

## Out of the Box

The theme of this column is experience of food, from observation and reflection, and with all the senses. Scientists are trained to overlook and ignore 'subjective' experience and to rely on 'objective' experiment. For wise judgements both are needed. Take the evidence of our senses. True, bad food can be faked up so that it may look, smell and taste good<sup>1</sup>. But as a rule (all rules have exceptions) foods and drinks that even after patient sampling look, smell and taste bad, are bad. Exhibit number one: margarine.

### **Chuchu and you**

I like to shop for food. Do you? One of the pleasures of food shopping in Brazil is shopping around. Most vegetables and fruits are marketed seasonally, with no regulations about shape, size and condition. One day the mangoes, avocados or papayas are perfect, other days you have to rummage for the good ones, and sometimes they are mostly rock hard or collapsed into mush. Fresh foods here may also contain *bichinbos*, maggots and such-like, good evidence that they have not been doused with biocides.

A further pleasure is fresh foods I have never seen before. 'What is *that*?', I asked of vegetables which piled up looked like a pyramid of amputated Martian fists, light green, ridged, spiny and pockmarked. '*Chuchu*' was the answer, also spelled *xuxu*. Like pumpkin and courgette (zucchini) *chuchu* is a type of gourd, a vine fruit with one big seed, usually eaten as a vegetable, whose leaves and tubers are also edible. It is native to Mesoamerica, and its formal name 'chayote' derives from the Nahuatl '*chayotli*'. In Brazil, *ela é um chuchu* means 'she's a sweetheart'. It has other names: Buddha's hand, vegetable pear, *pepinella*, *choko*, mirliton (Louisiana) and christophine (Trinidad), and it can be steamed, boiled, baked, fried, puréed and stuffed<sup>2,3</sup>.

Because it is traditional, *chuchu* is despised by the middle classes, and is cheap – at the time of writing, 45 centavos a kilo in my local supermarket, around 7 US cents or 4 UK pence a pound. As two more of its names, custard marrow and mango squash, imply, it has its own flavour. Or so I have discovered, because I am cooking it for myself.

A book that has influenced my way to cook is by a Japanese farmer who grew plentiful harvests of rice by leaving the soil undisturbed, and instead paid attention to the quality of the seeds, the ecology of microbes, fungi, worms, insects, birds and other plants, the protection of

the soil, and the variation in weather and the seasons<sup>4</sup>. His subversive philosophy implies that the great efforts that farmers make are driven less by a desire to encourage the fruits of the earth, and more by a need to master and defeat nature, with all this implies of raping and looting. And also, by an obsession to work incessantly, with all this implies of enslavement. He was asked what he did with all his spare time when he was not delving or digging. He said he liked to eat and think, and sit in the sun, and be within nature, and to talk with friends, and write.

I have eaten *chuchu* boiled to bits, and used as an ingredient in soups and what are known in Brazil as *suflês*, and it has tasted like a vaguely pleasant savoury blah. Fending for myself, I decided to adapt the philosophy of the Japanese rice farmer which, in the analogous gospel of Elizabeth David<sup>5</sup>, is: make sure that the basic food is good quality, use pans that hold heat well, add other ingredients only when these will enhance the food, cook in the least intrusive way, and watch and learn.

With *chuchu* this means my trusty steel steamer with tight lids, two *chuchu* cut in long slices, skin, spines, knobbles, seed and all, a few drops of extra-virgin olive oil and a couple of sea salt crystals, and my timer set for 12 minutes after the water begins to simmer, more or less, until the *chuchu* is firm yet soft. The result is a flavour that does include mango as well as squash, a texture thicker than marrow and a dish which, served with *arroz brasileiro*<sup>6</sup> (rice sautéed with extra-virgin olive oil, garlic and onion, and then simmered in proportion 1 whole-grain rice, 3½ water for 30 minutes in an iron pot with a tight lid), is a simple feast. As owner of a forest plot with virgin soil, I have now built a trellis and am growing my own *chuchu*. I will report back next year.

### **Retro-nutrition**

Having trawled hundreds of expert reports on food, nutrition and the prevention of chronic diseases<sup>7</sup>, and having helped compile some myself<sup>8,9</sup>, I notice incessant advocacy of incessant forward change and intervention. This is not a scientific but a philosophical or political attitude, itself derived from the notion that we should ignore the past, uproot the present and continually strive to exploit and transform the world, for material if not spiritual reward<sup>10</sup>.

True, with industrialisation, food systems go wrong from many points of view, including that of public health nutrition<sup>11</sup>. But the wise change here is not forward into an ever more novel biotechnological world, but change back.

My guide here is Colin Tudge, who, from 40 years' experience mastering the relevant disciplines and after experience in many lands, listening, reflecting on and delighting in cooking<sup>12</sup>, states in his new book: 'The principles of good, basic farming, of the most up-to-date (and convincing) nutritional theory, and of great gastronomy, work perfectly in harmony... Human physiology is adapted to the produce of wild nature, and traditional farming reflects wild nature; and great cooking has evolved over hundreds or indeed thousands of years to make use of what wild nature, and traditional farming, provide'<sup>11</sup>.

When in meetings and conferences I suggest that novelty is not always progress, and advocate study, protection and development of indigenous and traditional food systems, I typically get much the same unenthusiastic reaction – 'Mm hm, oh yes, quite so'. For policy-makers, preservation is boring and looking back is anathema. Like surgeons, their interest is suitable cases for treatment. After two years of world-wide consultation, the draft World Health Organization (WHO) global strategy on diet, physical activity and health presented to the World Health Assembly (WHA) this May<sup>13</sup> made just one ambiguous reference to tradition.

So in the May issue of this journal, Editor-in-Chief Barrie Margetts proposed that the strategy should 'encourage reinstatement, preservation and development of indigenous and traditional food systems known or reliably considered to be beneficial to human health and which have minimal impact on the environment and natural resources'<sup>14</sup>. And in its WHA submission, the Alliance for Peoples Action on Nutrition urged member states 'to protect, promote and develop indigenous and traditional food systems when these are adequate and varied, noting also their economic, environmental and employment benefits', with a similar request to WHO and other United Nations' agencies<sup>15</sup>. Amen.

There was some response of the 'Oh yes, quite so' variety. The final resolution introducing the strategy did not urge anybody to do anything, but recognised 'the potential health benefits of traditional dietary and physical activity practices, including those of indigenous peoples' and bore in mind 'when implementing the strategy, the risks of unintentional effects on vulnerable populations'<sup>16</sup>. Successful skirmishes may have some lasting value within a lost war.

### The birth of taste

Another example of retro-nutrition is the wisdom of returning not only to traditional food systems, but also to the traditional feeding practices that are part of human evolution. Ever since autopsies of US soldiers killed in Korea and then Vietnam showed that most of them had fatty streaks and fibrous plaques in their coronary arteries<sup>17,18</sup>, it has been well known that cardiovascular

disease<sup>19</sup>, and other chronic diseases<sup>8</sup>, begin in early life. Nevertheless, most interventions designed to reduce the incidence of chronic diseases are not only timid, but also are carried out on adults, usually with unimpressive results; and no wonder – too little, too late.

One of the best features of the 2003 WHO/FAO report on diet, nutrition and the prevention of chronic diseases<sup>20</sup> is, within its life-course approach, emphasis on the strong and consistent evidence that sustained breastfeeding benefits not only the infant and young child at the time, but also helps prevent chronic diseases in later childhood and throughout life, for the mother as well as the child. The report concludes that breastfeeding probably protects against obesity, in which case it also protects against diabetes, cardiovascular disease and some cancers, the risk of which is increased by obesity<sup>8</sup>. Recent studies and a review carried out at the Institute of Child Health in London<sup>21,22</sup> summarise a mass of evidence that breast-feeding protects not only against obesity, high blood pressure and cardiovascular disease, but also insulin resistance and thus diabetes and the metabolic syndrome.

Like all natural foods, breastmilk is not uniform; its composition is affected by what the mother consumes. So is its flavour. Returning to the theme of this column, research carried out in the first five years of life shows that children remain sensitive to the flavour of the favourite foods of the mother transmitted in breastmilk and also in the womb through the placenta<sup>23</sup>. Gary Beauchamp of the Monell sensory research centre in Philadelphia concludes: 'People like the food their mothers ate for the rest of their lives'. It follows that taste for cigarettes and whisky can be transmitted in the same way. Does this foretell synergy between the infant formula and ready-to-eat breakfast cereal divisions of transnational food manufacturers? I fear so.

### Unsure as eggs

I asked above if you like to shop. Do you cook? And if so, do you reflect on what cooking tells us about public health nutrition?

In an essay written in 1959 whose title is that of her last book<sup>5</sup>, Elizabeth David tells of the omelettes made every day in the early years of the last century by Annette Poulard, owner of the Hôtel de la Tête d'Or on Mont-St-Michel in Normandy, for her delighted customers, who came from all over France and Europe to savour the perfect omelette. What was Madame Poulard's secret? Rumours proliferated. She mixed water with the eggs. No, cream. She had designed her own pan. She added *foie gras* to the omelettes. She had reared her own breed of hens. Rival recipes of increasing elaboration for *omelette de la mère Poulard* appeared in French magazines and cookery books.

In 1932, long after retirement, Madame Poulard told her secret. She said, 'I break some good eggs in a bowl, I beat

them well, I put a good piece of butter in the pan, I throw the eggs into it, and I shake it constantly. I am happy, *monsieur*, if this recipe pleases you’.

Elizabeth David tells the story gleefully. But the days of pre-1914 and 1932, when it truly could be said ‘sure as eggs is eggs’, are long gone. In those days anybody – well, anybody in northern France who cared about food – knew a good egg and a good piece of butter, and half a century ago Mrs David paid her British readers the compliment of assuming that they also knew.

The hens that produced the eggs for Madame Poulard’s omelettes ate and lived in much the same way as they had for the previous thousand years and more, in backyards or genuine free-ranging flocks of a few hundred at most<sup>24</sup>. Now we think that because eggs look roughly the same as they always have, and because their composition of chemicals considered to be relevant or which are easy to analyse is roughly the same, that they have not changed.

Wrong. The transformation of chickens by modern methods of agriculture into an item in an industrial process involving tens and even hundreds of thousands of caged birds, results in eggs that cannot be cooked and enjoyed as were those of Madame Poulard. Most shoppers who hunt for genuine free-range eggs do so because the factory farming of chickens disgusts them. Some do so because they know that eggs laid by chickens living a natural life cook and taste better.

I pause from writing this item and make my supper. I break two *ovos caipira*, eggs from hens reared in a local backyard, in a bowl, and beat them. Compared with the eggs I cooked in England they are small and their shells are thick; and the mixed yolk and white is like custard. I heat the iron pan I bought in London at Divertimenti in the 1970s and keep oiled, and toss in a knob of butter made in Lima Duarte, a local country town. Fizz. Then I add the eggs and do the shaking, and turn the omelette with a two-handed toss of the pan. Serve on a thick slice of whole-grain toast. Mm. *Pas mal*.

What Madame Poulard and Mrs David call good eggs and good butter, available as ‘niche products’ in speciality shops in rich countries, look, smell and taste different, and by golly are different, from what has become standard in the last half century. I suggest that anybody who thinks this is irrelevant to public health needs to prove their point.

I see that the European Union has committed €18 million to ‘qlif’, which stands for ‘quality low-input food’, in which 31 organisations are banded together to ‘develop new technologies to improve nutritional, sensory, microbiological and toxicological quality/safety of organic foods’ and to ‘provide meaningful information on the extent to which differences in production systems affect nutritional value, taste and safety of food’.

A corresponding conference will be held in January 2005 at the University of Newcastle<sup>25</sup>. I predict that the conference will announce provisional breakthroughs,

explain that the subject is multi-dimensional, and conclude that more research is needed.

### Good food goes bad

Of course the nature and quality of any plant food is affected by the quality of the soil in which it is grown, and of any animal food, by the feed eaten by the animal and the conditions in which it lives. The only issues are by how much, and the significance of the difference. People who appreciate food are more sensitive to these things.

I was taught a lesson at the Holly Tree restaurant in Kentallen, by Appin in the highlands of Scotland, on 21 April 1987. At dinner I explained to my companion that of course the salmon we were enjoying was farmed. Alasdair Robertson the owner overheard me and came to our table, polite but seething. ‘I serve real fish here’, he said, and set down on our table an illustrated book showing the differences between wild and farmed fish: the texture and colour of the flesh, the amount and nature of the fat between and within the muscles, the condition of the skin, fins and tail, and the whole look of the fish. He was kind enough not to say that if I couldn’t taste the difference, why was I in his restaurant.

Thanks to the indefatigable Michael Crawford<sup>26,27</sup>, we know that the intensive farming of animals for human consumption has profound public health implications. Like his mentor Hugh Sinclair, Michael believes that the degeneration of the human cardiovascular system, uncommon in people of any age before industrialisation<sup>28</sup>, is caused as much if not more by not enough essential fatty acids in food systems, than by too much total, saturated and *trans*-fatty acids. His own and much other research demonstrates the loss of essential fatty acids in animals, birds and fish reared by factory methods. He points out that the food systems of industrialised countries are invariably depleted in essential fatty acids, because of the factory farming of animals, and also because food manufacturers eliminate perishable essential oils from their products in order to ‘add value’ by increasing ‘shelf life’. It is however the nourishment in the essential oils that causes them to become rancid. Good food goes bad.

Michael Crawford’s main interest is the health and integrity of the brain and whole nervous system which, he says, without nourishment with adequate essential fatty acids, degenerates as surely as the cardiovascular system.

As president of the Congress of the International Society for the Study of Fatty Acids and Lipids held this July, he pointed out that industrialised food supplies contain less and less of the *n* – 3 fatty acids found in some plant oils, nuts and seeds – and fatty fish like salmon. These are food for the brain and nervous system.

Studies presented at the congress showed that children and also pregnant women whose diets are short of *n* – 3 fatty acids are vulnerable to depression. The implications for families and for society are obvious. ‘We are facing a

mental health crisis of monumental proportions', avers Michael Crawford<sup>29</sup>.

Maybe a diet of too much dead fish was why I could not immediately taste the difference between wild and farmed salmon. In Appin was I on the way to losing my marbles? Ever since then I have preferred to eat the flesh of creatures that, when alive, were hunters and foragers.

### The best start in life

In my last column I gave some reasons to be cheerful about the new WHO global strategy on diet, physical activity and health<sup>16</sup>. Also, it does repeatedly recommend exclusive breastfeeding for six months. Why? 'Early infant nutrition may be important in the prevention of non-communicable diseases throughout the life course' says the finally approved version. Well, yes... but what sort of infant nutrition? Cow milk? Mashed locusts? Watery gruels? Formula? Sugared drinks? Rotted salted fish, as prepared by the Hong Kong boat people as weaning food for their Cantonese tots<sup>8</sup>?

As you may guess, there is something missing from this version. The draft of 27 November 2003 circulated to the WHO Executive Board in January 2004<sup>30</sup> states: 'Exclusive breastfeeding for six months and appropriate complementary foods after that, contribute to optimal physical growth, mental development and to the prevention of non-communicable diseases'. In the finally approved version the last seven words were cut out. Why, I do not know; this was not for example requested by the US government, whose critique only proposed a change to 'may contribute'<sup>31</sup>. Curious. In making this omission, who could the WHO secretariat have been seeking to please?

Dietary recommendations designed to prevent disease and promote health throughout life should now and always emphasise the vital importance of sustained exclusive breastfeeding. Will they? This will depend in large part on the collective evidence-based commitment of the public health nutrition community. This means us.

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### References

- 1 Cannon G. Trade secrets. In: Lawrence F, ed. *Additives: Your Complete Survival Guide*. London: Century, 1986.
- 2 Davidson A. *The Penguin Companion to Food*. London: Penguin, 2002.
- 3 Kiple K, Ornelas K, eds. *The Cambridge World History of Food*. Cambridge: University Press, 2000.
- 4 Fukuoka M. *The One-Straw Revolution*. Goa: The Other India Press, 1992.
- 5 David E. *An Omelette and a Glass of Wine*. London: Robert Hale/Jill Norman, 1984.
- 6 Idone C. *Brazil: A Cook's Tour*. London: Pavilion, 1995.
- 7 Cannon G. *Food and Health: The Experts Agree. An Analysis of One Hundred Authoritative Scientific Reports on Food, Nutrition and Public Health Published throughout the World in Thirty Years, between 1961 and 1991*. London: Consumer's Association, 1992.
- 8 World Cancer Research Fund (WCRF)/American Institute for Cancer Research (AICR). *Food, Nutrition and The Prevention of Cancer: A Global Perspective*. Washington, DC: WCRF/AICR, 1997.
- 9 Ministério da Saúde. *Diretrizes Alimentares* [Official nutritional guidelines for the population of Brazil]. Brasília: Ministério da Saúde; in preparation.
- 10 Tawney R. *Religion and the Rise of Capitalism*. London: Pelican, 1938.
- 11 Tudge C. *So Shall We Reap (how everyone who is liable to be born in the next ten thousand years could eat very well indeed; and why, in practice, our immediate descendants are likely to be in serious trouble)*. London: Allen Lane, 2003.
- 12 Tudge C. *Future Cook*. London: Mitchell Beazley, 1980.
- 13 World Health Organization (WHO). Integrated prevention of noncommunicable diseases. Global strategy on diet, physical activity and health. *57th World Health Assembly*, A57/9. Geneva: WHO, May 2004.
- 14 Margetts B. Editorial. *Public Health Nutrition* 2004; **7**(3): 361–3.
- 15 Alliance for Peoples Action on Nutrition. The global strategy must not be wrecked and must be adopted today. Circulated at World Health Assembly, 21 May 2004. Available at [www.apanutrition.org](http://www.apanutrition.org).
- 16 World Health Organization (WHO). Global strategy on diet, physical activity and health. *57th World Health Assembly*, Resolution A57/A/Conf. Paper 5 Rev 1, 22 May 2004. Available at [www.who.int](http://www.who.int)
- 17 Enos F, et al. Pathogenesis of coronary disease in American soldiers killed in Korea. *Journal of the American Medical Association* 1955; **158**: 912–4.
- 18 McNamara JJ, Molot MD, Stremple JF, Cutting RT. Coronary artery disease in combat casualties in Vietnam. *Journal of the American Medical Association* 1971; **216**: 1185–7.
- 19 World Health Organization (WHO). *Prevention in Childhood and Youth of Adult Cardiovascular Diseases: Time for Action*. Report of a WHO Expert Committee. Technical Report Series No. 792. Geneva: WHO, 1990.
- 20 World Health Organization (WHO). *Diet, Nutrition and the Prevention of Chronic Diseases*. Report of a Joint WHO/FAO Expert Consultation. Technical Report Series No. 916. Geneva: WHO, 2003.
- 21 Singhal A, Lucas A. Early origins of cardiovascular disease: is there a unifying hypothesis? *Lancet* 2004; **363**: 1642–5.
- 22 Fewtrell M. The long-term benefits of having been breastfed. *Current Paediatrics* 2004; **14**: 97–103.
- 23 Leake J, Dobson R. Breast milk is the mother of all taste. *The Sunday Times*, 4 April 2004.
- 24 McGee H. *On Food and Cooking. The Science and Lore of the Kitchen*. London: Allen and Unwin, 1984.
- 25 Available at [www.qlif.org](http://www.qlif.org)
- 26 Crawford M, Crawford S. *What We Eat Today*. London: Neville Spearman, 1972.
- 27 Crawford M, Marsh D. *The Driving Force*. London: Heinemann, 1989.
- 28 Trowell H, Burkitt D, eds. *Western Diseases. Their Emergence and Prevention*. London: Edward Arnold, 1981.
- 29 <http://news.bbc.co.uk/2/hi/health/3836427.stm>
- 30 World Health Organization (WHO). Integrated prevention of noncommunicable diseases. Global strategy on diet, physical activity and health. EB113/44 Add 1. Geneva: WHO, 27 November 2003.
- 31 US Department of Health and Human Services. Submission to WHO on the WHO global on diet, physical activity and health. Received 27 February 2004. Available at [www.who.int](http://www.who.int)