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Out of the Box

Here are the fruits of a long journey during which no fruits were offered to this pilgrim. What, judging from the labels, goes into in-flight snacks, and what does it matter and mean, now and in 2050? I also celebrate three new books which all embrace the social and environmental dimensions of nutrition. And then, what should we make of The Case of Sir Richard Doll? First though, why are we in this game? And what does eating animals, and plants, tell us about the human condition?

Humans, animals and plants

In itself nutrition, as set out in conventional textbooks, is not very interesting. What is interesting is what nutrition represents. To paraphrase the philosopher and gastronome Jean Anthelme Brillat-Savarin, the fate of nations is determined by what they eat – and also by what they do not eat. I am reminded of this by *The Bloodless Revolution*, a marvellous attempt to revise the history of the modern Western world in terms of attitudes to foods, animals and plants[1].

For example, did you know that René Descartes, notorious even his day for his claim that animals have no emotions and are complex clockwork (he is said to have cut open his dog to prove his point) ate no meat? Ideas about the nature and meaning of animals contributed to the ideologies that drove the English Civil War and the French Revolution. Jean-Jacques Rousseau's position on the natural world and his impact on revolutionary thought and action are well known, and other heavy hitters were more radical.

Take the Scot John Oswald, sent to India in the early 1780s as a Black Watch officer with orders to overthrow Hyder Ali and his son Tipu Sultan in Mysore. He decided that massacre, rape and pillage of Indians by the British invaders was bloody imperialism, and that all oppressed peoples must fight for their freedom. He communed with sadhus, becoming Hindu and a vegetarian as well as a revolutionary socialist. Later in London and Paris he combined reverence for animals with ferocity against enemies of the Revolution. One evening, having 'dined on his roots', he proposed to colleagues from the National Convention that the way to avoid civil war in France was to execute every suspect in the country. Tom Paine remonstrated: 'Oswald, you have lived so long without tasting flesh, that you now have a most voracious appetite for blood'. Violence, said Oswald, was the only way to purge a sick society: we cannot 'arrive at an age of gold without passing through an age of iron'.

One of the book's themes is that the attitude of humans to animals shapes attitudes to other humans. A rationalisation for extermination and enslavement of the native peoples of Africa and the Americas was that they are 'no more than brute beasts', which in turn implies that animals have no souls, feelings or rights, and are also legitimate objects for any and all of our appetites. Meat-eaters are more easily able indiscriminately to slaughter 'lesser breeds without the law'.

Conversely, the view that animal foods are superior to plant foods, and further that vegetables and fruits have no special value, affected the fate of European nations. Despite the traditional knowledge of native people and sailors themselves, scurvy ravaged European navies and almost wiped out fleets of exploration, until Italian physician Antonio Cocchi and German epidemiologist Johann Bachstrom convinced colleagues in the early 18th century that scurvy is caused by diets deficient in vegetables and fruits. This was followed by James Lind's intervention trial using oranges and lemons. As always, the idea and the experience came first, the data later.

Flights, snacks and labels

Now for in-flight aperitifs. Fab Foods of Leatherhead, Surrey (www.fabfoods.co.uk) has a contract with the Portuguese airline known to knowledgeable travellers as Take Another Plane. I know this because last December, on the second leg of my flights from London to Lisbon and then from Lisbon to Rio (47 hours door to door, note quip above), I was doled out a 10 g packet of Fab munch-icrunchibiskettes, with a 'best before' date of June 2007.

Fab Foods is, I am sure, a wholly reputable company, and there is no reason to suppose that its products are in any way short of agreed standards or good manufacturing practice. But my books were in the hold, I had read the in-flight magazine twice, been told what to do in the unlikely event of the plane falling into the ocean, and was not about to sleep. So I read a food label: in this case not easy, for the small print was in white reversed out on fluorescent green.

The ' best before' date reminded me of a saying, 'long shelf life causes short human life' – or, more accurately if less snappily, a greater risk of diseases of which the biological cause is sludge, blockages and other pathology, of which the nutritional causes include energy-dense junk, which is to say highly processed food supplies and thus diets high in hydrogenated fats, modified starches, refined sugars and salt.

Remember though, there is no such thing as a bad or good food, only bad or good diets. This, known to wags as the Mars Bars Defence, is clever, and it's true in the sense that nobody will come to any harm from munching one 10 g package of Fab crunchibiks or any other one item of baked goods or chocolate confectionery, unless, that is, they are 'sensitive' to one or more of its ingredients – see below. The counter is that consumption of one burger or cola drink (to change food items) is highly predictive of regular consumption of such stuff, which introduces the topic of more-ishness – also see below.

As my flight approached Tenerife, I recalled that the British Industrial and Biological Research Association is sited in Carshalton, Surrey (www.bibra.co.uk). BIBRA, founded in 1961, a couple of years before Fab Foods, was set up by British government and industry as the leading edge of British food technology. In Britain this has meant the use of public and private money to research increasingly ingenious methods to sophisticate and adulterate cheap ingredients that, with the addition of chemicals, packaging and marketing, can be made to appear yummy (or as food technicians say, organoleptically full-spectrum), and that of course conform to all current official regulations, guidelines and codes[2].

Long ago in my days as a UK-based food activist, I noted that BIBRA was advised by boffins who animadverted about 'multiple steep-peak monophagic ingestion preference sequences'. Such-like hoo-hah referred to the results of tests on rats fed cocktails of artificial colours and flavours, whose purpose is to disguise hydrogenated fats, modified starches, refined sugars and salt, plus other more commercially sensitive chemicals accepted as safe in use, formulated to make products more and more more-ish[3]. I sometimes wonder, what is the difference between being more-ish and being addictive? Samuel Taylor Coleridge and Sigmund Freud looked forward to their regular hits of opium and cocaine respectively, with what reads remarkably like the eager anticipation of a chocaholic or a soft drinks fiend. But this is a riff for another time.

The TAP flight attendant, seeing me squinting at the information printed in English and Portuguese on the wrapper of my Fab food, offered me a second packet. No thanks, I said.

So what is inside? The package includes two lists. The first, the ingredients or 'recipe' list, in weight order, is: Wheat flour, vegetable fat, salt, sesame seed, sugar, raising agents E500, E503 (sodium and potassium bicarbonates), glucose syrup, whey powder, poppy seed, cheese powder with colour (annatto), barley malt extract, wheat malt flour, buttermilk powder, acidity regulator E524 (sodium hydroxide), yeast, dried egg, cheese flavour, flavour enhancer E621 (monosodium glutamate), salt, vegetable oil, E551 (silicon dioxide), emulsifiers E471 (fatty acid glycerides, also soya lecithin), wheat starch, milk protein, modified starch, yoghurt, thickening agent E413 (gum tragacanth), milk powder, flour treatment agent E920 (L-cysteine hydrochloride), pepper. (Parentheses mine.)

I suppose that some ingredients – e.g. salt – are listed more than once because added at different stages of manufacture. The second list is: Wheat, gluten, sesame seed, milk, soya, egg. Then the label goes on: 'May contain traces of other nuts and seeds'. No doubt the long list of ingredients conforms to UN Codex Alimentarius regulations, but what is it all for? I guess that the second list and the extra bit are warnings – not identified as such – meant to idemnify the manufacturer against lawsuits in the unlikely event that a tot suffers anaphylactic shock in-flight as a result of eating a Fab peanut, or whatever. But the rest? You would be better off reading *The Da Vinci Code*. You can at least sort-of learn whodunnit.

Relevance, context and purpose

Printed ephemera become more interesting as time passes. As I meditated on my Fab food label I wondered what students would make of it in the year 2050. As John Coveney points out in his commentary on Michel Foucault on food[4], what counts as knowledge at any time derives from the system of thought (episteme) of that time, which in turn derives from social, economic, technical, political and other circumstances. Thus, labels should give relevant information; but what is considered relevant will change.

Suppose that in two generations' time the Arctic ice-cap is melted, Venice and half of Bangladesh is submerged, and much of Manhattan and downtown Rio de Janeiro is abandoned or on stilts. In this case, in the days to come of carbon rationing, the most significant calculation might be of the tens of thousands of air-miles travelled both by the ingredients of one 10 g packet of crunchimunchibiskettes before manufacture, and then by the package itself; or else the total per 1000 package consumption of petroleum, which in 2050 will in real terms be perhaps 10 times its current price. In which case, 2050 might require labels of tourist-class appetisers to state: 'Contains 1.5% of your DCR' (Daily Carbon Ration).

By this time the magic map on the cabin screens showed the plane waggling north of the Azores, and I was faced with the dilemma of the hungry economy-class passenger: chicken or pasta? I broke open the foil and thought about the life and death of the bird, shreds of which were revealed. I remembered a sequence at the beginning of the movie *The Last of the Mohicans* showing that native North American hunters, having killed game, prayed forgiveness of the animal whose life was ended for their need, as advocated in Europe by nature philosophers such as JW Goethe[5]. This reminded me to recommend the admirably compiled new book by the US Center for Science in the Public Interest advocating plant-based diets[6].

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Fairs, deals and shots

Over the years many young nutrition scientists have come up to me at international congresses, usually after I have intervened to comment on infiltration and capture of scientific meetings in particular and science in general by those sectors of the food manufacturing industry whose commercial interests conflict with public health, and ask me for reasons to remain idealistic and enthusiastic. Well, even Ricardo Uauy, that Priam of the noughties, is unlikely in his time as IUNS president to hold back the enemy, because although defensive walls and gates have been sketched from time to time, they have never been built.

But ways need wills. Many leaders of our profession quietly value and enjoy their arrangements with Nestlé, Coca-Cola, Kellogg's, Unilever, Danone, ILSI and other leading companies and business-interest NGOs who at congresses create trade fairs outside the conference rooms and, inside, influence the programmes and sessions and sometimes call the shots. I repeat that the issue is not industry, and not the food industry as a whole, but those sectors particularly of the food manufacturing industry whose interests are in conflict with public health.

I mention this again because a number of distinguished colleagues who attended recent congresses (e.g. that in Barcelona last September) and who are looking at programmes for congresses being held this year (e.g. FENS in Paris in July and FANS in Taipei in September) are feeling that Things Have Gone Too Far and that Something Must Be Done. Well, I have already made one literally modest proposal, which is to hold congresses not in palatial conference centres using commercial organisers, but at universities and other centres of learning. This way costs drop, and dependence on industry should disappear. If delegates want to stay at five-star hotels they should be free to pay to do so, while at the same time the organisers should be able to offer a reasonable deal to key speakers. Meanwhile, in private correspondence, colleagues are making proposals and pointing out codes of practice for engagement with industry used by other bodies. If agreed I will report back later.

Men, ends and means

Writing of ways and wills... I have a soft spot for Professor Sir Richard Doll, who died in 2005 well into his 90 s. This is because about 10 years ago, after giving a talk to the UK Parliamentary Food and Health Forum about food, nutrition and cancer, he told a joke. I don't remember the talk but I do remember the joke. Jokes are all about timing and context and we all laughed, because its humour depended on its being told by a venerable authority within the Mother of Parliaments, apparently in valedictory mood.

I will now tell you the secret of success, said Sir Richard, and paused. I can see him now, very handsome, mane of white hair, slim build, nutcracker chin, high voice, eyes twinkling, bathing us with his charisma. The secret of success, he went on, is to have a wife and a mistress and (pause as we were steered into this unexpected turn) make sure they both know about one another (pause). This way, he said, every weekend your wife knows you are with your mistress, and your mistress knows you are with your wife, whereas (pause for the punch-line) you are in the office getting on with your work.

This after-dinner winner will at most get a thin smile as recorded here, particularly from female readers. At the time I felt we were being taken into the confidence of the man who proved that smoking causes lung cancer, whose work saved millions of lives, and who – as some of his obituaries said – was denied the Nobel Prize because of some Swedish skullduggery. It felt like meeting the Queen, and her giving us a tip for the 3.30 at Haydock.

Well! Now we know what Sir Richard was up to in his office at the time he told his joke. He always maintained that the contribution of industrial chemicals to cancer is relatively trivial. Instead he and his younger colleague Richard Peto, now also Sir Richard FRS, were implacable adversaries of smoking and other uses of tobacco. As a result of their advocacy and that of thousands of other health professionals, in many countries tobacco is heavily taxed, smoking is banned in public places, cigarette labels and advertisements carry dramatic warnings, and overall rates of smoking have dropped (though not in China).

In 1982, having been commissioned by the US Senate, they published their *The Causes of Cancer*[7]. This remarkable monograph, in which they acted as witnesses, advocates and judges, was I think the first to respond to the need of legislators to decide and act on the absolute and relative importance of the various factors that modify the risk of cancer – or any chronic disease. 'Doll and Peto' rated tobacco as causing one-third of all cancers. Food and nutrition was given a vague rating, 10–70% with 35% as a guesstimate, plus 3 points for alcohol. Infectious agents got a few points. And right down there, the equivalent of the Rainbow Alliance and the Revolutionary Worker's Party, were radiation, food additives and environmental carcinogens.

Acceptance of *The Causes of Cancer* by the Reagan administration as the scientific basis for federal government policy marginalised all those who maintained that industrial chemicals were public health issues[8]. Radiation from nuclear plants? Don't worry. Asbestos? At most a minor issue, we're sorting it out. Pesticides? Be happy. Chemical weapons as used in the two US invasions of Iraq? We sympathise with the veterans' associations but they are misled. Opponents? Unsound scientists or activists. The money and power behind these policy lines, and the cost to US and transnational industry should any of these lines be breached (as eventually they were in the case of asbestos), are mind-boggling.

But now we know that Sir Richard, who continued to insist in scientific journals, public hearings and other influential contexts that industrial chemicals known to be carcinogenic in laboratory conditions are not an important cause of cancer, did not disclose or admit that for many years he was paid substantial regular and occasional money as a consultant to chemical manufacturers. These included Monsanto (then a manufacturer of dioxin, used as a herbicide and also – as Agent Orange – as a war weapon in Vietnam), Dow Chemicals and ICI[9].

Science, experts and integrity

What should we make of this? I think it is unlikely that Sir Richard's views were much influenced by the money he received. More likely, he had made up his mind before accepting industry fees. Having decided that the main preventable cause of human cancer is smoking and tobacco use, he used his formidable prestige to play down the significance of environmental carcinogens. By the time of the US Senate commission his views were known, and the conclusions of the monograph, while agreeable to the US military–industrial complex, were not a surprise. After the revelation of his chemical industry funding, some of his colleagues have advanced the Augusto Pinochet Defence, saying that perhaps mistakes were made but those were difficult times and different standards applied. Besides which, there was a greater good – the war against tobacco, and in any case the fees went to help fund Green College, Oxford, which Doll co-founded.

Scientists are supposed not to play God, but being human, if they can, they may. The first lesson of The Case of Sir Richard Doll is that eminence should not overwhelm evidence: that judgements affecting public health should not only be based on independently collected evidence, but also subject to independent challenge before becoming a basis for policy. As in a court of law, witnesses, advocates, judges and juries should be kept separate. This may seem a foolish dream, for the priorities of legislators, dependent as they are on industry support, are always liable to overwhelm rational process. At least we should be aware of this.

The second lesson is not to idolise science and its most prominent practitioners. Proof of Richard Doll's relationships with the chemical industry will affect his place in the history of public health. Will he be positioned as the most influential epidemiologist of the second half of the 20th century? Quite likely, with some commentary. Will he be seen as a flawed genius; or a man whose sense of superiority let him believe his sources of funding were irrelevant; or an ideologue believing he acted in an age of iron; or a hit-man for a section of industry whose products may eventually be judged to be as great a cause of human cancer as the tobacco industry? Maybe all of these.

But it was the cult of the expert, the ambience of obeisance, that made him whatever he was. After the laughter within the Palace of Westminster had died down, somebody should have stood up and insisted on showing slides of cancer incidence around the Sellafield (previously Windscale) nuclear processing plant and put Sir Richard on the spot. At least this would have kept the issue alive. Maybe this should have been me. But I am not an expert.

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