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OPEN LETTER

Dr Ian Gibson

Chairman

House of Commons Science and Technology Committee

House of Commons

London

SW1A 0AA

18 June 2004

Dear Doctor Gibson,

GM - Illustrating the democratic deficit

Thank you for your letter dated 4 June 2004 which covered a copy of Professor Derek Burke's 'GM Food and Crops: What went wrong in the UK?' .

In my previous communication I did ask for exhaustive details of any serious science on which you based your comments. I read, with some astonishment, that your complete listing consisted of work undertaken by Monsanto, Dr Richard Phipps and a Chinese Group.

I note that Dr Arpad Pusztai has very recently forwarded a detailed scientific reply, copy attached, to both the assertions made in your speech and also in your e-mail letter to himself and Dr Brian John.

In 1998 Monsanto endeavoured to stop publication of the ground breaking book 'Against The Grain: The Genetic Transformation of Global Agriculture' by Dr Marc Lappe and Britt Bailey together with The Ecologist special edition ' The Monsanto Files'. In the event 'Against The Grain' was published by Common Courage Press in the US, then Earthscan in the UK, whilst the ' The Monsanto Files' saw the light of day from the presses of an alternative printer. You may wish to obtain copies for your further edification.

Turning now to Dr Pusztai:Between 12 August and 31st December 1998 he had to sit in his Office, had no staff, his four PhD students and other staff were re-assigned to other researchers (they were not even allowed to talk to him) and he was not allowed to enter his own laboratory. By reassigning his Ph.D students his career was in effect terminated. True, the Rowett did not to renew his annual contract but de facto they fired him after his contract ran its course to the year end. For contractual reasons they could not do it beforehand.

Why was Dr Pusztai simply not asked to do further experiments in order to clarify the issues questioned? That he was prevented from doing further work, his studies not repeated, and that similar studies were not carried out in independent labs, is a matter of grave concern. Do you really

believe that truly independent research is not required when dealing with the commercial imperative of successfully launching new products?

There is a commonly held belief that it was necessary to make an example of Dr Puztai in order to prevent other scientists publishing GM-critical results. This is truly monstrous. As Chair of the Parliamentary Science and Technology Committee why are you unaware of the full facts surrounding the Pusztai Affair?

Derek Burke puts forward the careworn phraseology that all scientists can be trusted. A very questionable stance. Time indeed then for the restoration of integrity, veracity and ethics to the scientific lexicon. Then there is a chance for scientists once again to rightfully earn respect and be trusted. "But if we fail - then the whole world, including the United States, including all that we have known and cared for, will sink into the abyss of a new Dark Age, made more sinister and perhaps more protracted by the lights of perverted science."(Winston Churchill)

Yours Sincerely,

Ian Panton  
GM Free Cymru

Enclosure:

1. Email communication 9 June 2004 - Dr Arpad Pusztai to Doctor Ian Gibson.  
Dr Arpad Pusztai FRSE,

9 June 2004

Dear Dr Gibson,

Having just received the full text of your speech in the Commons Debate 5th May 2004 I have decided that in the public interest I must change my mind and, in addition to my previous short reply to your e-mail letter you had sent to me and Dr Brian John, to give a detailed scientific reply to the assertions made in your speech and also in your e-mail letter. I am sure you will welcome this as part of the scientific dialogue that the government is so keen on. As I have always subscribed to the idea of openness, transparency and inclusiveness, the catchphrases of Sir John Krebs, I have decided to publish this mainly because your speech is one of the best examples of the factually unsupported assertions that, quite unlike in the House of Commons, one certainly could not get away with at scientific meetings. I shall give you a few examples:

In the House in reply to Joan Ruddock's question you said this: "The epidemiology studies carried out in every major centre, including in the universities in the States and elsewhere, into the effects of the food (in this context GM food!), ... have shown no effects whatever that correlate with the food - although I understand how difficult that is to prove."

I am afraid, there have been no epidemiology studies, and certainly none published. This is by the

way obvious from the fact that, apart from this generalization, you could not refer to a single such study. It is not surprising because in the absence of labeling of GM food in the USA such studies could not be carried out! However, it is known from official statistics that in less than ten years food-related illnesses have practically doubled in the USA since the introduction of GM food into the American diet. While the reason for this is unknown, it requires an almost foolhardy braveness to declare that everything is well in the USA and it flies in the face of the reported facts that none of these ill effects correlate with food, including GM food.

Then you go on: "I do not think that it is incumbent on me to prove that GM food is safe; the people who say it is unsafe have to prove that."

Could you, please, let us know the law, an Act of Parliament, that places the burden of proof for deficiencies in any defective and potentially dangerous product on the purchaser and therefore absolves the manufacturer from carrying out safety checks and publishing the results of these?

"The benefits that GM has given to people, such as the provision of cheap GM soya, have been to the great advantage of the food industry and the people who live in those countries."

Again, no evidence is presented. In the absence of data to support your assertion most people would have reservations that the GM- is truly cheaper than the conventional soya. Cheaper in what sense, most people would ask?

I shall skip what you said on the ethical obligation as seen by the Nuffield Council on Bioethics to explore the potential benefits of GM to reduce poverty, improve food security and promote profitable agriculture in the developing countries because this is just an opinion against which one could quote many other counter-opinions but a I take strong issue with your interpretation of the BMA's submission about the safety of GM food. I think it is again a classical example of quoting a part of a statement that is liked by pro-GM propagandists and even politicians but keeping quiet about the strong qualifications in the same BMA statement about the safety of GM food and the effort really needed to investigate it. You go on: "It seems to me that the evidence is piling up to say that the (GM) food is, indeed safe. ... Although I have not the time to do so now, I am quite prepared to take my right hon. and hon. Friends for a GM-free lunch to discuss the evidence that they (i.e. the other side) put forward. I think that I can make arguments against every single, little experiment that they put forward and give another explanation, although I agree that more work needs to be done".

These are truly confident words! However, in your reply to the specific questions in the e-mails that Dr Brian John and I sent you, in which we asked you to describe a little bit more fully this pile of evidence that shows the safety of GM food, your reply became less confident and was rather short and selective on the examples. You gave us precisely three examples that you thought supported your case: a Monsanto study on GM soya in 1996, a Chinese paper on studies with GM sweet peppers and tomatoes and Dr Richard Phipps' recent paper of a production study with GM maize-fed cattle. I expect, what constitutes a pile is a matter of definition. One can reverse this argument by saying that the evidence is in fact piling up to show the health problems of GM foods reported in the published science literature (see our review!). However, these you and other pro-GM supporters conveniently ignore. Despite this, I am afraid, I have to tell you that even though the

pro-GM people shout loud as they are trying to make up for the deficiencies of their case, you and others like you are on the losing side because the evidence to show that some if not most of the GM foods do really present health risks is truly accumulating in the literature. Moreover, not to be too pedantic, regardless whether the Gasson/Burke paper was refereed or not, it was still an opinion piece and not based on new research. In contrast, the three examples quoted by you were at least refereed publications of new research and as such one has to take them seriously. By the way the paper by Burke in the EMBO Journal does not present any new work either and to take a very kind view of it, it is another opinion piece.

I am afraid, your three examples are not exactly in the top category of nutritional papers. First, the Monsanto GM soya study has in fact shown what is wrong with some of the GM studies. You will find a detailed scientific criticism of the published GM soya papers in our review. As this is published and I already made references to it, I shall only refer to one of the most glaring examples of the clever manipulation of the results done by the Monsanto scientists by hiding the inconvenient results as supplementary information deposited in the archives of a journal that could be regarded as an attempt to mislead other scientists (see in detail in the Appendix).

The Chinese study is not a proper nutritional study (see Appendix). This is understandable, neither sweet peppers nor tomatoes contain sufficient protein and energy to support animal growth and therefore their nutritional testing is rather difficult. It is rather interesting that, in contrast, by referring to Prof. Tom Saunders who opines that rats do not do well on raw potatoes (incidentally in our work we used both raw and cooked potatoes!) the impression is created that apparently sweet peppers and tomatoes are the staple food for the rats.

The Phipps paper describes a production study and as such it has an obvious commercial value.

All in all, these papers can at best be described as some evidence but hardly a confident ringing approval of the safety of GM foods.

Personalizing the debate is not what one would call a high-class debate. In this context I think it is demeaning to refer to a well-respected scientist such as Professor Traavik (Tromsø, Norway) as "a so-called leading expert in GM crops" because of a newspaper article that he may not have anything to do with.

It is also unfair (to say the least) and misleading (some people probably would use stronger language) the passage in your speech in which reference is made to our work. "His work eventually appeared in a peer review journal, which is fine, but it first appeared in newspapers and television shows. There is no evidence that his results can be repeated. I can cite times and places where people have tried to repeat the experiments and have not had the same results. The essence of science is to be able to repeat experiments in different labs at different times, perhaps under different conditions, and get the same results".

I am afraid, in your letter to Dr Brian John and myself the confidence of citing times and places where people tried to repeat our experiments but failed to get the same results, is somewhat less

convincing. More precisely this is what you said in your e-mail: "Although I am aware that nobody has repeated Dr Pusztai's experiments precisely, that is by feeding potatoes modified in this particular way to rats over an extended period, there have been a number of feeding trials".

True, there have been feeding experiments but these were done with soya, sweet peppers and maize

(see Appendix) and not GM potatoes but this can hardly be cited as evidence that by repeating Pusztai's experiments nobody could get the same results. The kindest interpretation that I can put on your views, i.e. that a study carried out with one particular GM crop can be reproduced by doing a study with a totally different other crop, is that your grasp of the principles of both genetic and nutritional science is rather shaky. It either shows up a rather embarrassing lack of understanding of the basics of gene splicing or you try to convince your fellow parliamentarians of something that you know is not so. I am sure you know that in genetic modification each GM crop represents a unique event. For example, Bt-176 maize refers to one particular modification event and what is established for this event may not apply to another event of even the same crop. Indeed, this is the reason why the government experts demand a case-by-case risk assessment of each crop (see for example in Professor King's, the government chief scientist's report). Nutritionally it is also a very disingenuous to pretend that by looking at sweet peppers one can demonstrate that the GM potato experiments of Pusztai were wrong. Clearly, you were influenced Professor Burke's (another nutritional expert) views that the work done in the UK most advanced animal laboratory (the Rowett) to a well-tryed and accepted design and published in the Lancet is inferior to a Chinese work published in a journal of not truly top ranking after more than three years that it was first presented at the OECD meeting in Edinburgh. I am not surprised that this work could not have been published in a top nutritional journal because of its clear deficiencies (see the Apendix for details). Finally, I am not going to say anything more about the old hobby-horse of the pro-GM people that our work first appeared in newspapers and television shows.

It then goes on: "The scientific community is almost unanimous in support but the public debate reflects uncertainty". This is again a sweeping generalization without any factual support. How many scientists and what percentage of the scientific community have you interviewed to allow you to make this statement? This is a standard ploy of projecting your beliefs and then taking them as gospel truth! But then we are back to the newspapers: "In fact, activism has not been public-led; it has been provoked by newspapers..." Neither the biotechnology industry nor the politicians supporting it do anything wrong; it is the nasty newspapers!

However, when you appear to be running out of steam with the arguments you fall back on the age-old practice of referring to people, such as Prince Charles or your "ex friend" Lord Melchett, in a way that shows them up in a bad light, in their absence when, of course, they cannot defend themselves. Or give pious statements, such as: "But as stewards of the planet, we also have a responsibility to recognize that change is necessary if we are to feed a burgeoning world population"... that is so general that it is almost useless.

The final passage in your speech is a real "bravura" in misinformation; it almost takes one breath away. "If anything, the Government have been too soft on this (GM) issue; that is the only reason to admonish them. They should have taken a much harder line, rather than listening to 0.00035 per

cent of the population. Unfortunately, it is not very clear from the speech how this figure has been arrived at. But of course in the House there were few people who could or would challenge these figures, after all great many of them, unlike the majority of the British population, are on your side.

I am really saddened by this whole affair when someone respected like you decide for some unknown reason to give up your previous measured and well-considered position in public life and parliament and become a cheer-leader of the pro-GM camp. Even for that one can find possible explanations but one would and could expect a better and more professional job from someone with previous scientific training. If this is the best that the Chair of the Science and Technology Committee of the UK Parliament can come up with in the defence of GM foods we are in a worse situation than I ever imagined.

Sincerely

Arpad Pusztai

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Previous correspondence:

I attach these letters for completeness' sake

Dear Dr Gibson,

I was intrigued by your references to studies in which our study with GM potatoes had been repeated time and time again and found it to be wrong.

As I keep reviewing this field of potential health effects of GM foods (our last review was published in "Food Safety: Contaminants and Toxins, ed. by JPF D'Mello, by CAB International, 2003 and the next one to be published by Elsevier early next year) it would be useful for everyone interested in this topic to let me know the references to these published works that I could include them in future reviews as I unfortunately not aware of them.

Thanking you in advance

Arpad Pusztai

Dear Dr Gibson,

I do not want to appear to be patronizing but I think you stepped outside of your expertise when you made your statement to the House on nutritional or toxicological matters concerning GM foods. I do not doubt that you are a politician of good standing and you may even get away with this statement when it comes to your friends in politics but, I am afraid, your track record as a nutritional scientist is nowhere and this will be obvious to all research scientists. However, I hope that as someone with

past scientific training you will understand that when you make comments which show up your deficiencies in and poor grasp of science by pronouncing on something that you do not fully understand, you will not only embarrass some of your former colleagues but also all other presently practicing scientists. I am not going to point out to you in this short e-mail the obvious mistakes and scientific nonsenses in your statement to the House but perhaps I can suggest to you to read our review on the "Potential Health Effects of GM Foods" in the book entitled Food Safety: Contaminants and Toxins (ed. by JPF D'Mello) published by CAB International in 2003 if you want to get a professional view of all the published works in the scientific literature on the topic you commented on so bravely though somewhat foolhardily. Moreover, you cannot easily dismiss this book as anti-GM propaganda because the chapter preceding ours was written by one of your favourite authors, Mike Gasson. It is perhaps still not too late to be informed on this topic of GM safety (?) of such importance for the people of this country and your constituents whom you represent in Parliament and make amends though I know the likelihood of this to happen is less than zero.

It saddens me that although by inviting me to submit my views to the Science and Technology Committee in 1999 you were instrumental in releasing me from my contractual gagging by the Rowett, and thus lived up to your duties as a true parliamentarian, your more recent actions, including your misleading statement to the House, did a great disservice to your reputation and standing in the eyes of those who had thought well of you but, even more importantly, to the truth and the people of our country.

Yours sincerely

Arpad Pusztai

Appendix.

This contains the scientific criticism of the three studies referred to in your speech in the House of Commons. As I do expect that your extended public and parliamentary duties allow you sufficient time to study the three papers in depth, here I summarize some of the scientific problems with them.

The Monsanto study on GM soya:

The statistical method for comparing the GM and non-GM lines was flawed. Instead of comparing sufficiently large numbers of samples of each individual GTS with its appropriate individual parent line grown side-by-side at the same location and harvested at the same time to establish whether they were compositionally "substantially equivalent", what the authors compared was a large number of different samples from different locations and harvest times. This is all the more curious because in the authors' experiment 1 in Puerto Rico the conventional and the GTS lines were grown at the same site but the results of their analyses on these soybean samples were not included in the publication based on experiments 2 and 3 from different sites (Padgett et al., 1996). The Puerto Rico results had been deposited with American Society for Information Science, National Auxiliary Publication Service (NAPS) as supplementary information as referred to in Padgett et al. (1996). It could also be retrieved from the archives of the Journal of Nutrition and data showed that the GM

soybean contained significantly less protein and the amino acid phenylalanine, amongst many other things and therefore it could not have supported the growth of animals as well as the parent line. Accordingly, because the GM and non-GM samples were not substantially equivalent had these results been included in the published paper and not hidden away in the archives the GM soya could not have been approved. In practically all heat-treated GM soybean samples from the Puerto Rico trial the amounts of the lectin and the trypsin inhibitors were significantly higher in the GM samples than in the isogenic line. Even more curiously, heat-treatment appeared to have far less denaturing effect on the trypsin inhibitor content of the GM lines than on the parent line samples. Although for some unexplained reason the values were from single assays on single samples (Table 6), one of the GM lines (61-67-1) appeared to have almost seven times as much trypsin inhibitor per mg sample DW than the parent. Indeed, the values in this GM soybean approached that found in untoasted soybean seed samples. Even the other GM line (40-3-2) contained three times as much trypsin inhibitor than the non-GM line. There were other compositional differences in these processed soybean products. Although it is difficult to decide from single determinations what significance one can attach to them it is curious that these studies were not followed up to establish whether the differences were real or not.

The Chinese study with GM sweet peppers and tomatoes:

A Chinese study on the safety assessment of GM tomato and GM sweet pepper expressing the coat protein (CP) gene of cucumber mosaic virus (CMV) has been published. In this it was claimed that diets based on these GM crops appear to be as safe as their comparable non-GM counterparts. However, some of these sweeping claims are difficult to accept on the basis of the actual data in the published paper mainly because there is a lack of precision in defining some of the parameters measured in the work. Thus, one of the major omissions is that the coat protein expression level in the plants is not given and in the toxicity tests it is impossible to see what is measured without making comparisons with equivalent amounts of CP, particularly as no attempt has been made to isolate CP from the two GM plants. The nutrition study has not been described adequately, no starting- or during-the-experiment weights of the individual animals are given. Means are no substitute, particularly when as in Figure 3 the standard deviations in the bar diagram are so big

(e.g. in 3 A at 3 weeks the mean weight of the rats is about  $150 \pm 50$  g) that makes the in-between group comparisons meaningless. No diet composition and no animal management data are described, even though without pair-feeding no valid conclusions about weight gain, organ weights, biochemical blood indices, etc can be arrived at. The graphs and data are uninformative. The size of the most important tissues such as the small and large intestines, pancreas, etc. has not been recorded. The methods used for histological evaluation are not detailed and therefore it is impossible to see whether the authors used appropriate methods or not. In view of these deficiencies it is difficult to accept the authors' conclusions that these GM plants are as safe as their conventional counterparts.

The Phipps study is not an academic study concentrating on animal production. This is valuable for the industry but it is rather uninformative about the biochemical mechanism of food-gut interaction.



DR IAN GIBSON MP

HOUSE OF COMMONS

LONDON SW1A 0AA

Ian Panton  
GM Free Cymru

4th June 2004

Dear Mr Panton

Thank you for your recent email regarding my comments on GM crops. Your comments on the differences between U.S. and European practice are correct: the U.S. regulates the product and the UK both the process and the products. Another difference is that in the U.S. the producer is directly liable for any consequential harm. However, in the UK, the government is held responsible as it issues approval whereas in the U.S. the government stands back.

Although I am aware that nobody has repeated Dr Pusztai's experiments precisely, that is by feeding potatoes modified in this particular way to rats over an extended period, there have been a number of feeding trials. These were conducted by Monsanto, who have done a very substantial amount of work on feeding their GM soya to a variety of animals, by Dr Richard Phipps in Reading University, who has done similar work in cattle and by a Chinese group whose work has also been published and which is exhaustive in detail. The Chinese work is the most similar to Pusztai's but the rats were fed with genetically modified sweet pepper and tomatoes not potatoes. There has also been substantial criticism of the feeding experiments, especially by Professor Tom Saunders at King's College London, that rats do not do well when fed on raw potatoes.

This work, the Chinese work, and a summary of the recent UK Government's reviews of this field are all referenced in the recent review by Professor Derek Burke, "G.M food and crops: what went wrong in the UK?". I enclose a copy for your interest.

The term 'substantial equivalents' is used differently in North America and in Europe; in North America if a product is judged to be substantially equivalent it is sufficient to proceed to the approval process. In the UK in contrast, the term is used as a tool to identify the ways in which the new product might be different from any preexisting products and it is not of course limited in its use to GM foods but was worked out for dealing with any novel food. You assert that GM foods are unsafe without any evidence, and suggest that the regulatory authorities should negate their initial position. This is an impossible position; Kinderlerer has pointed out that GM foods is the only case of a new technology being regulated without any evidence at all of harm. I believe we should treat the risk of GM foods like any other risk.

With regard to Dr Pusztai being "fired from his job", my understanding is that the contract was terminated but he was not fired from a tenured position, and while Dr Leifert quit the GM science

review panel for reasons I know little about, he is the Professor of organic agriculture at Nottingham University. I cannot comment on the statements of Dr Stirling.

I believe that there are many risks to public health, such as smoking, the problems of obesity and the many other problems and that affect our current society. GM foods are not on that list. The case has to be made that GM foods cause harm and that apart from this one report of damage to the intestines of the rat fed an abnormal diet, all published work has failed to produce any effect.

Yours Sincerely

Ian Gibson MP

## OPEN LETTER

Dr Ian Gibson  
Chairman  
House of Commons Science and Technology Committee  
House of Commons  
London  
SW1A 0AA

9 May 2004

Dear Doctor Gibson,

Serious Science - Genetically Modified Organisms

I note your recent assertions on GM that:

1. " They (the Government) should have taken a much harder line, rather than listening to 0.00035 per cent. of the population. The science is on their side, and they should go with it".

2. "I am quite prepared to take my right hon. and hon. Friends for a GM-free lunch to discuss the evidence that they put forward. I think that I can decimate it. I think that I can make arguments against every single, little experiment that they put forward and give another explanation, although I agree that more work needs to be done".

I trust you would agree, to facilitate effective debate, that Science is a quest for the truth through discovery.

The US Food and Drug Administration (FDA) issued its basic policy statement on genetically engineered foods in 1992. Under this policy the FDA considered genetically engineered foods to be "generally recognized as safe" (GRAS) unless the manufacturer tells the FDA there is reason for concern . According to the FDA, the need for safety testing depends on the characteristics of a food, not on the methods used to produce it. In other words, the fact that a food was produced using genetic engineering is not sufficient to trigger safety tests. Hence genetically engineered foods, which have disrupted protein functioning and introduced new genes and novel proteins as an integral part of our diet, have not been proven to be safe through scientific procedures.

The facts surrounding Dr Arpad Pusztai's research are very simple and straightforward. Dr Pusztai's work, fully peer reviewed and published, demonstrated that rats, having been fed a diet which included genetically modified potatoes, suffered significant growth of the small bowel wall and, to a lesser extent, the colonic wall. You will be aware that abnormal growth is the first step towards a pre-malignant state. No research has been undertaken to replicate Dr Pusztai's research, conducted on behalf of the Scottish Office Agriculture Environment and Fisheries Department (SOAEFD), at a cost of some £1.6 million of taxpayers money, to disprove his findings. This, together with the data resulting from the Newcastle Feeding Trial, is a matter of grave concern.

The cornerstone of GM food safety is that of 'substantial equivalence'. However, the use of this concept, deemed a SCAM by Dr Vyvyan Howard, leads to the conclusion that there is no problem when one compares 2 cows, one with and the other without BSE! There is no evidence whatsoever to support the premise that GM food is safe to eat by humans, and indeed animals, as assumed by the Food Standards Agency, Royal Society and the European Food Safety Authority. Indeed it is noteworthy that findings indicating otherwise are conveniently sidelined and not further investigated.

Any real discussion of the GM situation must also focus on the issue of democracy. In 1998 Dr Arpad Pusztai was fired from his job and contractually 'gagged'. In 2003 Dr Carlo Leifert quit the GM Science Review Panel 'because he was unhappy at the way evidence against GM food was being handled' and because of a concern that his critical approach to the Panel's work might have an impact on research funding he was seeking. This concern was certainly not misplaced as evidenced by Dr Andrew Stirling, in August last year, reporting to the Panel that an approach had been made to a senior official at a major research funding body.

You will be aware that the 6 June 2004 marks the 60th Anniversary of the D Day landings when many young men laid down their lives to ensure that people could in future speak freely. Clearly, insofar as GM science is concerned, that is not being allowed to happen in the British Isles today.

Dr Vyvyan Howard recently stated:

"We need to change the focus of the debate away from the trivial studies that have been done to date onto the size of the irreversible legacy that we are probably going to leave for future generations."

Bearing in mind the foregoing I would be very grateful for exhaustive details of any serious science on which you base your comments.

Yours Sincerely,

Ian Panton  
GM Free Cymru