The media's role in the GMO furore

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Most journalists of the past decade are tertiary educated, because of the trend towards specialization. Inevitably, the trend has encouraged personality journalism – to a greater or lesser degree, the journalist becomes a player on the stage he or she is observing.

In my view, this not necessarily a bad thing. It is better to have someone who reports their field with knowledge and insight. It's particularly true of science journalism, which could be accurately described as 100 different fields rolled into one. No field places greater demands on research and interview skills, or accuracy in the printed or spoken word.

Too often, the science round is assigned to someone with little or no experience – I know of cases where even cadet journalists have been given the task. Inevitably, the result is ill-informed, inaccurate, and poorly written science journalism.

The ill-informed or novice journalist may simply reflect the prejudices of the community at large, because they do not have the insight to counter editorial pressure to reflect public opinion – you don't want to annoy your readers or viewers by confronting their prejudices or long-held misconceptions.

Even the best journalists, with no scientific training, can get caught – multiple Walkley Award winner Chris Masters 'Four Corners' program on genetic engineering in the mid-1990s was bad, unbalanced journalism that gave undue prominence to discredited anti-GMO arguments, and failed even to distinguish between genetic engineering and reproductive technologies.

The journalistic duty of balance and impartiality has been grievously breached by the partisan, often hysterical coverage of the debate over genetically modified organisms (GMOs) and foods containing genetically engineered products (GMFs) in Britain and Europe, and there have been significant lapses in Australia – although in general, the reporting here has been well informed and balanced.

The campaign has illuminated the problem of media ownership concentration – the Murdoch tabloids in Britain were prominent in the anti GMO-GMF campaign, and even the 'Sunday' magazine in my own paper, the Sunday Herald-Sun has attempted to bring that same brand of biased, ill-informed reporting to Australia.

Opposition to GMOs and GMFs in Australia

The strategy of groups like the GeneEthics Network, Greenpeace, and the Australian Organics Federation, has been to target non-specialist journalists who have scant knowledge of science, much less of rDNA technology, to ask difficult questions. The campaign is particularly oriented towards television and employs the Greenpeace-type street demonstration. A corollary to this strategy is avoidance of all contact with non-compliant specialist science journalists, who might ask difficult questions. Commercial TV in Australia does not employ specialist science journalists, and the sensationalist 20-second video 'grab' on evening TV news is rarely balanced with comment from scientists, who tend to get bogged down in scientific detail. One slogan can take several thousand words to refute:

GM foods are a health hazard!
Say No to Frankenfoods!

Empty scaremongering slogans and demonstrations are Greenpeace's speciality, but also used by GeneEthics, which used the premiere of Jurassic Park (genetically engineered dinosaurs) to promote its cause. The fact that Jurassic Park is pure science fiction is irrelevant; the end justifies the means.

Although GeneEthics and Greenpeace claim to be battling against the odds, the odds in any debate in the electronic media are overwhelmingly in their favour – when in difficulty, they employ the classic politician's tactic of issue by answering questions with questions, or diverting to another issue. They will also bring up material likely to be unfamiliar to their scientist opponents – they play with a distinct homeground advantage. They will demand guarantees from scientists – 'Can you assure consumers that…' knowing that they cannot be given, because science does not deal with certainties.

Their slogans distort and subvert the language – they speak of 'mutant foods', Frankenfoods.

They co-opt groups who may be commercially vulnerable – in the US, Jeremy Rifkin sought and obtained a guarantee from 1000 leading chefs that they would not use GM ingredients in their restaurants – what else could they do?

Their public pronouncements focus on risks, stress the unknown, play up indeterminate hazards, and ignore any science that does not support their cause, or selectively report scientific studies, irrespective of their quality or peer criticism. Recent examples include: Bt maize pollen and monarch butterfly caterpillars, Bt toxicity to lacewings and ladybugs, the Arpad Puztai GM potato episode in Britain, 'yield drag' in Bt-modified cottons.

The Australian scene

Despite more than a decade of scare campaigning, Australian consumers remain open-minded on the issue; they have no fears about plant-to-plant transfers, any concerns relate to bacterial or viral DNA in food items. Some concerns about flounder genes in tomatoes – people don't understand why scientists would want to do this, and there is the inevitable inference about 'fishy-tasting' tomatoes.

Generally, reporting by newspapers on GMOs has been quite balanced relative to Europe, television less so – TV talk show hosts talking about meddling with nature, tampering with nature's designs.

GeneEthics has been very active, with help from Organics Federation, in highlighting hazards or unknowns of GM foods.

I receive their emailed press releases. The language is pure tabloid, e.g. 'A New Zealand company has admitted/confessed to experimenting with genetically engineered salmon' . The language is chosen to suggest clandestine activity, conspiracies against consumers.

Here, as in Europe and the US, arguments about alleged hazards of GMOs are conflated with arguments about multinationals dominating global food supply, seed production, loss of biodiversity. These are separate issues, only peripherally related to the issue of whether GMOs are a hazard to human health, or to the environment.

What do anti-GMO activists believe?

GeneEthics, Greenpeace, Organics Federation, and Australian Consumers represent a coalition of convenience, but their product is fear, achieved through hyperbole, hypocrisy and weird science.

GeneEthics and Greenpeace pursue the religion that dare not speak its name – mediaeval mysticism and nature worship, with its pre-Darwinist view of perfect, mysterious, inscrutable design – essentially the type of argument advanced by the theologian-philosopher William Paley in the early 19th century, of the divine watchmaker.

For at least a decade I have been trying to determine if GeneEthics network director Bob Phelps believes GE is fundamentally hazardous, and if so, why? However, a belief in 'supernatural design' is clearly implied by the following excerpt from the Australian Conservation Foundation's Habitat magazine special supplement on

the alleged hazards of genetic engineering.

'Genetic engineering allows the tree of life to be scrambled for the first time. It allows genes to be transferred across species boundaries, from any living organism to any other – animals to humans, humans to bacteria, microbes to plants, and so on. This would never happen in nature, where sows deliver piglets, and roses make rosebuds'.

The idea of Paley's supernatural Designer is refuted in Richard Dawkins 'The Blind Watchmaker':

> *Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. It has no mind, and no mind's eye. It does not plan for the future. It has no vision, no foresight, no sight at all. If it can be said to play the role of watchmaker in nature, it is the blind watchmaker.*

Here is the crucial point: if nature is not designed, there can be no rational basis to claims that scientists are 'playing God', 'tampering with nature's designs', or 'violating species boundaries'. Either the opponents of genetic engineering lack the most elementary grasp of the theory of evolution by natural selection, or they cynically ignore it in pursuit of their ends.

The Organics Federation formed an alliance with the GeneEthics Network in Australia, as has occurred with similar organizations overseas. It has joined in calls for chemical-free, non-GM agriculture, or for GMFs to be labelled. Its campaign is shot through with hypocrisy and commercial opportunism – it achieves what modern marketing theory calls 'product differentiation' by identifying GMOs as 'The Evil Other'.

There is a strong whiff of hypocrisy about this strategy.

What the Organics Federation doesn't tell consumers is that it does use pesticides derived from rock minerals or other 'natural' sources – arsenic, sulphur, nicotine, and *Bacillus thuringiensis* spores and toxin. Bt spores and Bt toxin are perfectly safe on organic tomatoes, and by some miracle do not harm non-target organisms like Monarch larvae, but Bt toxin is somehow transformed into a hazard to human health and to beneficial insects when it is expressed in cotton and cottonseed oil.

Like GeneEthics, the Organics Federation selectively employs science, but the mystical ideology at its core is evident in the practice of 'Biodynamics' – the application of Formula 500, an organic spray made from the residue of fresh cow composted in buried cow horns for six months, then mixed with water and stirred for an hour. The preparation rituals, which owe more to the opening scenes of Macbeth than to 20th century science, apparently imbue Formula 500 with magical powers to replenish the soil and restore its health and fertility.

Much of the opposition to GMOs is based on proposition that chemical agriculture is dangerous to human health. The Bruce Ames–Lois Swirsky-Gold paper in 'Science' in the early 1990s refutes these arguments – its conclusion is that the techniques used to identify carcinogens for the past two decades were deeply flawed.

The GMF labelling issue has been carefully orchestrated to create consumer concern that we are eating something unsafe. If you then apply the GMF label, you get the desired kneejerk reaction – why not just put a skull and crossbones on GM foods?

Many scientists and food producers now accept that appropriate labelling may help with consumer acceptance of GMDs. What should go on the label? Given that a plant probably contains about 60 000 genes, the addition of one transgene plus an appropriate marker gene represents an increase of 0.007 per cent. So the label should truthfully state: *'99.993% normal'*.

GeneEthics, Greenpeace and the Organics Federation are promoting a dangerous, unscientific fantasy in claiming that the world's food supply problems could be solved by an equitable distribution of food production, and that organic foods could feed the world.

Such arguments ignore the reality of exponential population growth in the new century, critical shortages of new arable land and water, the collapse of most of the world's major fisheries, and the fact that after two decades of spectacular growth, global agricultural production flattened out in the late 1990s.

Australia's continuing failure to establish a credible national regulatory system for GMOs has played into the hands of the opponents of the technology, eroded consumer confidence, and set the industry back at least a decade.