

Recalibrating Desires

Frank Armstrong

Since domestication apples have been lauded for their health benefits and flavour. Part of the appeal lies in near endless variety, as each apple seed contains a unique genetic code¹. But in the past century we have seen a considerable narrowing of range, and nutritional impoverishment. Thus, a wild variety Sikkim apple (*Malus sikkimensis*), native to Nepal, has ‘one hundred times more phytonutrients than our favourite apples’ (Robinson, 2013, pp.215-216). But according to Raj Patel: ‘At supermarkets in North America and Europe, the choice is restricted to half a dozen varieties: Fuji, Braeburn, Granny Smith, Golden Delicious and perhaps a couple of others’. He attributes their success to: suitability for harvest, neutral flavour, transportation, storage; and positive response to pesticides and industrial production (Patel, 2008, pp.1-2). Human nutrition does not figure among the criteria in the selection process, and sadly: ‘[c]onventionally grown apples have more pesticide residues than any other crop’ (Robinson, 2013, p.237). It might seem wise to avoid such apples altogether and purchase isolated vitamins instead, but one test showed that the: ‘vitamin C-like activity from 100 grams of whole apple was an astounding 263 times as potent as the same amount of the isolated chemical (Campbell, 2013, p.153)’. The apples’ loss of bite is one example, among many, of how crop varieties are increasingly homogenized and decreasingly nutritious due to the demands of the global food chain.

I argue that this nutritional and gastronomic impoverishment as well as continued global malnutrition is intimately connected to a global attachment to the consumption of the flesh of non-human animals (henceforth ‘meat²’) Meat production is a major contributor to man-made climate change and loss of natural habitats. I further argue that the intentional killing and exploitation of animals is, in most cases, unjustifiable. The moral interrogation that gastronomy brings to food should, over time, help to eliminate its consumption. Importantly, plant-based diets appear to offer superior health outcomes to those that are omnivorous.

The appeal of meat can, in part, be traced to the transitory composition of microbial populations in our digestive tracts an understanding of which may help us give it up. We rely on the ingenuity of chefs to develop exciting dishes from plant-based sources, and we may learn from other societies which exclude meat consumption. A change in the subsidy regime in both the United States and Europe is also required to reduce the cost and increase the variety of edible plants, rather than supporting the production of commodities to feed domesticated animals.

The word ‘gastronomy’ seems to have been invented by Joseph Berchoux in 1801, who used it as the title of a poem (Mennell, 1985, p.266). The term was rapidly adopted in both France and Britain to designate ‘the art and science of delicate eating’. The development of gastronomic sensibility is connected to a shift from the excess of the

¹ Conformity is achieved through grafting.

² I include other animal products such as dairy and egg under this rubric. In this paper I will not deal specifically with the consumption of fishes, either farmed or wild, but suffice to say most of the objections I raise against other meat apply to their consumption.

medieval banquet towards the growing refinement that we see in the early modern period. The following passages illustrate the change: John Dickie outlines the astonishing portions in one banquet celebrating the marriage of Ercole d'Este (d. 1505), heir to the dukedom of Ferrara, and Renee, daughter of Louis XII of France: 'A rough calculation suggests that if the 104 guests ate an equal share of the courses ... they would each have consumed eighteen large portions of eleven different fish; three whole birds the size of capons or pheasants; another five smaller bird, such as doves; three portions of meat, and four of sausage, salame or ham; fifteen small pastries and pies or portions of large ones; plus assorted fritters, salads and so on (Dickie, 2007 p.103)'. There is a clear change in approach in this advice from 1674:

'Nowadays it is not the prodigious overflowing of dishes, the abundance of ragouts and gallimaufries, the extraordinary piles of meat which constitute a good table; it is not the confused mixture of diverse spices, the mountains of roasts, the successive services of assiette volantes, in which it seems that nature and artifice have been entirely exhausted in the satisfaction of the senses, which is the most palpable object of our delicacy of taste. It is rather the exquisite choice of meats, the finesse with which they are seasoned, the courtesy and neatness with which they are served, their proportionate relationship to the number of people, and finally the general order of things which essentially contribute to the goodness and elegance of a meal (Mennell, 1985, pp.73-74).

It would be another hundred years before Grimod de la Reyniere and Jean-Anthelme Brillat-Savarin effectively distinguished gastronomy from the Sin of Gluttony first articulated by the Desert Fathers (Shaw, 1998). Nonetheless, an emerging bourgeois, especially in France, more numerous than a fading, decadent aristocracy, were adopting an approach where the sensual enjoyment of food was de-coupled from excess: the limits of appetite and nature were recognised in a nascent discourse that interrogated the ethical question of what constituted good taste. We abandon the exploration of these values at our peril, and certainly the modern approach to food where consumption occurs without ceremony or restraint represents a regression to the excess of the medieval banquet especially as food prices in developed countries are at historically low levels. We also see a cultural shift whereby the collective meal is increasingly abandoned in favour of solitary consumption. Jack Goody is scathing of so-called TV dinners which reverse the customary habit of 'public input and private output', making eating alone 'the equivalent of shitting publicly (Goody, 1982 p.206)'.

The extension of compassion to animals could also engender more harmonious inter-human relations. David A. Nibert traces an upsurge in human violence to the practice of stalking and killing animals which 'began no earlier than ninety thousand years ago – and probably much later (Nibert, 2013, p.10)'. His thesis is that '*domeseccration*³' has generated conflict between human societies due to the inherent violence of meat production and the amount of land required for raising animals for human consumption which is far greater than that required to grow crops for direct human consumption.

A progressive abandonment of animal agriculture would divert the consumption of grain from domesticated animals who, at present, expensively convert a significant proportion of the world's scarce cereal commodities into their flesh. A pig can convert 35 percent of the energy in its feed to meat compared with 13 percent for sheep and 6.5

³ A neologism of Nibert's, conflating desecration with domestication.

percent for cattle. (Harris, 2003 p.54). Worldwide 57 percent of the output of barley, rye, millet, oats and maize are fed to animals, as well as 45% of EU wheat (Meat Atlas, 2014, p.30)'. Thus meat consumption is intimately connected to malnutrition according to the Heinrich Boll Foundation who say that: 'almost a billion people in the world go hungry largely because the middle classes' craving for meat creates large-scale, intensive livestock and food industries (Meat Atlas, 2014, p.6)'. Direct human consumption of crops would also facilitate changes in land use, allowing for reforestation, as recommended by the International Panel on Climate Change⁴. Meat production accounts for up to 32% of anthropogenic greenhouse gas emissions at a time when it is crucial that we swiftly address climate change (Meat Atlas, 2014, p.34).. The intensive rearing of animals for meat also poses the serious threat of giving rise to further zoonotic diseases and the prophylactic use of antibiotics is generating antibiotic-resistant bacteria (Meat Atlas, 2014, p.26). Further, 'if meat consumption continues to rise rapidly the amount of water needed to grow animal feed will double by the middle of the century. (Meat Atlas, 2014 p.29]'

At present the subsidy regime in Europe and America promotes current patterns of consumption. The US government pays €20 billion for the annual corn and soybean subsidies (Lustig, 2013 p.236) while the European Union offers subsidies for fodder crops and supports up to 40 percent of the cost of investing in new animal housing (Meat Atlas, 2014 p.21). In place of a regime that generates artificially cheap meat, agricultural subsidies could be used to promote the cultivation of horticultural crops in developed countries that might radically improve health outcomes and considerably increase the range of available foodstuffs. It is important that gastronomes follow the lead of totemic figures like Michael Pollan in offering a critique of how the present system operates. But I argue that gastronomes should go further than advocating a return to the traditional mixed agriculture advocated by Pollan advocates in the *The Omnivore's Dilemma*. (Pollan, 2006)

Superficially it is possible to eat a small amount of meat sustainably. Vaclav Smil has calculated that by abandoning the feeding of grain to animals the world could comfortably accommodate a global output of 190 million tonnes of meat – two-thirds of current supply – if crop residues could be turned into animal feed and pasture were used more efficiently. In Smil's view universal vegetarianism is not necessary or desirable: he says animals are just better at digesting some things than humans, notably grass and food waste. Anyone in the world could eat meat, if they wanted to, on Smil's model, so long as individual consumption was kept at around 15-30 kg a year: roughly what the average Japanese person eats. But average meat consumption in Ireland is 87.9 kg a year⁵; to get to Smil's sustainable levels would involve cutting down to somewhere between a sixth and a third of the meat currently consumed there (15 kg a year works out at just 41 grams a day) (Wilson, 2014). So, why should we reject this 'Benign Extravagance' as Simon Faerlie has termed it?

⁴ if recent rates of afforestation and reforestation are increased by 20 percent and rates of deforestation decreased by 20 percent in Annex I countries from the year 1990, carbon stocks would increase by 7-49 Mt C yr⁻¹ C https://www.ipcc.ch/ipccreports/sres/land_use/index.php?idp=151 Retrieved April 23, 2014.

⁵ <http://www.theguardian.com/news/datablog/2013/jun/05/meat-consumption-uk-global-trends> Retrieved April 28th, 2014.

The best argument for complete abstention is to end the suffering involved in intentionally killing other animals. But this ethical approach is only possible if human beings can thrive on plant-based diets, which certainly appears to be the case:

[T]he position of the American Dietetic Association is that appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases. Well-planned vegetarian diets are appropriate for individuals during all stages of the life cycle, including pregnancy, lactation, infancy, childhood, and adolescence, and for athletes⁶.

According to observational studies (incl. Appelby, Thorogood, Mann and Key, 1999) a vegetarian diet reduces morbidity and increases life expectancy. A recent study from the Longevity Institute at the University of South California provides evidence that a low protein diet will significantly diminish a person's risk of cancer. The author of the study Valter Longo told *The Guardian* (2014): 'People need to switch to a diet where only around nine or ten percent of their calories come from protein, and the ideal sources are plant-based'. Clinical trials (Ornish, 1990) have also shown that the adoption of a whole food, plant-based diet can prevent and even reverse the progression of heart disease, the biggest killer in Western society.

Furthermore, maintaining the equilibrium of consumption that Smil envisages does not appear possible in practice. The voracious appetite of many developing countries for meat indicates that once a society encounters it at low prices, in the absence of taboo or other cultural restraint, that consumption will climb to unsustainable, Western, levels. This is observed in the Middle East where locally raised meat, especially mutton, is highly prized, but: '[T]he pressure generated by this demand is greater than any market or other sanctions which might control it ... the ecological and economic consequences of the increase in livestock numbers are not recognized by farmers or consumers, the damage caused by the process is continuing (Allen, 1994 p.27)'.

Moreover, humanity does not need to maximize its available food resources: the problem lies in entitlement as Amartyra Sen (1990) has persuasively argued. In fact we need to curtail food production as obesity reaches pandemic proportions, and waste less. There may be arguments for not interfering with hunter-gatherer or traditional pastoral societies but these are a small proportion of humanity, over half of whom now live in cities, with this projected to increase to 70% by 2050 (WHO, 2010). Already many Third World countries, especially in sub-Saharan Africa, must import food commodities for survival. Developing countries can supply the Global North with sun-tolerant crops in return. A nuanced attitude to food miles might be developed where analysis of the environmental and human impact of cultivating crops is to the fore. Instructively, Oxfam argue that: 'trade could help millions of poor farmers and workers in developing countries beat poverty, and change their lives for good (Oxfam, 2014).'

Sadly, the post-Second World War Green Revolution has brought a decline in the nutritional benefits of staple crops. According to Steve Jones, former wheat breeder for the State of Washington: 'Wheat breeders are selecting against health' (Pollan, 2013 p. 259) as modern cultivars are selected on the basis of their suitability for industrial processing. The use of over half of arable land for the production of crops to feed animals leaves little space for the cultivation of lower-yielding but nutritious crops for direct

⁶ <http://www.eatright.org/About/Content.aspx?id=8357> Retrieved April 23rd, 2014.

human consumption. But, in circumstances where so much of our food supply is refined rather than eaten in its whole form, meat may be necessary for maintaining health, at least in the short term. Thus, a prerequisite for the advance of plant-based nutrition is increased availability of whole foods.

Wider embrace of plant-based diets would free agricultural land allowing crop scientists to explore cultivars from the perspective of nutrition than their yield. This should also lead to less reliance on genetic modification. At present glyphosphates are entering the food chain through herbicide-resistant genetically-modified crops which are used as animal feed (Meat Atlas, 2014, p.38). Meat from animals fed on GM does not require identification in the EU. In the future we might begin to place more value on our staple crops, as is the case in Japan where Japanese rice is venerated (Ohnuki-Tierney, 1993). Expansion in horticultural, especially from local and organic sources, would further decrease the impact of agriculture and improve health outcomes. A recent British study showed that daily consumption of seven portions of fruit and vegetables confers optimal health (Oyebode, 2014).

Any widespread dietary change is speculative at this stage, requiring what T. Colin Campbell has referred to as a 'nutritional Manhattan Project' (Campbell, 2013, p.226). It would entail cultural loss and, doubtless, encounter significant resistance. Many social groups from families to nations derive meaning and togetherness from the food they consume. But national cuisines are usually recently 'imagined', culled from fragments of oral evidence; homogenizing varied approaches and often incorporating recently-introduced crops. The widespread dissemination of recipes is a product of the invention of movable type: 'the standardization of typography also spelt out the standardization of food (Goody, p. 338, 2008)'. National cuisines tend to imitate the cuisines of aristocrats, or their equivalent, rather than the real food of the people. Thus, French cuisine, or *haute cuisine* as we now encounter it, is a recent and evolving innovation. Stephen Mennell writes: 'There is a great deal of evidence that until into the twentieth century, soup was the staple dish of every meal (including breakfast) for the majority of Frenchmen (Mennell, 1985, p.48)'.

Since this crystallization of most food identities into fixed national categories agriculture and human society have changed radically. Human population has expanded from an estimated one billion in 1800 to over seven today. We live in what has been described as the 'anthropocene', a period of unprecedented human dominion over nature which invests us with a responsibility towards other species. A radical change in diet is required if we are to avert continued extinctions as 45% of the Earth's landmass is used directly or indirectly for animal production (Thornton, Herrero, and Ericksen, 2011). In these circumstances cultural loss is a short-term sacrifice worth contemplating. Jonathan Safran-Foer argues: 'perhaps this kind of forgetfulness is worth accepting – even worth cultivating (forgetting, too, can be cultivated). To remember animals and my concern for their wellbeing, I may need to lose certain tastes and find other handles for the memories that they once helped me to carry (Safran-Foer, 2009, p.194)'.

A change in human diet can be orchestrated, but ultimately requires popular support. Zeldin observes one transition: 'Russians rioted in the 1840s when the government tried to persuade them to grow potatoes, being used to living mainly on rye bread, they suspected a plot to turn them into slaves a force a new religion on them' Yet hearteningly: 'within fifty years they were in love with potatoes'. His explanation is that:

‘they added the same sourness – *kislotu* – which had always given savour to their food, and which was what they were ultimately addicted to (Zeldin, 1994 p.95)’ The prospect of a large scale dietary shift may seem unlikely if the obesity epidemic is seen as exemplifying a lack of restraint when it comes to food. But it could prove easier to achieve than anticipated if gastronomic education reveals the cost of animal production, the depravity of factory farming and slaughterhouses, alongside developing greater appreciation for plant-based cuisine.

One insight into the question of how to create a dietary shift might lie in developing an understanding of the microorganisms that inhabit our digestive tracts: ‘[T]here are 10 to 100 times more bacteria in the gut than there are somatic cells in the human body’. It would appear that dietary choices are not entirely our own. The human gut is ‘a highly innervated organ possessing its own nervous system known as the enteric nervous system (ENS) that is in constant communication with the central nervous system (CNS) through nerves such as the vagus, which directly connect portions of the gut to the brain.’ This has given rise to the hypothesis that bacteria control host appetites. That this could be the case is not surprising as ‘over three billion years of evolution have honed the capacities of bacteria to exploit their environments’. The authors of the article argue: ‘Millions of years of co-evolution of bacteria and their hosts have presumably selected those bacteria that best manipulate their hosts.’ Importantly: ‘The composition of the population of bacteria in the gut is selected to a large extent by the nutrients consumed by the host and by the stresses to which the host is subjected’. Human consumption of foodstuffs nourish specific bacterial strains: ‘A system of selection exists based on the positive-feedback relationship between the particular nutrients consumed by the host and the bacterial composition in the gut such that this system leads to stable attractors of bacterial composition and host behavior.’ The authors contend:

The choice of one sort of food over another is often determined by the pleasure given by the different foodstuffs available, while the amount consumed can be determined by feeling “full.” There is some evidence that bacteria may be able to modulate human reward systems based on dopaminergic activity and to modulate feelings of satiety based on the presence of peptide YY (PYY) (Norris, Molina and Gewirtz, 2013)’.

This may explain why, after a lapse of time, cravings and desires for certain categories of nutrients decline as different microbiota colonise the gut.

Revealingly, Professor T. Colin Campbell indicates that low-level consumption of animal products (3-5%) does not diminish the benefits of the whole-food plant-based diet he recommends but argues: ‘When we go the whole way, our taste buds change and remain changed, as we begin to acquire new tastes that are much more compatible with our health’ (Campbell, 2013, p.11). This may be because: ‘diet rapidly and reproducibly alters the gut microbiome (David et al, 2014)’. Periodic deviation seems to make adherence difficult. This is the flaw of the so-called Flexitarian approach of eating ‘vegan’ until 6pm recommended by Mark Bittman and other ‘eat less meat’ approaches. The loss of cravings for previously cherished foodstuffs appears to be not just an effort of will but also the product of alterations in the bacterial composition in our digestive tracts. Thus, we do not crave or desire that which we are not accustomed to consuming. Over time, the most dedicated human carnivore can learn to forget.

One problem with the direction I advocate for gastronomy is that it may seem a denial of the sensual pleasure of dining, and a reversion to an attitude towards food reminiscent of the dichotomy that applied in Europe prior to the emergence of gastronomy between disciplined mind and bestial body. It seems counterintuitive for us not to enjoy food (and other bodily appetites); suppression is often followed by unbridled excess such as was seen at the medieval banquet after a period of fasting. But equal, if not greater pleasure can be drawn from plant-based cuisine with emphasis on varied fruits, vegetables, nuts, herbs, legumes and seeds, which should be accessible to a greater proportion of humanity.

A reasoned engagement with all the links in the food chain helps discern what tastes good. The noble art and science of cooking can yield the solution to replacing old favourites. According to Zeldin: ‘The invention of a new dish is an act of freedom, small but not insignificant.’ There is still enormous scope for such breakthroughs, since humanity today eats only about 600 out of the hundreds of thousands of edible plants. (Zeldin, 1994, pp.93-94)’ When one compares this variety to the 5 or 6 domesticated animals that form the bulk of cooking with meat it is clear that the plant-based cookery has an almost endless array of ingredients at its disposal. The formidable legacy of Indian cuisine shows what can be achieved within those constraints. According to Appadurai ‘Though it is true that food is surrounded by a large range of prescriptions and proscriptions in Hindu India, this clearly did not prevent the development of fairly elaborate regional and courtly cuisines. (Appadurai, 2003, p.296)’ The same might be said to some extent of Japanese cuisine where: ‘Shortly after the introduction of Buddhism in the sixth century, its doctrine on mercy for all living beings was translated into a legal prohibition against the consumption of land animal meat (Ohnuki-Tierney, 1993, p.34)’⁷. The absence of meat should not impinge on the ingenuity of chefs. Indeed, its absence might give creative scope for inventing new dishes.

Vulnerable species were protected in some traditional societies by taboos that ceased to operate after the arrival of European religions (Flannery, 2010, p.101). Early agricultural societies also developed customary prohibitions on the consumption of certain animals due to environmental constraints according to Marvin Harris’ who traces the Jewish taboo against eating the flesh of pigs to the environmental conditions of the Middle East. Leviticus says of pigs that: ‘everyone who touches them shall be unclean.’ (Lev. 11:24). This is despite pigs possessing the greatest potential for swiftly and efficiently changing plants into flesh. Harris contends ‘that there is absolutely nothing exceptional about pork as a source of human disease. All domestic animals are potentially hazardous to human health.’ He explains the dietary prohibitions ordained in *Leviticus* as follows: ‘By raising animals that could “chew the cud,” the Israelites and their neighbors were able to obtain meat and milk without having to share with their livestock the crops destined for human consumption. Cattle, sheep, and goats thrive on items like grass, straw, hay, stubble, bushes, and leaves – feeds whose high cellulose content renders them unfit for human consumption even after vigorous boiling. Rather than compete with humans for food, the ruminants further enhanced agricultural productivity by providing dung for fertilizer and traction for pulling plows.’ In contrast, he says: ‘Feed [pigs] on wheat, maize, potatoes, soybeans, or anything low in cellulose, and pigs will perform veritable miracles of transubstantiation; feed them on grass, stubble, leaves, or anything

⁷ Albeit fishes were not prohibited from their diet.

high in cellulose, and they will lose weight. (Harris, 2008 pp.55-59)' According to this analysis, which stands to reason, keeping pigs was prohibited because they competed with human beings for food in an arid environment lacking in woodland where the animals could forage as was as the case in Europe. It did not make sense to the authors of Leviticus to permit small quantities in ecological niches which favoured raising them as there was perhaps a realisation that without outright prohibition, consumption would creep into the Israelites' diets. This slippage is seen in the Christian approach to fasting where fishes were permitted, giving Thomas Aquinas leeway to opine that chickens were of aquatic origin and could therefore be consumed during fasting periods (Spencer, 1993, p.179).

Harris strays towards environmental determinism in his exploration of the Hindu proscription against eating meat from cattle: 'Subject to a similar series of ecological depletions – deforestation, erosion, and desertification – cattle also became bad to eat. But in other respects, especially for traction power and milk, they became more useful than ever – a blessing to look at or to touch – animal godheads (Harris, 2008, p.59)' Here he ignores the use that could have been made for older animals as meat and hide, and the baleful effect of violence against non-human animals identified in Hindu society where food 'is closely tied to the moral and social status of individuals and groups' (Appadurai, 2008, p.295). Based on examples from traditional societies, Hindu India, and Buddhist Japan, as well as in Judaism and Islam, it appears that an outright taboo against all consumption offers the only prospect of curbing consumption and raising the quality and variety of plant-based dishes.

It should become apparent to gastronomes that there is another way of consuming from which an endless array of delicious recipes can be derived. Considering the history of food, the widespread adoption of plant-based diets is undoubtedly a revolutionary idea, but one that would represent a progression in human development, allowing us to live more comfortably and equitably. It would also bring to an end the suffering of billions of domesticated animals and allow for ecosystem restoration. Ending subsidisation of meat production could divert funds towards supporting the cultivation of nutritious and varied crops for direct human consumption. Instead of half a dozen varieties of apple we might have hundreds, we could also see a nutritional improvement in our staple grains with health becoming the main criterion for production. Theodore Zeldin argued that gastronomy 'has a dark side, for it has done little to deal with the obscenities of famine and cruelty, and it will perhaps only receive proper recognition when it does (Zeldin, 1994, p.96).' By promoting a shift towards a plant-based diet gastronomy can shed its dark side.

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