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# THE MEDIA AND PUBLIC ATTITUDES IN BRITAIN

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## **The British, food and technology**

The European, and particularly the UK, press have been having a field day with the GM issue since the mid- to late-1990s. Some of the most vigorous reporting has been in the British tabloids, noted both for their selective reporting of news and for their attention-grabbing headlines: who can forget *Fog in Channel*; *Continent isolated* way back in the 1920s (1), or *Gotcha!* when a Royal Navy submarine sank the Argentine cruiser the *General Belgrano* during the Falklands War (2)?

The British traditionally are not food addicts as foreign visitors have been complaining for centuries. A decade or two ago, people generally had no worries about food and were for the most part content to go to the local butcher or grocer, or more recently to the supermarket, for their bread and cheddar cheese, their pork pies and their traditional joints of roast beef for Sunday lunch. Implicitly it was felt that if food was on sale "they" had made sure it was safe and wholesome.

But in recent years the mood has changed: government ministers have been seen to equivocate on food (as on so many other issues) so that trust in official pronouncements fell sharply (3) and remains low as the endless public "debates" and discussions of major issues bang on and on. It may well have become worse because you can now see them on the telly, performing in parliament and elsewhere; once upon a time, political pronouncements came mysteriously from on high to be reported in the press with the reader having no idea how the politician delivered his message or how he behaved. Now, alas, it is all too clear.

The public attitude towards technology questions is particularly sensitive. The UK emerged from the World War II proud but broke; proud, not only for having been on the winning side, but also for having initiated some of the major technological advances which resulted in military success: atomic energy, radar, the jet engine and penicillin were among them. Post-war British governments promised salvation from the national economic mess through the country occupying pride of place in the world of technology development, resuming what was surely its rightful position – the country in which the industrial revolution started. If the sun were indeed going to set on the British Empire, at least the old place could lead the world in technology and science.

Fairly soon that hope began to fade . Nuclear power (too cheap to be worth metering? [4]) never quite took off the way everyone had hoped. Penicillin, discovered in London, it is true, was in point of fact developed as a product in the US. Jet engines – well, everybody had them and the

Germans actually flew military jets during the war which the British never did (5). Hovercraft, our latest wonder, were not travelling up and down every river in the world as predicted. And, unfortunately, our jet passenger aircraft, although the first in service, had a distressing tendency to fall out of the sky; when that fault was cured it was, alas, too late and the Boeing 707 was ready to go – further and carrying more passengers. Moreover, all those military toys – Blue Streak, TSR2, Nimrod and the rest – were either cancelled or were years late and vastly over budget. The mood of supposed technological triumph nevertheless continued until the election campaign of 1964 and Harold Wilson's remark at that time about the "white heat of technology" (6). Then it faded from view.

What really changed the British perception of themselves and technology was the US space programme with which Britain could not hope to compete on anything like an equal footing, particularly as continuing economic mis-management resulted in less and less of the UK GNP (never as high as it should have been) being directed to R&D. Americans recognised their space spectaculars as American achievements; so did the British and their fellow Europeans. Moreover, in the US there is probably a good deal more interest and pride in the local universities with all the attendant publicity about their achievements; no doubt enthusiasm for the college football teams helps. In Britain there remains often a marked residue of the town-and-gown relationship from earlier times and university sport, with one or two exceptions, does not grab public attention.

## **Enter BSE...**

In the food arena much of this disillusion with technology – and especially with government statements – came to a head with the BSE episode. As it gradually became public knowledge that something was going badly wrong with lots of cows, people were reassured by government ministers and officials that there was no need to worry: it was all under control and there was no danger to anyone from eating British beef, proved by one senior government minister feeding a hamburger to his daughter in front of the television cameras. Suddenly, in April 1996, the balloon went up. In the House of Commons the health minister announced that maybe, just maybe, there was a connection between BSE in cows with the advent of a novel and devastating human illness, new variant Creutzfeld-Jacob disease (nvCJD) (7). There is still debate about whether and how the cow condition is or might be related to nvCJD, and a human epidemic has (so far) shown no signs of materialising, but the impact was profound.

Immediately, so the story goes, people stopped buying beef. But the British are a pragmatic and phlegmatic bunch. When they went shopping the following week, they saw all that lovely steak marked down to half price because no-one was buying and, being British, could not resist: they scooped it up. Within a year, anecdotes have it, meat sales were back to normal except for ground beef. BSE is now pretty much history and slowly disappearing from the national memory but it has left its mark. Later episodes like the dioxin release in Belgium or the UK's more recent outbreak of foot-and-mouth disease were much less damaging to food sales but, particularly with the latter outbreak, the government (Labour now, not Conservative as in the BSE time) was once more seen as indecisive and secretive. It was largely to restore public confidence in official attitudes to food that in the summer of 2000 the Food Standards Agency (FSA) was founded as an independent (arms-length) government agency under the leadership of a prominent and respected biological scientist. While still young and winning its spurs, the FSA is gradually being recognised as a sound voice in food matters except, needless to say, when its researches lead it to tread on the sensitive toes of some campaigning group or other.

## **...followed by GM foods**

Although BSE might have resulted from a failure of "technology", that technology was simple and mostly about how cattle feed was cooked and prepared. But never mind how simple or complex: "technology", any technology, to do with food was out.

It was in this environment that the first labelled GM food product reached the UK. "Vegetarian" cheese – made with an enzyme engineered into a microbe rather than extracted from the lining of calf stomachs – was already on the market and had raised little if any interest. Some vitamins and other food supplements came from fermentation processes using genetically-modified organisms, and a number of medical drugs, including human insulin, were made by similar processes. The fact of a GM organism being involved went unnoticed. The first visible GM consumer food product was tomato purée, offered for sale by two major supermarket chains starting in 1995/6. The GM product was clearly labelled *MADE WITH GENETICALLY MODIFIED TOMATOES* and was sold side-by-side with a similar item made from conventional tomatoes; both cans sold for the same price but the GM one was larger at 170 g. compared with 140 g., thus offering a price saving of some 20%. Sales of both types of can were roughly equal.

In 1996 GM soya from the US arrived and changed everything. Campaigns of increasing intensity began, with a number of large organisations claiming variously to speak in the interests and on behalf of consumers, food safety and against "environmental damage". They were accompanied by a host of individuals and small *ad hoc* groups, all fired up by this newly perceived threat to life on earth as they thought they knew it.

### **The campaign and the campaigners**

Just why the campaign reached the ferocity it did is a matter for investigation and interpretation; it would make a fascinating doctoral thesis. Among the opponents of the new technology, it is possible to recognise a number of interwoven strands, shades of opinion and agendas:

- Some scientifically well-informed people put their own interpretation on the available evidence. They are concerned about interactions between the transferred genes and the genetic organisation into which they have been placed, with the possibility of unpredicted and unpredictable consequences. Differences of views among scientists and others, and disagreements on how to interpret evidence, are not uncommon (after all this time there is still a Flat Earth Society with its own website [8]). Scientific uncertainties need to be resolved by experiment, not by the weight of numbers supporting one interpretation or the other. Be that as it may, pending such formal resolution one cannot reasonably ignore the distribution of views: in favour of plant biotechnology are the overwhelming body of geneticists and molecular biologists, including many of the most prominent world scientists in this field, contrasted with a small number of their colleagues opposing. Furthermore, it is generally accepted that so far none of the fears of the opponents have been realised (9). Something may happen tomorrow or the next day to change that but these crops have now been in use for several years and their products consumed by hundreds of millions of people with no recorded health effects and no environmental damage beyond that inevitable from standard farming practices. But for all that, the doubters might be right and their views must be taken into account.

- Another group, often poorly informed scientifically, take what has been described as a "romantic" view of nature and the harmony they perceive in it, ignoring the fact that little of the UK landscape, at any rate, is "natural" in the sense of being untouched by human intervention. For them it is wrong to interfere with the genes of plants and animals, ten millennia of plant and animal breeding notwithstanding. Some see a fundamental difference between the genetic manipulations of traditional breeding and those of biotechnology (they may not be aware of mutagenesis procedures which have passed for 'conventional' cross breeding since the 1940s and involve the random re-organisation of genes using high-energy radiation and carcinogenic chemicals). Others are so remote from appreciating scientific reality that they subscribe to such statements as "only genetically-modified tomatoes have genes" or "I eat only natural tomatoes and they have no genes" (3). As citizens they are as entitled as anyone else to their opinions but they can hardly be termed "informed".

There is also a good deal of confusion about harmony and equilibrium in nature, words which are often used to mean the same thing: nature to those people is in a benevolent state of equilibrium which we disturb at our peril rather than the dynamic state of constant *equilibration* recognised by scientists. This view ignores the reality that all agriculture is "unnatural" and ecologically "unsound" whatever those words might mean. Nature does not grow vast areas of single plant species neatly arranged in rows and it is only the attention of farmers that keeps our crop surviving.

- Some people voice objections on general religious grounds. Their views are sometimes expressed in the form of "if God had intended genes to be transferred across species boundaries, He would have arranged it to be so", to which the counter arguments are raised that "He has" and "if God had not intended us to undertake genetic modification He would neither have arranged things the way they are nor given us the skills to do so". Related views extend into surprising contexts: a German newspaper once ran an article about the soul of the tulip (*die Tulpenseele*) and how distressed it would become if forced to cope with a foreign gene.
- Most visible among the objectors to agricultural biotechnology are the various pressure groups. While their agendas often express noble aspiration, both their pronouncements and their public behaviour not infrequently suggest otherwise – the pursuit of a variety of power, political and commercial objectives. Characteristically, they pounce upon any shred of evidence, however preliminary, purporting to show some disadvantage of transgenic technology, totally ignoring thereafter all and every subsequent publication demonstrating the errors of the original report; the Monarch butterfly affair is absolutely typical.

There is frequently a tendency during technical discussions to divert attention away from scientific evidence towards attacks on social and economic systems, just as other political movements do. Yet some of the pressure groups themselves closely resemble multinational corporations, with enormous budgets, central control and no formal responsibility to the public at large or even to their own supporters who may rarely be asked for their views. Others, however, do appear genuinely to be concerned with environmental and other problems although their own activists not infrequently divert effort into something akin to political campaigning rather than a genuine desire to resolve differing points of view.

- Finally there is a group who perceive a direct threat to their economic interests. Among the anticipated benefits of transgenic plants are reductions in the uses of pesticides and other chemicals, "a green technology" some people have called it, and doing so, moreover, in a highly efficient and productive manner leading to economic benefits for farmers and low prices for consumers. One can readily sense the objections from that sector of agriculture which also bases its own appeal on the minimal use of "chemicals" (choosing to ignore the fact that the whole of biology is based on chemicals and chemistry) but which is able to achieve only relatively poor yields and high-priced products. For the moment they have successfully exploited their niche market; "fashion foods" some have called it, since many authorities have pointed out that there are no benefits for nutrition, human health or environmental safety. Prominent in this category is, of course, the organic movement. By insisting on a zero content of any transgenic plant or component in their own products, they demand protection without limit against any possibility of that happening, most commonly by insisting on separation distances great enough in their view to achieve their objectives (although some are doubtful that even the Atlantic Ocean would suffice as a barrier).

The effect in a small country like Britain is an attempt to make the cultivation of transgenic crops impossibly difficult since everywhere and anywhere can be declared as being too close to organic activity. It would be more reasonable if they were to accept the EU recommendations of a 1% transgenic content permitted as "GM-free". This would encourage the GM-free farming and other lobbies to adopt a less extreme position. Rather than demanding that the rest of the world act to preserve their own sanctity, they themselves would take responsibility for ensuring no mixing above 1% of any GMO material with their own product – a bee flying 4,5 km from a GM field carrying an odd pollen grain would be irrelevant (10). By establishing a sensible and agreed threshold value for transgenic content qualifying for the "GM-free" description, they could more readily sleep at night and would be much less vulnerable to being caught out with material of GMO origin in their own products. But for the moment they seem to prefer to live in a world of nightmares.

## **The press discovers the "GM issue"...**

The UK media responded to these developments with gusto. Correctly sensing a fight, tabloids careful to avoid any mention of science from one year to the next enthusiastically entered the fray. Their headline writers (and those of some of the broadsheets) scaled new heights of exuberance:

- "The Prime Monster" (after Tony Blair dared voice support for the new technology) – *The Daily Mirror* (February 16th, 1999)
- "The mad forces of genetic darkness" – *The Sunday Times* (February 21st, 1999)
- "Can 'Frankenstein' foods harm your unborn baby?" *The Daily Mail* (January 30th, 1999)
- "Fast food giants bin mutant grub" (after the major supermarkets played follow-my-leader and said they had removed GM ingredients from their own-label products) – *The Daily Star* (February 19th, 1999).
- "Mutant porkies on the menu" (a good pun: "porkies" could mean pork sausages but in London rhyming slang, "pork pies" rhymes with "lies", hence "porkies" also means

untruths. Such is the richness of local culture) – *News of the World* (May 23rd, 1999)

- "Charles: my fears over the safety of GM foods" (no comment or qualification needed) – *The Daily Mail* (June 1st, 1999)
- "M & S sells genetically modified Frankenpants" (after a world-famous major clothing chain was "caught" selling ladies' knickers made from GM cotton) – *The Independent on Sunday* (July 18th, 1999).
- "Scientists warn of GM crops link to meningitis" – *The Daily Mail* (April 26th, 1999)
- "Scientists raise the fear of GM foods triggering new allergies" – *The Daily Express* (April 30th., 1999)
- "Lifting the lid on the horror of GM foods" – *The Daily Express* (May 12th, 1999)
- "The GM pollen that can mean a cloud of death for butterflies" – *The Daily Mail* (May 20th, 1999)
- "GM risk in daily food of millions" – *The Guardian* (May 24th, 1999).

During that period, reason and balance hardly dared raise their heads above the parapet but throughout all the hyperbole there were, here and there, a hardy few who did protest at the blatant exaggeration and misleading assertions. Of course, headlines don't tell the whole story and the article that follows the headline obviously fleshes out at least some of the details. But banner headlines about Frankenfoods are unlikely to indicate stories about the wholesomeness and benefits of GM crops and the foods derived from them.

The press resolved itself into two broad categories: some, mainly the broadsheets *The Times*, the *Daily Telegraph* and the *Financial Times*, reported the news as news, giving a reasonably balanced view of matters as they developed, offering fair coverage to the views and arguments of both sides. Distinct from them were the campaigning titles: *The Guardian* and, to a lesser extent, *The Independent* among the broadsheets were accompanied by the *Daily Express* and, above all, by the *Daily Mail* among the tabloids.

Interestingly, even among the campaigning newspapers their collection of articles were never totally in one direction. Occasionally, in the very same tabloid issue, there might appear a sober and reasonable article by the science correspondent while on another page (usually in a position of greater prominence) would be a piece from a campaigning journalist banging the anti-GM drum. The anti-GM broadsheets always ran occasional guest articles from respected scientists and others putting the GM case against the barrage of anti-GM material from the papers' own correspondents. And there were – and still are – readers' letters which are not without effect.

### **...with the broadcasters not far behind**

Something of this mood was reflected in broadcasting although without quite such eye-catching headlines. Since 2000, both the BBC and the commercial channels have transmitted major programmes on agricultural biotechnology, sometimes running for two hours or more and extending over two evenings. While one may query the exact degree of balance, by-and-large such programmes did present both views even if they came down in the end more firmly on one side than the other.

Recently, the BBC and Channel 4 have again run important TV programmes, updating and presenting once more both the arguments and the experience of ag. biotech. in other countries in which GM crops are grown commercially, as well as in the UK via the field scale evaluation trials looking at the micro-ecology of GM crop cultivation; these are a government-sponsored national series of trials on some 600 plots around the country using maize, sugar beet and winter and spring oilseed rape. (The results of the trials are expected in peer-reviewed journals later this year. A number of the sites were vandalised by protesters, with lots of opportunity for often one-sided TV reporting. Some of the vandals were prosecuted. In at least one famous/notorious case, the accused pleaded justification for their actions and were acquitted by the jury, generating a lot of head-scratching among people who still treasured the thought that the law was reasonable and logical.) TV also screened a "GM drama" called *Fields of Gold*, a contentious programme showing the evil doings of the wicked multinationals complete with glamorous heroine and noble hero; the scientific community spoke virtually with one voice in condemning it as sci-fi and not very good at that.

A good deal of discussion is carried on radio, in specialist farming and food programmes as well as on the morning rolling daily review of events on the BBC's main news programme. The presenters are household names and highly skilled in their questioning. The pieces, usually no more than five minutes long, have acquired their own ritual. Something has happened: somebody put GM seeds into the wrong bag or, horror upon horror, an inquiring scientist has discovered a herbicide-resistant transgene in a country where it should not have been.

In the studio, sitting round the table, is a representative of a protesting organisation and probably a biological scientist. The presenter reminds listeners of the item and inevitably turns to the protester to ask what he (or she) thinks of THAT. Out come the answers, pat as always and accusing the usual villains of heinous crimes. Taking his cue, the presenter then asks the scientist, not for comment on the subject of the news items, but what he (or she?) thought of the protester's statement. The scientist is not much interested in the protester: he (enough of this "or she") has heard it so many times before and wants to give his views about the news item. So he tries within his thirty seconds or so to dismiss the protester and address himself to the issue. Back comes the presenter, throwing the ball again to the protester, now asking for comment on the scientist's remarks. The protester goes on at great length (it seems to the scientist). Via his earpiece, the presenter is by now getting urgent demands from his producer to move on to the next item which he then sets out to do by turning to the scientist and demanding "In one word, professor" (on good days in might be "in one sentence...") "how do you respond to that?" One word (or one sentence) is really what he means because now he is behind schedule. Fortunately some of the scientists have become experienced at dealing with this situation, learning how to refuse to be shut up abruptly and to turn the conversation more to their own advantage (11).

## **A change in the air**

Since those heady days of 1999 and 2000, the mood has begun to shift. There are now many items describing new developments, often presented in a favourable light; depending on the paper, there are frequently more stories about GM benefits than about risks. By the end of 2000 and into 2001 a new emphasis was beginning to appear in the headlines:

- "The EPA judges Bt risks to Monarchs as low" – *BBC Online* (December 2000)
- "Green shoots of recovery for GM" – *The Financial Times* (December 17th, 2001)
- "GM foods safe say supporters" – *BBC Online* (December 7th, 2001)
- "Threat that never was – A laboratory study which suggested that GM crops harmed butterflies provoked protests across Europe. Now environmentalists are having to backtrack" – *The Times* (December 14th, 2001)

Media attitudes towards organic farming also appear to be changing. Until recently it was commonly presented as the epitome of desirable farming and healthy food, the very antithesis of ag. biotech. and genetic engineering – all goodness and light compared with the evil forces of artificiality and the wicked multinationals. But a couple of years ago things moved on and new headlines began to appear:

- "Urban myths of organic farming" – *Nature* (March 22nd, 2001)
- "The great organic con trick" – *The Times* (July 4th, 2001)
- "Organic facts are hard to digest" – *The Financial Times* (December 15th, 2001)

and, most surprisingly, from one of the normally vigorously anti-GM campaigning tabloids

- "The great organic con?" – *The Daily Mail* (April 8th, 2003).

## **Where are we now?**

A number of observers think the UK may now be entering the endgame on GM crops. The Prime Minister has made it quite clear that he considers it essential that Britain should go ahead and be at the forefront of global biotechnology development (echoes of that white heat of technology, perhaps). Speaking at the Royal Society in May 2002 (12), his speech included attacks on protests against animal experiments and GM crops, and he warned that stifling vital work could allow other nations to "leapfrog" Britain. He had clearly been badly stung during a visit to India a little earlier as he also said: "GM protests are partly blamed for the poor image of science". A new "robust, engaging dialogue" with the public was needed to restore confidence in science, which had been damaged by episodes such as the BSE crisis. The Prime Minister recounted how a group of scientists in Bangalore had told him: "Europe has gone soft on science, we (in India) are going to leapfrog you and you will miss out." Mr Blair continued: "I believe that if we don't get a better understanding of science and its role they may be proved right."

The UK government has called for a national GM debate to start in June 2003 take place in four "strands":

- a public debate involving meetings, discussions, etc., open to all who are interested (13)
- a review of the science and regulatory issues around GM, conducted via a website (14)
- an economics study done in-house by the Prime Minister's Strategy Unit, with the results to be published around June 2003 (15)
- separate studies by the Food Standards Agency (16).

The interest of the UK media in GM matters has recently been partly reawakened but there

is for the moment also something of an air of boredom and a surfeit of GM. Nevertheless, both the UK government and the EU Commission (the body that actually has jurisdiction over the cultivation of GM crops in the Member States of the European Union [17]) are talking much less now about the safety and environmental consequences, if any, of GM crops (those are matters for the regulators says the Commission, and have been agreed for crops and foods already approved) and much more about co-existence: how, in the light of the organic movement's insistence on zero content of transgenes, different styles of agriculture may exist together in the same area/country/universe when a measure of cross-pollination cannot be prevented. Quite recently, Franz Fischler, the EU Agriculture Commissioner, put it very clearly: co-existence must operate in both directions and no one form of agriculture can exercise a veto on another. In parallel with policy development on co-existence there are considerations of possible liability implications, again presumably in both directions (18).

## From here on

As the national GM debate gets under way, the UK media will no doubt give it their due attention but with how much enthusiasm it is difficult to foretell. They have certainly responded to threats of a US/EU GM crops/foods trade war via the WTO but have been strangely muted in their reactions. It is almost as if they know the US is right on this one and cannot bring themselves to launch an attack. After all, they were very vociferous in proclaiming British rights when the French government illegally refused to allow the import of British beef (on BSE-related "health" grounds) even though the European Union had given its approval for beef exports to resume.

What the role of the media will be in shaping public opinion and the public response as this debate unfolds is hard to predict. It is fairly clear that the UK public is not greatly exercised over the whole matter: there are indeed strong feelings on both sides but the man-in-the-street has more important things to worry about and GM foods come low in his scale of concerns. Depending on the question put, polls of public opinion have over the years shown roughly a fifty-fifty split of those willing to eat it and/or are in favour of going ahead. The proportion of those agreeing has tended to rise over recent years to the extent that the Eurobarometer survey of December 2002 showed the UK public, with 31% opposed, as the least rejectionist in the whole European Union (3).

It is often said that people get the governments they deserve. Perhaps they get the media they deserve, too. That would be a sad indictment on my countrymen. Despite the achievements of the BBC in setting truly global standards for unbiased and considered reporting, the fact remains that the British media have become primarily concerned with the business of entertainment rather than news. Porter Novelli, the PR firm, says that, with the exception of the *Financial Times*, every news story or feature in British newspapers falls under one or more of nine broad headings: Sex, Sleaze, Controversy, Conflict, Shock, Surprise, Failure, Incompetence or Human Interest. Whether this is an accurate reflection of the British psyche this author cannot say but what is clear is that, if you want to engage the media, half-baked hysterical nonsense will generally win over rational, balanced analysis.

We have in this paper focused mainly on the national dailies but should not ignore the role of the weeklies and monthlies, usually much more sober and analytical in their approach. The Economist has recently been quite buoyant; "Frankenfoods v Luddites", an item in its Britain section (19), criticised the form and structure of the national debate but was quite clear about its

view of the outcome: “Monsanto will win” were its closing words. Another heavyweight is Prospect Magazine which, under the title “The butterfly flap” has just published an excellent analytical review of the Monarch butterfly affair (20). For those Brits who read further than the tub-thumping tabloids and some of their broadsheet bedfellows, there really are good discussions of all the issues of the GM affair not restricted to terms designed for professional scientists

## Postscript

Early in June 2003, the debate under the title *GM Nation!* Was formal launched with a fair amount of press coverage before, and lots and lots of press, radio and TV on the day and the one following.

Some of the coverage was very extensive (*The Guardian* which tends to specialise on this topic, ran several pages) but others were less so. Much of the text was reasonably balanced but the headlines were back:

- “Weedkillers pose biggest threat to UK’s wildlife” – *The Independent* (June 2nd, 2003)
- “Meacher denies ‘chaotic’ GM policy” – *The Guardian* (June 2nd, 2003)
- “Leave our food alone” – *The Independent* (June 1st, 2003)
- “Anger as Straw back the U.S. over GM foods” – *Daily Mail* (June 2nd, 2003)
- “Government’s 10-day public roadshow opens with a whimper” – *The Guardian* (June 4th, 2003)
- “GM debate is ‘PR stunt’” – *The Mirror* (June 4th, 2003)
- “A world without butterflies and birds” – *The Independent* (June 4th, 2003)

one might have expected that but, following a “report” from the Royal institute of Chartered Surveyors, we had this:

- “Blight of GM crops ‘would hit house prices’” – *Daily Mail* (June 4th, 2003).

We look forward to an exciting few months.

## References

1. There is some doubt about whether this headline ever existed and, if so, where it was published. Suggestions include *The Daily Sketch* in 1924 and *The Times* some time in the 1930s.
2. *The Sun* (May 4th, 1982)
3. Gaskell, G., Allum, N. and Stares, Sally. Europeans and Biotechnology in 2002 Eurobarometer 58.0 (2nd Edition: March 21st 2003).  
[http://europa.eu.int/comm/public\\_opinion/archives/eb/ebs\\_177\\_en.pdf](http://europa.eu.int/comm/public_opinion/archives/eb/ebs_177_en.pdf)

4. In 1954, (Admiral) Lewis Strauss, Chairman of the U.S. Atomic Energy Commission, declared to a science writers' convention that the development of nuclear energy would herald a new age. "It is not too much to expect that our children will enjoy in their homes electrical energy too cheap to meter". The news was received enthusiastically in the UK.
5. The Me 262 (Schwalbe) first flew in battle on July 25th, 1944.
6. The phrase "the white heat of technology" was attributed to Wilson (who subsequently became Prime Minister) during the electoral campaign of 1964, describing the technology boom in Britain in the 1960s. A clip from his speech can be downloaded from [http://news.bbc.co.uk/olmedia/cta/events2000/labour/wilson\\_heat.ram](http://news.bbc.co.uk/olmedia/cta/events2000/labour/wilson_heat.ram).

See also Patricia Hewitt's memory of Tony Benn "...who penned much of Harold Wilson's "white heat of technology" rhetoric, as Harold Wilson's first speechwriter after the 1964 election" at <http://www.nano.org.uk/phrelease.htm>

7. In March 1996, the Secretary of state for health, Stephen Dorrell, told the House of Commons that the most likely explanation for the 10 new cases of Creutzfeldt-Jakob disease (CJD) in people under 42 is exposure to bovine spongiform encephalopathy (BSE) before the specified bovine offal ban was introduced...
8. [http://www.alaska.net/~clund/e\\_djublonskopf/Flatearthsociety.htm](http://www.alaska.net/~clund/e_djublonskopf/Flatearthsociety.htm)
9. V. Moses and M. Brannan (2001). One Hundred Percent Safe? GM foods in the UK. [http://193.118.100.80/databases/cropgen2.nsf/bda3d79e8e36b992802568870042d644/efd46b597d5d802680256b1a00678190/\\$FILE/ONE%20HUNDRED%20PERCENT%20SAFE\\_.pdf](http://193.118.100.80/databases/cropgen2.nsf/bda3d79e8e36b992802568870042d644/efd46b597d5d802680256b1a00678190/$FILE/ONE%20HUNDRED%20PERCENT%20SAFE_.pdf)
10. GM Crops: Genetic Pollution Proved. GM Pollen Found Miles from Trial Site. [http://www.biotech-info.net/pollen\\_found.html](http://www.biotech-info.net/pollen_found.html)
11. A number of the author's own contributions to the BBC Radio 4 "Today" programme can still be downloaded from the BBC website:  
*GM crops found growing wild in Mexico 3 years after ban* (29/11/2001) <http://www.bbc.co.uk/cgi-bin/radio4/today/listen/audiosearch.pl?ProgID=1007038527>  
*A patent on the great British chip* (11/02/2002) <http://www.bbc.co.uk/cgi-bin/radio4/today/listen/audiosearch.pl?ProgID=1013430549>  
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*Is it time to stop the GM trials in Britain? We speak to the chairman of CropGen and the agriculture minister.* (16/08/2002) <http://www.bbc.co.uk/cgi-bin/radio4/today/listen/audiosearch.pl?ProgID=1029482302>  
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