

Out of the Box

This column includes a report on the coming reintroduction of nutrition standards for UK school meals; Chinese herbal medicine; and then what obesity can do for nutrition science. This leads to Sir Bill Gates, metabolomics, research funding bonanzas, and a meditation on the nature and limits of science.

US and them – meaning, us

But first, the impact of George W Bush on global public health nutrition. The prevailing global ideology involves privatisation of public health in the general context of dismantling collective endeavour, with reference to the overriding principle of individual freedom and choice. Recent appointments to high offices controlled and made by the current US President show that the new world order – which is to say US hegemony, declaimed by George Bush the elder when in office – may suit us who are materially privileged, but is liable further to increase relative and absolute dependency, vulnerability and impoverishment in most countries in the world.

The editor of this journal is disturbed by the appointment of the US President's candidate, Ann Veneman, as the new head of the United Nations Children's Fund (UNICEF)¹. Ms Veneman's qualification for the job is not as somebody with any sustained professional knowledge or interest in the protection of children, but as a dependable politician with a background in industry, having served as US Secretary for Agriculture and previously as a lawyer for and director of Calgene, the agrochemical firm that developed the genetically modified Flavr Savr™ tomato, before being merged into Monsanto².

More important appointments made by the US President show that the positioning of Ms Veneman is part of a pattern. The new US ambassador to the UN, John Bolton, has repeatedly stated that the United Nations system should be subjugated. The new President of the World Bank, Paul Wolfowitz, developed 'neo-conservative' plans during the Clinton administration for a more ruthless deployment of US global mastery, and then, in office as deputy to Donald Rumsfeld, enforced US foreign policy, including the invasion and occupation of Iraq³. On their record, these are not people likely to create policies and programmes that increase entitlements and independence of the world's impoverished nations and populations.

What's for school dinner?

But sometimes a ray of sunshine penetrates the gloom; and perhaps there is now a growing sense in Europe that

the pursuit of life, liberty, health and happiness – for whom? – has interpretations other than that of the current US government.

In the late 1930s John Boyd Orr confronted the British government, stating: 'If children... were reared for profit like young farm stock, giving them a diet below the standards for health would be financially unsound... a few years hence when the connection between the poor feeding of mothers and children and subsequent poor physique and health is as clearly recognised as the connection between a contaminated water supply and cholera, the suggestion that a diet fully adequate for health should be available for everyone will be regarded as reasonable and in accordance with common sense, as is the preservation of our domestic water supply from pollution'⁴.

A few years hence... fat chance. When I grew up, school dinners were real meals made from recognisable food. But the increasingly unprincipled UK governments of Margaret Thatcher, John Major and Tony Blair have demolished and abandoned any real standards for school food. Now that children in rich countries have enough to eat, the dogma goes, individual children should be free to choose from the selection of pre-prepared processed stuff on offer which, given current English catering budgets of around 40p (or \$US 0.75) per child, is a choice between degraded fatty, sugary muck and cheapened sugary, fatty junk. Why the anti-'nanny state' doctrine has not been extended to allow young children to choose their own school curriculum, doubtless of video games, is unclear to me.

Boyd Orr, the most recent nutrition scientist to be a Nobel laureate, was something of a rabble-rouser. He also stated that: 'Legislation must be preceded by an intelligent demand on the part of the people'⁴. In the 1980s and 1990s the indefatigable Tim Lang, now Professor of Food Policy at London's City University, led the national School Meals Campaign to revive wholesome cooking and catering, as did the UK National Food Alliance (now Sustain). In 1992 the Caroline Walker Trust did the job of government, and commissioned a report setting out quantified nutrition standards for school meals, adapted from the Department of Health's own guidelines for adults⁵. But successive governments, moving at the pace of the mass manufacturers' trade association, the Food and Drink Federation, did not want to know.

Everybody in the UK knows that all is pledged to change now, with the coming mandatory nutrition standards for school meals hitting media headlines throughout the last week of March. This was the direct result of a four-part Channel 4 television series, *Jamie's School Dinners*,

starring the irrepressible celebrity chef Jamie Oliver, who himself has two young children. The production team persuaded London's Greenwich borough council to allow him to devise meals made from real fresh food in some of their schools. As the series progressed he exposed vicious cycles of neglect, stupidity, ignorance and indifference. 'What children are being taught is being totally undermined', he said. 'We're encouraging them to be fat unhealthy bastards'⁶. In a remarkable scene, he was told the pupils in one school, now well fed with his wholesome food, were paying more attention in class and no longer needed asthma inhalers. In another scene he amazed and converted kids by imitating the manufacture of mechanically recovered 'meat' by liquidising chicken skin and bone with fat and rusk.

Mahatma Gandhi was right

With extraordinary tenacity, the production team persuaded then Secretary of State for Education, Charles Clarke, to sit down on camera and eat a junk school meal, which he did gloomily, and then to tuck into a Jamie school dinner made on the same budget, which he did enthusiastically. What finally broke the dam was a petition signed by 271 000 viewers, parents and teachers that Jamie Oliver delivered to Tony Blair inside 10 Downing Street. With all this and more pressure, the new education secretary Ruth Kelly pledged an additional £220 million (almost \$US 400 million) a year to retrain dinner ladies, remodel kitchens and supply decent food.

She also has promised that mandatory nutritional standards will be reintroduced in September 2006. Will a revised version of the Caroline Walker Trust quantified guidelines, already used in Scottish schools, be used? It seems likely; but a representative of the Food and Drink Federation is on the panel that will make formal recommendations. Cannily, Jamie Oliver will be making a fifth programme after the next UK general election this month, to see how the new UK government is getting on.

There is a lesson here for anybody who wants to improve public health nutrition. Success depends on getting the media on your side in relentless campaigns, which means famous faces, powerful patrons, direct action, and mass support from citizens. Mahatma Gandhi was right. The one civil society organisation that has succeeded in protecting public health nutrition is the International Baby Food Action Network, with its sister networks. Public health nutrition as a whole can be advanced only as a result of gaining its own Greenpeace, Friends of the Earth or Oxfam, or alternatively when such tough and potent organisations incorporate food and nutrition into their campaigns. One runner is a world declaration on the rights of all including children to adequate and nourishing food, developed at the recent meeting of the UN Standing Committee on Nutrition held this year in Brasília⁷.

Si-Jun-Zi and the wounded rats

The *British Journal of Nutrition* is looking up these days. You might think 'Effects of Si-Jun-Zi decoction polysaccharides on cell migration and gene expression in wounded rat intestinal cells'⁸ running in the New Year issue would be a smidge academic in the unkind sense of the word; but no.

This study, in which the Guangzhou University of Traditional Chinese Medicine was a partner, shows that Si-Jun-Zi, a traditional remedy formulated from the *dangshen*, *gancao*, *baizhu* and *fuling* herbs, heals the gut cells of rats – at the most effective dose, one measure of healing increases more than eight-fold. Its benefits, including strengthening of immune function and resistance to cancer, have already been demonstrated. So if you suffer guts-ache and its sequelae, pop round to your local Chinese traditional herbal medicine emporium with more confidence.

The study is an imaginative example of genomic research working well, in the testing of medicines. It starts by respecting a practice whose efficacy has been evolved and observed over many generations. It studies the effect on gene expression of a whole complex compound, and may enable more accurate prescription, dosage and use. I guess that studies like these are leading towards patenting and marketing of TIDBIT (The Ingredient that Does the Business In Tablets), which will make a few bob for a drug company; but that in itself won't ruin herbalists. It would have been good to see some editorialising on the implications of the study – like an overall headline saying 'More evidence that traditional herbal medicines work. #24: Si-Jun-Zi Chinese remedy heals guts'. But never mind. Perhaps that is the job of lay journals. There is plenty in *BJN* for the diligent searcher after truth.

Gold in them thar genes

I now turn to the editorial in that issue of *BJN*. As I read, a schoolboy song hummed in my mind. After burial: 'The worms crawl in and the worms crawl out/ they crawl in thin and they crawl out stout' and then the refrain: 'How happy we will be!' Read on. . .

The theme of the editorial was 'Obesity – what role now for nutritional science?'⁹. Referring to a recent report of the UK House of Commons Health Committee¹⁰, it pointed out that on average obese people lose 8 years of life, that obesity increases the risk of diabetes, coronary heart disease and some cancers, that in 20 years the prevalence of obesity in Britain has tripled, that the number of diabetics in the world is projected to double to 300 million by the year 2025, and that treatment of diabetes in the UK in 2010 is projected as costing 10% of the national health-care system, €15 billion in current money¹¹.

This was all good action-orientated public health stuff. And for such reasons, the editorial said in a grumpy tone,

politicians have become interested in a field that for nutritional scientists and other biologists 'until recently was primarily their own'. Ah! Turf wars! Imagine a conference of obesologists (sponsored by Yum! Brands™?) with the title 'The Study of Obesity: All Boom, No Bust' and an opening plenary with the theme: 'Think not what you can do for obesity; think what obesity can do for you'. The editorial went on to caution against government interventions and 'ministerial targets, thereby minimising the responsibilities of the individual in life-style decisions'.

Ah, yes. The sanctity of individual freedom of choice. So what then is to be done? The editorial commended transcriptomics, proteomics and metabolomics. Aha! –Omics! I recall Hubert Howe Bancroft. 'A frenzy seized my soul... castles of marble, thousands of slaves... myriads of virgins contending with each other for my love – were among the fancies of my fevered imagination'¹². What gold strikes did for '49er prospectors like Hubert Bancroft, genomics now does for the biological scientist. Imagine new disciplines: Genieomics, featuring Aladdin and the wonderful research application which when filled in produces ten million smackerooneomics; and Mephistopheleomics, for those prepared for the Big One, the recombination of souls.

The editorial remarked on research reported in *Nature* in which 16 737 genes in the worm *Caenorhabditis elegans* had been suppressed, of which 417 seemed to have a role in body fat regulation. It concluded: 'The application of genome-wide RNAi analysis in worms has the real potential to identify new systems which impact on body fat regulation in mammals and to provide novel candidate genes in the search for the underlying genetic basis of obesity in humans'.

How happy we will be! But what for? What could this mean? Let's look ahead. Picture the scene. Capt Sir Bill Gates on-line to the world from the bridge of his yacht Venter Capital™, together with Ronaldo™ and Gisele™; holograms of David Frost™, Rupert Murdoch™ and the Revd Billy Graham™; the President of the United States Nations™, the President of the World Economic Social Forum™, the Pope™, Peter Bazalgette™ and the CEOs of McDonalds, Coca-Cola and Yum! Brands™™™. Sir Bill™ announces the outcome of CODSSSWALLOP™, the Commission On the Development of Sustainable Scrip-teomic Solutions to Weed out ALL Obese Populations, launching the SSS™: *C. elegans* var. *bundchen* gene 666™, to be inoculated into all human eggs, with a chip containing an automatically updated Microsaol™ GloboBand™ omni-media system, the 2010 series of *God, it's Frost™* and the entire run of *Big Brother™* from the country of origin, residence or choice of the eggs' carriers.

Yes, this all does seem a little bit distant from the schools and the streets of Detroit, Shanghai, São Paulo, Johannesburg and Liverpool. Now if instead the study cited by the *BJN* editorial as 'a potent example of what radically

different perspectives can contribute to nutritional science' had included an intervention whereby the 417 *C. elegans* genes had been expressed by dunking them in saturated solutions of the hamburgers, french fries + mayo and cola drinks parked on the laboratory benches of the transcriptomicists, we might be getting somewhere a little bit faster.

Meanwhile I suggest not just some ministerial targets, but a thundering great energy density tax and a ban on ads for junk food on television before 9 o'clock in the evening. World-wide. That should put a crimp in the lifestyles of some transnational industry executives.

Let's be reasonable

In last month's issue of *Public Health Nutrition*, John Garrow comments¹³ on my previous column in which environmental and social as well as biological dimensions of nutrition science were proposed. He sees these as a philosophy for nutrition science. Yes. A conceptual framework that includes a definition, dimensions and principles is a philosophy.

Is the range of these dimensions preposterous? Prompted to turn to Peter Medawar, I find: 'A human biologist must be demographer, geneticist, anthropologist, historian, psychologist and sociologist all in one, and much else besides'¹⁴. Good. The rationalist sage saw biology as embracing social and environmental sciences.

John Garrow also expects *science* (italics his) to deal with problems that can be solved, 'as Medawar¹⁵ requires'. Yes, as long as this does not mean that science should confine itself to known fields or to problems solvable using current methods; or that the answers that science may give are supposed to be all those worth having.

In his last book Peter Medawar said that science and 'the exercise of reason' are *necessary* but not *sufficient* means to make the world a better place¹⁶. Those who see science as concerned with facts may balk at this ethical stance. But science is inescapably concerned with judgements and principles, and these are not matters of fact but of value, and once you are into value you are inescapably into ethics. (Also 'fact', in the sense of correspondence with reality, involves judgement; and the concept of 'fact' – like that of 'truth' – is meaningful only when exactly defined^{17–19}.)

Reductionists are foxed by judgements, because these are not deductions from data. All evaluation, including the principles and methodologies that govern the arrangements of information, transcend information and so are literally metaphysical. In general (by no means always) the more knowledge the better the judgement, but good judgement – let alone wisdom – is not made up from an accumulation of knowledge, any more than a house is a heap or a wall of bricks. As Wystan Auden wrote, making David Hume's point: 'Look though you may, you will have to leap'.

We should be sensitive to the interface between what is scientific and what is outside the limits of science. This respects science and also realities beyond science. Science does have definite limitations: for example, conventional science as now practised does not address the question of what is life. (Do I hear a sigh: 'Life – oh, *that*. Leave that to the metaphysicians'.)

Mauler Medawar and Jumping Joe

What now follows is not to imply that John Garrow and I disagree on the nature of science. We may or may not. I hope he will not mind a meditation on his phrase 'as Medawar requires'. The phrase seems to imply that Peter Medawar is right and also that there is one right way, as expressed and cited. The implication is monist. Peter Medawar never contradicted himself as his thinking evolved, but he became more open to seeing that science has limitations. I prefer to say 'orthodox science as currently understood and practised' which is more precise.

Is monism in matters of science the only way? Rather than introduce a thinker on science as the giver of law, let's try another image, that of a champion, and have a bit of fun. So: '*Meelawladees'n'genelmen*, this is a super-heavy-weight contest for the FRS title. In the blue corner I give you the Cocktail of the Chattering Classes, the undisputed *champeen* of the Western World, the Transplant Tsar, Mighty Mauler Medawar! *Annnnnd* in the red corner, I give you the challenger, the Peking Man himself, undefeated in every 15-volume Tome contest, the unstoppable Jumping Joe Needham! That is to say, let's try a dualist approach to science and its meaning. Peter Medawar and Joseph Needham are well matched: similar generation biological scientists, deeply learned and dedicated to public understanding and social responsibility of science.

In the mid-1970s Joseph Needham gave a lecture²⁰ distilled from his immense knowledge²¹ in which he explained that the Chinese view of reality, and therefore its science and technology, is different from that of post-mediaeval Europe. 'For the Chinese the natural world was... the greatest of all living organisms, the governing principles of which had to be understood so that life could be led in harmony with it'. For the Chinese, humans are not the centre of the universe. He also said: 'Mechanistic or reductionist scientific explanations, however successful for limited ends, can never suffice' as an account of reality. 'It may be that scientism, the idea that scientific truth alone gives understanding of the world, is nothing but a Euro-American disease, and that the great contribution of China may be to cure us by restoring humanistic values based on all the forms of human experience'.

Do I see John Garrow behind the blue corner sponging his man down, and telling him to keep pounding under the ribs, while I behind the red corner tell my man to keep dancing and ducking? No, because any contest here would

be more like the Brazilian *caipoeira* martial art whose champions never touch one another.

My point is dualist. There are two ways of seeing the world and of thinking about science and about any form of systematic work. One view is atomist and reductionist; one is organic and ecological. The current supremacy of the reductionist view is evident. However, we want to leave an inheritance to our grandchildren, so it is now time to prefer the ecological view.

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References

- 1 Margetts B. Editorial. *Public Health Nutrition* 2005; **8**(3): 219–20.
- 2 Available at <http://www.whitehouse.gov/government/veneman-bio.html>
- 3 Elliott L. Why the west is always in the saddle. *The Guardian*, 21 March 2005.
- 4 Orr J. *Food Health and Income*, 2nd ed. London: Macmillan, 1937.
- 5 Caroline Walker Trust. *Nutritional Guidelines for School Meals*. London: Caroline Walker Trust, 1992.
- 6 Lawrence F. Naked victory for an unpolitical activist. *The Guardian*, 31 March 2005.
- 7 UN System Standing Committee on Nutrition. Realizing the Right to Adequate Food to Help Achieve the Millennium Goals [online], 2005. Available at <http://www.unsystem.org/scn/>
- 8 Liu L, Han L, Wong D, Yue P, Ha W, Hu Y, *et al*. Effects of Si-Jun-Zi decoction polysaccharides on cell migration and gene expression in wounded rat intestinal epithelial cells. *British Journal of Nutrition* 2005; **93**: 21–9.
- 9 Trayhurn P. Obesity – what role now for nutritional science? [Editorial]. *British Journal of Nutrition* 2005; **93**: 1–2.
- 10 House of Commons Health Committee. *Obesity*. Third report of session 2003–2004. London: Stationery Office, 2004. Also available at <http://www.healthcom@parliament.uk/>
- 11 Diabetes UK. *Diabetes in the UK 2004*. London: Diabetes UK, 2004.
- 12 Ward G. Seeing the elephant 1848–1855 [Chapter 3]. In: *The West*. Boston, MA: Little Brown, 1996.
- 13 Garrow J. A two-box option [Letter to the Editor]. *Public Health Nutrition* 2005; **8**(2): 215–6.
- 14 Medawar P. [Introduction]. In: *The Future of Man*. London: Methuen, 1960.
- 15 Medawar P. *The Art of the Soluble*. London: Methuen, 1967.
- 16 Medawar P. The limits of science, sections 4 and 7 [Part 3]. In: *The Limits of Science*. Oxford: University Press, 1985.
- 17 Whorf B. Language, mind and reality. In: *Language, Thought and Reality*. Cambridge MA: MIT Press, 1956 [chapter first published 1941].
- 18 Anscombe E. Elementary propositions [Chapter 1]. In: *An Introduction to Wittgenstein's Tractatus*. London: Hutchinson, 1959.
- 19 Black M. [Chapters I–VI]. In: *A Companion to Wittgenstein's Tractatus*. Cambridge: University Press, 1964.
- 20 Needham J. *History and Human Values. A Chinese Perspective for World Science and Technology*. Colombo, Sri Lanka: Martin Wickramasinghe Trust, 1978.
- 21 Needham J. *Science and Civilisation in China*. Cambridge: University Press, 1954 (and continuing).