

AN OPEN LETTER – AND A CHALLENGE TO THE ROYAL SOCIETY

From

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It's Time to Confront the Facts about GM Foods, Acknowledge the Misleading Statements You Have Made in Your Effort to Promote Them, and Take Steps to Set the Record Straight

Because clarifying the facts about GM foods is crucial for developing an intelligent, science-based policy on the future of agriculture, and because the Royal Society has significantly contributed to the confusion that currently surrounds this issue, it is imperative that remedial action be promptly initiated. This is especially so considering that:

- The European Commission is about to approve substantial regulatory changes in regard to GM crops.
- The UK is seriously considering allowing them to be commercially planted.
- The Society and other proponents of GM foods have inculcated the widespread illusion that there is an overwhelming scientific consensus that the safety of these products has been established through rigorous testing.

The following paragraphs (a) describe some of the ways in which the Society has been complicit in generating this and other false notions and (b) set forth specific steps it must take in order to start repairing the damage it has done.

1. Although for most of its august history, the Royal Society refrained from taking sides on issues or from even expressing an official opinion on a topic,¹ by the mid-1990's, it had become a partisan defender of genetically modified (GM) foods and embraced a proactive policy on their behalf. This proactive stance was acknowledged in the President's Address in The Royal Society Annual Review 1998-99, which declared that "We have contributed early and proactively to public debate about genetically modified

plants.” One of these contributions was a 1998 report that called for the rapid introduction of GM foods.

2. However, in pursuing this proactive policy, several individuals holding prominent positions within the Society – and even the Society itself – have issued misleading statements in regard to GM foods that have created significant confusion and illegitimately downplayed their risks.

3. Such regrettable incidents have been noted by journalists and other commentators, and many are also documented in the new book I have written, *Altered Genes, Twisted Truth*.

4. For instance, during a BBC interview in 2000, the Royal Society’s President, Sir Robert May (who for five years had served as the government’s chief scientist), declared that genetic engineering is “vastly safer” and “vast, vastly more controlled” than conventional breeding.² But although those bold claims were imbued with an aura of scientific respectability, they were not backed by solid scientific evidence.

5. Further, while these claims may have reflected an opinion shared by many other scientists, they clearly did not represent a consensus within the scientific community. By then, numerous well-credentialed scientists had expressed opposite viewpoints, including the majority of the experts on the US Food and Drug Administration’s Biotechnology Task Force. And early the following year, an expert panel of the Royal Society of Canada released an extensive report declaring that (a) it is “scientifically unjustifiable” to presume that GM foods are safe and (b) the “default presumption” for every GM food should be that the genetic alteration has induced unintended and potentially harmful side effects.

6. Accordingly, Dr. May’s unequivocal – and hyperbolic – claims imparted false impressions in the public mind, and it was irresponsible for someone in his position of authority to have issued them.

7. Not only did the Society’s President make assertions that were roundly refuted by the 2001 report of its Canadian counterpart, in 2002 the Society released its own report that failed to address the arguments of that preceding one – and essentially avoided even acknowledging them.³

8. Moreover, that 2002 report illegitimately inflated the risks of conventional breeding. For instance, it alleged that such breeding methods could give rise to “unknown toxins, anti-nutrients or allergens.”⁴ But because there’s no evidence this has ever happened, it had to prop its claim with a few inapt examples in which toxins that were already present became elevated, but in which not a single “unknown” toxin was produced. Further, not only did the authors employ these invalid examples to bolster their false assertion, they also used them to suggest that the risks of conventional foods are on a par with those produced through recombinant DNA technology, stating that this purported evidence “raises the question” of whether both sets of foods should be required to meet the same safety assessment criteria.

9. But the Society’s most deplorable actions in defense of GM foods were directed at the research on GM potatoes conducted at the Rowett Institute under the direction of Dr.

Arpad Pusztai. That research study is still one of the most rigorous yet performed on a GM food, and it continues to be highly relevant because it controlled for the effects of the new foreign protein – which entails that the adverse results it registered were attributable to a broader feature of the genetic engineering process itself. A summary of some of the Society’s offenses against that research follows:

a. In 1999, *The Guardian* reported it had been informed that “an influential group within the Royal Society has set up what appears to be a ‘rebuttal unit’ to push a pro-biotech line and counter opposing scientists.”⁵ Dr. Pusztai was one of the key scientists the group attempted to counter.

b. In February 1999, nineteen Royal Society fellows “attacked” Dr. Pusztai’s work in an open letter.⁶ But the research had not yet been published and the authors of the letter had not even seen all of the data.

c. The next month, the Society broke with its tradition of abstaining from acting as a peer-reviewing body and performed its first-ever review – on Pusztai’s research, even though it was still unpublished and the reviewers, like the authors of the open letter, had not seen the complete data package either. Nonetheless, they saw fit to strongly criticize the research in their report.

d. This highly irregular action prompted the editor of the respected journal *The Lancet* to publish an editorial rebuking the Society for its “gesture of breathtaking impertinence to the Rowett Institute scientists who should be judged only on the full and final publication of their work.”⁷ He subsequently branded their action a “reckless decision” that abandoned “the principle of due process.”⁸

e. The impertinence was aggravated by the fact that, according to Pusztai, none of the members of the review panel had expertise in nutritional studies, and therefore none was properly qualified to assess some important aspects of the research.⁹ Consequently, several made comments about the quality of the research design that were erroneous. And one apparently failed to read even the abbreviated report in the panel’s possession, because every fact he or she recited about the study was wrong.¹⁰

f. Having unfairly attacked the research, the Society then strove to prevent it from being published, an endeavor that was unsuccessful.¹¹

g. Moreover, after the research was published (in *The Lancet* in October 1999), the Society continued to unjustly malign it. For instance, in 2002 the Society’s Biological Secretary asserted in its journal, *Science and Public Affairs*, that the *Lancet* published Pusztai’s research “in the face of objections by its statistically-competent referees.”¹² But in reality, five out of the six referees voted for publication; so the assertion imparted the false impression that more than one objected – while also implying that no one with statistical competence voted for publication (which is almost surely false as well.)

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THEREFORE, in light of the above facts, it is high time that the Society makes an earnest attempt to set the record straight and, to whatever extent possible, clear up the confusion it has caused. Consequently, I call on you to issue a formal statement acknowledging:

A. That there is not now nor never has been a consensus within the scientific community that GM foods are safe, that many well-credentialed experts do not regard their safety as having been established, and that a substantial number think that the research as a whole casts the safety of many of them in doubt.

B. That neither you nor any other scientific body has directly confronted and refuted the cautionary reasoning in the 2001 report issued by the Royal Society of Canada (which it has never retracted or revised) – and that this report stands as one of the compelling testaments that there is not a scientific consensus that GM foods are safe.

C. That the process of creating new varieties of food crops via genetic engineering is not more precise and predictable than conventional breeding in regard to food safety and instead entails a greater likelihood of unintended effects that could directly impact consumer health.¹³

D. That although there *are* known instances in which genetic engineering has induced the production of a novel toxin or allergen, there are *none* in which conventional breeding has done so.¹⁴

E. That Dr. Pusztai's research was properly peer-reviewed and gained publication in *The Lancet* based on its merits, with five out of six referees voting in favor – and that, contrary to claims that the Society and other proponents of GM foods have advanced, the research has never been refuted or in any way discredited by subsequent studies – which entails that it is still relevant today.¹⁵

F. Your statement should also contain a formal apology to Dr. Pusztai and his colleagues for the irresponsible manner in which the Society and several of its members have besmirched their reputations and derided the integrity of their research.

Unless you promptly take these steps, it will demonstrate that your commitment to promoting GM foods is stronger than your commitment to honoring the truth and upholding the integrity of science.

FURTHER, whether or not you own up to your irresponsible actions and take the steps specified above, I challenge you to read my book and specifically list any inaccurate statements of fact that you find in it, accompanied by an explanation of why the statement is erroneous and a reference to the evidence that corroborates your assertion.

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To clarify, I am referring to simple assertions about concrete facts that can be conclusively verified or falsified, such as the erroneous statement in your journal indicating that more than one referee objected to the publication of Pusztai's research. Further, although I do not expect you to agree with every conclusion I draw from the facts, especially those that make ethical judgments about the behavior of biotech promoters, you should note any instances of faulty logic, with an explanation of the flaw.

Altered Genes, Twisted Truth has been praised for its soundness by several well-credentialed reviewers, including five biologists (four of whom are molecular biologists). At minimum, this makes a *prima facie* case that it is a book of which you must take account; and you cannot justifiably dismiss it unless you can demonstrate that it is to a substantial degree factually or logically unsound.

If you have not done so by 20 April 2015, the world will have a right to assume that it is as sound as the experts who reviewed it have affirmed – and that GM foods are therefore unacceptably risky and must be banned.

Please note that I will readily acknowledge and correct any genuine errors you point out, and I assume that you will do the same regarding those of yours that I have specified.

References:

¹ Up until the 1960's, every issue of its journal *Philosophical Transactions* bore a notice that "It is an established rule of the Royal Society . . . never to give their opinion, as a Body, upon any subject."

² Sir Robert May, BBC Interview, 9 March, 2000.

³ Royal Society, "Genetically modified plants for food use and human health – an update," (2002). Although the report did mention that earlier one, the notice it took was minimal. It merely remarked that the Canadian report had criticized regulatory reliance on the concept of substantial equivalence. But it neglected to describe the reasons behind the criticisms, and certainly never refuted them. Nor did it mention any of the other concerns the Canadian experts had raised, and it avoided discussion of many of the important issues they examined. (A more detailed discussion of its failings is provided in Appendix B of *Altered Genes, Twisted Truth*.)

⁴ Ibid. 6

⁵ Flynn, L. and Gillard, M., "Pro-GM food scientist 'threatened editor'," *The Guardian*, October 31, 1999.

⁶ Ibid.

⁷ Editorial: "Health risks of genetically modified foods," *The Lancet* 353, May 29, 1999: 1811.

⁸ Horton, R., "GM Food Debate," *The Lancet* 353, issue 9191, November 13, 1999: 1729.

⁹ Pusztai, A., "Responses to the Royal Society's (RS) six referees' reviews on the Audit and Alternative Report," (placed on the internet by the Rowett Research Institute on February 16, 1999, but no longer accessible)

¹⁰ Ibid.

¹¹ *The Guardian* stated it had "established that the Royal Society was involved in trying to prevent publication." Flynn and Gillard (1999).

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¹² Bateson, P., “Mavericks are not always right,” *Science and Public Affairs*, June 2002.

¹³ For corroboration of these points, see *Altered Genes, Twisted Truth*, Chapters 4, 6, 9, 10 and 11.

¹⁴ See *Altered Genes, Twisted Truth*, Chapters 3, 4 and 6. In particular, see: Reddy, A.S., Thomas, T.L., “Modification of Plant Lipid Composition: Expression of a Cyanobacterial D6 – desaturase Gene in Transgenic Plants,” *Nature Biotechnology* 14 (1996): 639-42; Prescott, V.E. et al, “Transgenic expression of bean alpha-amylase inhibitor in peas results in altered structure and immunogenicity,” *Journal of Agricultural Food Chemistry* (2005) Nov 16;53(23): 9023-9030; H.Y. Steiner, et al. ., “Evaluating the Potential for Adverse Interactions within Genetically Engineered Breeding Stacks,” *Plant Physiology*, April 2013, vol. 161 no. 4: 1588.

¹⁵ See *Altered Genes, Twisted Truth* pp. 294-298.