like to express our warm and sincere thanks to them. I would also like to thank all of those who suggested speakers and, in some cases, provided introductions or hospitality and accommodation for our guests. This collegiality and spirit of support makes working for the Society a most enjoyable and rewarding experience and is also much appreciated by our guest speakers.

Once again, we have continued to benefit from the generosity of a number of sponsors. De Montfort University, Dillons, the University Bookshop, the Leicester Mercury and the Royal Society of Chemistry have supported individual lectures, the University of Leicester continues to provide accommodation when we need it, and we receive considerable help and support from the Geology and Natural History Sections. We are deeply grateful for this support and thank them all.

I would also like to express my own heartfelt thanks to our Honorary Secretary, Joan Staples, for her good humoured and efficient help throughout the year, to our Honorary Treasurer, David Beeson, who has managed our financial affairs with quiet authority, and our Honorary Membership Secretary, Mrs. Silver, who has continued behind the scenes to keep our membership records up to date. Without their devoted service, the Society would not function and I am very grateful to them. May I also thank the Past Presidents and Members of Council for their tolerance and support and their helpful ideas, guidance and advice, and accord special thanks to the immediate Past President, Ormond Smyth, whose assistance and counsel I have sought and valued throughout the year. I have also appreciated his stepping in on the two occasions when work has taken me away. Finally, I would like to register my appreciation to Joan Beeson and others who have distributed refreshments and washed up after meetings, and to the staff of the Museum and Art Gallery who welcome us each Monday and ensure our security and comfort during the meetings.

There have been a number of matters which have exercised Council this year, some of which will emerge in the reports of other officers of the Society later this evening. I would like to mention three. The City Council, although moving into Unitary Status and working with reduced resources, will continue to support the Society next year and we still hope that it may be possible to negotiate the return of the meetings of the Natural History Section to the Museum and Art Gallery next season. Secondly, I am pleased to be able to tell you that through the generosity of the Leicester Mercury who will sponsor the event and the University of Leicester who will provide organisational backing and the venue, the Lit. and Phil. will launch an annual Christmas Lecture for children next year. Finally, I am also pleased to announce that Council has agreed to the Society amending the wall boards in the Council Room over the summer so that we can continue to add photographs of Presidents well into the next millennium and also, through your own generous subscription, we shall be able to restore the President's Chair, thus maintaining the long history and tradition of the Society.

In conclusion, my personal thanks go to the Past Presidents, Council and the membership for bestowing on me the honour of the Presidency of the Leicester Literary and Philosophical Society over the last year. As a Leicestershire man, it has been exciting to be part of the City's fine tradition and it has also been a marvellous experience - a great pleasure. I know that, when I hand over to the new President, Grant Pitches, next September you will be able to look forward to another very successful year.

John H. Holloway.
PROGRAMME DURING THE 1996-1997 SEASON

September 10th 1996. SCIENCE IN ART: ART IN SCIENCE. Presidential address by Professor J.H. Holloway, Chemistry Department, University of Leicester.

October 14th 1996. WHAT IS THE NATIONAL HEALTH SERVICE FOR? John Harris, Professor of Bioethics and Applied Philosophy, University of Manchester.

October 28th 1996. THE FLATULENT CRETACEOUS WORLD. Dr Peter Skelton, Open University.

November 11th 1996. ENJOYING SHAKESPEARE. Stanley Wells, Professor of Shakespeare Studies, University of Birmingham.

November 25th 1996. TOMORROW'S UNIVERSITY. Professor Kenneth Barker, C. B. E., Vice-Chancellor, De Montfort University, Leicester.


January 27th 1997. JOURNEY INTO SPACE. Dr Helen Sharman, O.B.E.

February 10th 1997. POETRY READING; POEMS FROM SALTWATER Andrew Motion, Professor of Creative Writing, University of East Anglia.

February 24th 1997. MEDIA FREEDOMS AND CONTROLS IN THE NEW INFORMATION AGE. David Newell, Director of the Newspaper Society.


April 21st 1997. Annual General Meeting, Followed by a recital by the Kingfisher Chorale.

SUMMER EXCURSIONS 1996

April 20th. BRADGATE PARK, THE BRAND & BLACKBROOK RESERVOIR. Leaders: Dr Helen Boynton and Dr John Moseley

April 28th. BRADGATE PARK VOLCANIC & SEDIMENTARY ROCKS. Leader John Martin

May 12th. BARDON HILL QUARRY. Leader Dr M. J. Le Bas

June 2nd. KETTON QUARRY. Leader Alan Dawn

June 22nd. DUDLEY MUSEUM AND WRENS NEST. Leader Colin Reid

August 11th. BLOCKLEY BRICK PIT. Leader Peter Blake

September 15th. SOUTHAM CEMENT WORKS QUARRY, LONG ITCHINGTON. Leader Peter Blake

September 21st. DUNTON BASSETT GRAVEL PIT. Leader Dr Jan Zalasiewicz

WINTER PROGRAMME 1996

October 2nd. THE CALDBECK FELLS OF CUMBRIA by Dr R.J. King (joint meeting with the Russell Society)


October 28th. THE FLATULENT CRETACEOUS WORLD by Dr Peter Skelton, Open University - joint meeting with the Parent Society.

October 30th. KATMAI AND ST HELENS by Dr Tony Waltham, Nottingham Trent University.

November 13th. SECRETS OF THE SOOM by Dr Sarah Gabbott, Leicester University.

November 16th. MUDROCKS: FROM SEA FLOOR TO BRICK WALL Symposium held jointly with the Yorkshire Geological Society and the East Midlands Geological Society.

November 27th. GEMSTONE DEPOSITS by Kip Jeffrey, University of Leicester.

December 11th. Members' Evening.

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January 15th. RECENT VERTEBRATE FOSSIL FINDS FROM THE PETERBOROUGH AREA by Dr Gordon Chancellor, Peterborough Museum.

January 28th. GEOLOGICAL SITE CONSERVATION IN WARWICKSHIRE by John Crossling, Warwick Museum.
February 12th. Members' Slide Show.

February 26th. CHICXULUB - THE END OF AN ERA by Dr Peter Maguire, University of Leicester.

March 8th. THE QUATERNARY ICE AGE: OLD PROBLEMS, NEW PERSPECTIVES Saturday School at Vaughan College.

THE ICE AGE IN LEICESTERSHIRE - Dr John Rice (University of Leicester).

EAST ANGLIA: THE LAST THREE MILLION YEARS - Dr Jan Zalasiewicz (University of Leicester) and Steven Mathers (British Geological Survey).

WHERE THE RIVER MET THE SEA - Dr Brian Moorlock (British Geological Survey).

RECONSTRUCTION OF THE AMAZONIAN RAIN FORESTS IN THE ICE AGE: EVIDENCE FROM EASTERN BOLIVIA - Dr Francis Mayle (University of Leicester).


THE ICE AGE HISTORY OF THE RED RIVER DELTA: IMPLICATIONS FOR GROUNDWATER RESOURCES - Steven Mathers (British Geological Survey) and Dr Jan Zalasiewicz (University of Leicester).

March 12th. Annual General Meeting and Chairman's Address: BRINGING DINOSAURS TO LIFE by John Martin.

ANNUAL REPORT OF THE NATURAL HISTORY SECTION 1996

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S. Costa, BSc
Mrs J. Edwards
Mrs A. Gregory
D.A. Lott, BA, AMA, FRES
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1996


January 24th. NEW PLANTS FOR OLD: AN INTRODUCTION TO GENETIC ENGINEERING by Dr Michael Davy

February 7th. THE BEES' NEEDS: THE ECOLOGY OF BUMBLE-BEES by Dr Juliet Osborne

February 21st. FLYING IN THE FACE OF ADVERSITY: INSECT CONSERVATION by Derek Lott

March 6th. THE WONDERFUL WILDFLOWERS OF WESTERN AUSTRALIA by Dr Franklyn Perring

March 18th. Joint Meeting with the Parent Body FLOWERS OF NEPAL by Dr Franklyn Perring

March 20th. JAMES HARLEY 1801-1860: LEICESTERSHIRE'S PIONEER NATURALIST by Ron Hickling

April 3rd. A.G.M. Quiz and Social Evening

The summer programme of outdoor meetings was as follows:

April 20th. HARBY HILLS WOOD. Leader Jan Dawson

May 4th. LODDINGTON REDDISH. Leader John Daws

MAY 18th. BUDDON WOOD AND QUORN HOUSE PARK. Leaders Derek Lott and Peter Gamble

JUNE 9th. Full day, WARBURG RESERVE, OXON. Leader Nigel Phillips

June 5th. MOAT TRAPPING AT KNIGHTON CHURCH ROAD. Leader Jane McPhail

June 19th. BAT COUNT, CHARNWOOD LODGE. Leader Jenny Harris

June 29th. CLIPSHAM QUARRY. Leader Barbara Parker

July 3rd. AYLESTONE MEADOWS. Leaders Steve Costa and Andy Brooks

July 14th. Full day, KEMERTON ESTATE AND, BILL SMYLLIE RESERVE, GLOS. Leaders Damian Oller and Simon Glover

July 27th. MOAT TRAPPING, CHARLEY WOODS. Leader Harry Ball

August 10th. SHAWELL PITS. Leader Steve Grover

August 24th. NEWFIELD COLLIERY AND MOIRA RAILWAY. Leader Les Fletcher

September 15th. DORMOUSE COUNT, STOKE WOOD, NORTHANTS. Leader Mike Miley

October 5th. FUNGUS FORAY, HALLGATES SPINNEY. Leader Richard Iliffe

Winter meetings began on October 9th. with a members' slide and exhibition evening.

October 23rd. WILDLIFE OF THE FALKLAND ISLANDS by Martin Withers

November 6th. MUSHROOM MYTHS AND MAGIC by Richard Iliffe

November 20th. The 24th Sower Memorial Lecture RETURN OF THE OSPREY by Tim Appleton

December 4th. HISTORY OF GARDENS by Nick Bennett
Revision of the Oxford English Dictionary: You may be able to help.

Work is now in progress on a complete revision of the Oxford English Dictionary. One of the most important aspects of this is the improvement of the range of the quotation evidence which illustrates the history and development of words. Often the existing quotation evidence can be antedated or postdated, or no new evidence of the changing use of a word can be found.

The editors are concerned that a great deal of the research which has been done and is being done on manuscript sources such as wills, inventories, accounts, letters, and diaries, and which is subsequently published, is not being brought to their attention. The period of greatest interest to us is that from about 1500 to 1900, but earlier and later evidence will also be welcome. A team of researchers has started work recently on extracting material from some of these sources, with very encouraging results.

If you are aware of any sources which you think might provide useful material, please contact:

The Call for Research Materials, Oxford English Dictionary, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP,

or by fax on: 01865 267810,

or by e-mail to: oed3@oup.co.uk.
THE LEICESTER LITERARY & PHILOSOPHICAL SOCIETY
founded in 1835

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One representative of the Geology Section
One representative of the Natural History Section

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