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Meat and right: the ethical dilemma

BY A. J. F. WEBSTER

Department of Clinical Veterinary Science, University of Bristol, Langford House, Langford, Bristol BS18 7DU

My favourite vegetarian, hearing that I was preparing a paper on the ethics of eating meat, said 'That should be brief. There are none. You can only do it if you don't think about it.' You may not agree with this statement but it raises two difficult issues: (1) most people who eat meat prefer not to think where it came from. This suspension of awareness is becoming ever easier as the consumer becomes ever more remote from the realities of livestock production; (2) once one starts to think from first principles, and without prejudice, it is not easy to justify (a) killing another animal for food when cheaper, nutritionally acceptable alternatives are available, (b) feeding cereal to livestock to produce meat for our titillation while millions go hungry. Although these criticisms are not always expressed rationally, anyone who dismisses them out of hand is equally irrational, or is simply refusing to think. There is, of course, another, more paranoid, objection to meat eating; namely that it helps to kill us rather than keep us alive. I shall not deal with this third issue here since it has nothing to do with ethics (see Blaxter & Webster, 1991).

Ethics is that branch of philosophy which deals with human character and conduct. It is therefore meet and right to question the eating habits of Western society and ask 'Can we justify all, or indeed any of our meat-eating habits? Unless one holds the extreme vegan position, the question is complex. A gourmand may, for example, begin with whitebait and proceed to white veal. Most people would, I think, agree that the ethical problems posed by the two dishes are not the same.

Nobody knows, (though many have speculated) what primitive man thought about the beasts he hunted. He will certainly have been reminded on a daily basis that meat comes from killing animals usually while in a state of fear. At some stage this must have aroused compassion in some people. With the onset of agriculture, man began to get to know animals as individuals and so began to develop favourites; animals that acquired lasting value by virtue of their lasting utility or their companionship or both. The real favourites escaped being eaten altogether. In India, the cow became sacred, in England, the horse. (That highly intelligent animal, the pig, has persuaded four of the world's great religions not to eat it but for rather different reasons.) Even the killing of meat animals raised by man acquired its own dignity. We may today criticize Shechita and Halal slaughter as

primitive ritual but these rituals do imply a respect for the life being taken. One does not have to presume too much altruism in early man to conclude that livestock were treated with respect in proportion to their importance as individuals; i.e. the cow was more important than the chicken. Meat was undoubtedly considered as a luxury but it was not decadent because the animals were not 'wasting' food that would have been eaten by man. Horses and cattle were tilling the fields, pigs and chickens gleaned and scavenged. Ruminants that grazed and browsed the huge expanses of uncultivated land away from the villages were hunted as wild animals; primitive man making no arbitrary distinction between cattle and game.

Few, I think, would raise too many ethical objections to this primitive version of mixed farming. It was ecologically inoffensive and the food of animal origin was probably barely sufficient for adequate nutrition. If you can accept this, you must accept that eating meat is not inevitably immoral. This changes the question to: 'Can one, in the light of current knowledge, current environmental pressures and current world hunger, still justify rearing animals for meat?' The two most popular targets for criticism are intensive 'factory' farming, and the destruction of rain forests for cattle ranching. The two fundamental issues are environmental degradation and animal welfare. The third issue, conspicuous consumption in the West while much of the world goes hungry, is horribly complex but no one can rationally claim that meat animals are creating an absolute shortage of food while American and European farmers are being paid not to grow cereal.

THE ENERGETIC EFFICIENCY OF ANIMAL FARMING

Table 1 presents in very condensed form an attempt to summarize the essentials of energy exchange in different modern, commercial livestock systems. The data are from many sources but the approach is that of Pimentel & Pimentel (1979). No form of animal production achieves an efficiency of 20% in converting animal feed into food for man when the costs of feeding the productive and support animals are taken into account. Intensive systems of milk and egg production are quite similar in terms of converting animal feed energy into food energy and protein for man, but get nowhere near equivalence of energy yield to energy requirement from fossil fuels. Less-intensive forms of meat production, e.g. beef production from range cows with calves finished on feedlot, are not only extremely inefficient in converting animal feed to food for man, largely by virtue of the high proportion of feed needed to maintain the breeding generation (support animals), but also fail to generate more protein for man relative to consumption of fossil fuel energy. The most extensive systems of animal farming, e.g. meat and work from native cattle in Africa, are also unsustainably inefficient in relation to land use and the food needs of man. Whatever other reasons there may be for criticizing the intensification of agriculture, it does not waste land, nor, more surprisingly perhaps, disproportionately waste fossil fuels. When fossil fuels start to run out, a substantial proportion of cultivatable land will have to be used to grow biomass for fuel. This inevitably implies less land for animal production and higher fuel costs, both of which will favour the more intensive systems.

In the context of sustainability, the strongest argument for animal farming can be based on the capacity of animals to consume food sources that are complementary to, rather than in competition with, the needs of man. Ruminants can perform at high

Table 1. *Efficiency of energy use in animal systems*

	Hen	Sow	Cattle	
			Dairy	Beef
Primary yield (year)*	300 eggs	1300 kg	6000 l	290 kg
Gross energy (kJ/MJ):				
To productive animals	790	830	720	580
To support animals†	210	170	280	420
Yield of food for man:				
kJ/MJ feed	140	182	170	37
g protein/MJ feed	2.31	1.09	1.72	0.16
kJ/MJ fossil fuel	210	328	136	550
g protein/MJ fossil fuel	3.46	2.55	1.36	2.37
Proportion of feed unavailable to man	0.2	0.25	0.85	0.8
Food for man:feed available to man:				
kJ/kJ ME	0.25	0.35	1.76	0.35
g protein/MJ ME	4.1	2.1	17.6	1.5
g protein/g CP	0.37	0.19	1.6	0.14

ME, metabolizable energy; CP, crude protein ($N \times 6.25$).

* Primary yield for pigs and beef cattle is based on carcass weight.

† Support animals are those not directly contributing to food for man at the time of analysis: i.e. breeding sows and beef cows, hens before point of lay and young dairy cattle.

efficiency when less than 20% of their feed comes from ingredients which we could eat ourselves (Table 1). Thus expressed, the dairy cow can generate 70% more food for man than she consumes. Beef production from range animals still remains very inefficient (by this measure) but the overall efficiency is greatly increased when beef is produced as a byproduct of the dairy industry. Pig and poultry production appear, at first sight, to compete largely for the same food source as man but the criteria used in Table 1 neglect to consider the food which we could eat but don't. I indicated earlier that in primitive farming systems pigs and poultry were scavengers. It is quite possible to modernize the scavenging process, e.g. by operating piggeries in association with supermarkets to salvage all food that overruns its 'sell-by' date.

Beef ranching and the cowboy ethic do not emerge too well from the restricted logic encapsulated in Table 1. This argument is marshalled in support of the most extreme forms of anti-meat polemic, e.g. the claim that eating hamburgers destroys the Amazon rain forest. The rain forest is being stripped at a grotesque rate and cattle are grazing the cleared land but the beef output from these animals makes a miniscule contribution to North American beef consumption (<2%). More interestingly it makes a trivial contribution (15%) to the wealth of the land owners (Hecht, 1993). Those who are plundering the rain forest are doing so, not for immediate income, but as a directly unproductive but profitable land investment. The cattle are being used in the same way as cattle in the early American West (and a similar way to the ruminants outside the primitive village). When man owns, or is surrounded by, more land than he can work for himself, cattle become an easy, indeed romantic, way of dealing with land surplus to requirements. The same can be said for grouse (*Lagopus lagopus*). The inequities of land ownership are a proper subject for anger but one should not necessarily blame the hamburger.

WELFARE OF THE MEAT ANIMALS

We may accept that we have the right to eat meat. We must also acknowledge on the basis of overwhelming evidence that farm animals are sentient beings, i.e. have a sense of awareness that can incorporate not only perception of simple sensations like hunger, pain and fear but also, to some extent dependent on their genotype and experience, more complex aspects of cognition that involve expectation of quality in life and a sense of deprivation if it is frustrated (see Dawkins, 1980; Toates, 1986). This being so, we have an obligation to provide farm animals, at the least, with a reasonable quality of life and a gentle death.

Three major areas of public concern relating to the welfare of farm animals are: (1) intensive husbandry systems, (2) transport and slaughter methods, (3) 'tinkering', or the unnatural manipulation of animals. These concerns sometimes may appear to be based on ignorance or misinformation by those directly concerned with livestock production but they raise real points of ethics which cannot be ignored. To address these concerns I would suggest first that the words 'unnatural', 'intensive' or even 'modern' should not be considered synonymous with 'bad'. I suggest, therefore, that we attempt to evaluate quality of life for farm animals not with reference to words like 'traditional' or 'extensive' but, as far as we can, in terms of the animal's own perception of life. I originally proposed the 'Five Freedoms' (Webster, 1984), as a first analysis of the major factors likely to influence the welfare of animals on the farm (intensive or extensive), in transit and at the point of slaughter. The UK Farm Animal Welfare Council (1993) has recently revised the five freedoms so that they now read:

1. Freedom from thirst, hunger and malnutrition; by ready access to fresh water and a diet to maintain full health and vigour.
2. Freedom from discomfort; by providing a suitable environment including shelter and a comfortable resting area.
3. Freedom from pain, injury and disease; by prevention or rapid diagnosis and treatment.
4. Freedom to express normal behaviour; by providing sufficient space, proper facilities and company of the animal's own kind.
5. Freedom from fear and distress; by ensuring conditions which avoid mental suffering.

I have illustrated elsewhere how the five freedoms can be used to compare welfare, e.g. for laying hens, in battery cages and on free range (Webster, 1987). Their importance to the present argument is that (1) they can prevent welfare issues being argued from incomplete premises, e.g. production traits only (freedoms 1–3), or ethological issues only (freedoms 4–5), (2) they offer an approach (no more) to an understanding of welfare as perceived by the animal itself, not as defined by the preconceptions of farmer or consumer. Absolute attainment of all five freedoms is unrealistic, indeed they are to some extent incompatible, but they offer a comprehensive framework whereby welfare can be built into any system of livestock farming. I have discussed elsewhere (Webster, 1993) possible routes towards improving the welfare of animals on farms in ways that are compatible with efficient farming. The solutions are not easy and can only emerge through a judicious mixture of research, education (of farmers and public) and rather more enlightened legislation than we have at present. There is not space to develop these themes here. We are some way to resolving the ethical issue when we recognize the problem. To quote Pascal, 'He who seeks God has already found him'. Not quite, I think, but it's a start.

The second big issue concerns the welfare of animals in transit and at the place of slaughter. Clearly it is at this stage that some of the worst welfare abuses can occur. Equally it is a stage where real improvements can and have taken place through compassion (based on a recognition that animals do suffer), common sense (based on the logic of the five freedoms), some quality research (e.g. Gregory, 1993) and some reasonably constructive legislation. Problems of animal welfare can be measured by their severity and duration. Welfare problems of transport and slaughter are not only of shorter duration but are simpler (and thus more capable of resolution) than those inherent in a particular system of husbandry.

The third major area of public concern relates to 'tinkering', i.e. the unnatural manipulation of animals. As far as the animals are concerned, the welfare implications are not determined by the method (e.g. genetic engineering) but by its consequences, namely alteration of the size, shape, reproductive capacity (or even the mind) of animals by breeding, nutrition, hormone therapy, gene insertion or deletion in such a way as to reduce mobility, increase the risk of injury, metabolic disease, skeletal or obstetric problems, perinatal mortality or psychological distress. Much attention has been given to genetic engineering and exogenous hormones such as bovine somatotropin because the techniques are novel and, therefore, alarming. In reality more distress has been caused by traditional forms of tinkering like castration or conventional selection for production traits in the absence of proper welfare safeguards. Several authors have recorded high incidences of bone and joint disorders in fast-growing strains of broiler chickens (e.g. Thorp *et al.* 1991; Whitehead, 1992) and Duncan *et al.* (1991) have provided convincing evidence that similar lesions in turkeys are painful. In simple words we have bred farm animals that are, by virtue of their size and shape, in chronic pain for a substantial part of their short lives. Moreover, there is evidence from sheep with footrot that pain thresholds decrease with time due to a change in processing stimuli from pain receptors within the central nervous system, i.e. the pain gets worse with time (Waterman *et al.* 1992). We can debate endlessly how much behavioural freedom is appropriate for a chicken; we cannot possibly justify breeding animals that we know will suffer chronic pain.

It is generally recognized that new biology, involving the physiological or genetic manipulation of farm animals will require new legislation to protect man, the environment and the animals themselves. This is too big a subject to consider here in any detail. However, it is worth pointing out that the UK Animals (Scientific Procedures) Act 1986, which covers the welfare of laboratory animals, includes a new clause whereby any procedure likely to cause pain or suffering must be submitted to a cost/benefit analysis to determine whether the cost to the animal, however slight, can be justified in terms of the likely benefit to society. Obviously the greater the cost the greater the demand for justification. I can think of no ethical reason why farm animals should not receive the same degree of protection from the law as laboratory animals. If they did, we would be faced by questions such as 'are the surgical procedures involved in multiple ovulation and embryo transfer justified by an increase in genetic gain of a herd of dairy cows from a current rate of 1–3%?' (values from Woolliams & Wilmot, 1989). I shall not attempt to answer this question here. I merely point out that it is a proper question of ethics.

RIGHT ACTION

Once we recognize animals as sentient beings, we have an ethical duty to treat them not simply as commodities but with compassion. This approach must inevitably be utili-

tarian. We shall determine, for example, the time of their death while choosing a method preferable to most of the alternatives. Bentham refused to make an absolute distinction between human and animal rights; he stated, 'The question is not, can they reason, can they talk but can they suffer?' (see Paton, 1992).

If we accept that in the free market the consumer determines the product and the means of production we can best serve the animals' interests by educating the consumer towards a perception of welfare that is as close as possible to that of the animals themselves. There is, of course, no standard customer; the majority remain content to eat battery eggs and broiler chickens, more so than beef or lamb, which indicates that while their concern for animal welfare may be real it is not paramount. An increase in the number of vegetarians may reduce the number of animals raised for food but has no direct impact on the welfare of those that exist; in essence, it dodges the issue. A more promising lead is being given by those who demand higher standards of both quality and welfare for their meat, milk and eggs (see Eyton, 1991). At present these worthy people are in a minority, often poorly informed and dangerously vulnerable to con-men. They may be right, however, and that is something to build on.

The food industry has attempted to exploit the separation of the consumer from the realities of animal production by creating a series of distorted images which are either pitched at the level of the colouring book (pictures of happy chickens on boxes of 'farm fresh eggs') or which attempt to suspend belief that meat ever was part of a living animal. This is not consumer education, it is propaganda. Moreover, it does not take a Machiavelli to deduce that propaganda is a dangerous instrument unless one holds the monopoly. The animal industry is now under constant attack from expert manipulators of the media who create equally distorted images of uncaring profiteers ruthlessly exploiting suffering animals and laying waste the environment. The vulnerability of the consumer to both forms of image is, of course, in direct proportion to their ignorance of the truth. I believe that it is in the long-term interest of animal farmers to contribute to the proper education of consumers by demonstrating quite openly where their meat and milk is coming from and how it is produced. An excellent test of animal welfare is to discover whether their owner can display his animals with pride to any fair-minded observer. For many farmers and farming systems this is so. However, the special pleading required to suggest that the welfare of broiler fowls or laying hens is satisfactory, despite their appearance, is deeply unconvincing to almost any unbiased observer.

Two common, reasonable objections to proper education of the consumer are: (1) most consumers don't want to know where their food comes from and such frankness might put them off altogether; (2) it is only the affluent few who can afford to pay for *high welfare* products and we have a moral responsibility to provide cheap food for the majority. The first objection is valid only if farm animals are valued simply as a commodity. Once one accepts that their life itself has a value then nobody who rears, kills or eats them has the right to wash his or her hands of the relevant moral decisions. This is not a call to veganism. As an example of moral courage I would cite the lady who gives her (organically reared) beef cattle 'preslaughter counselling'. This involves habituating her animals to handling and the short ride to the abattoir, then walking with them to the stunning pen so that they remain calm and do not suffer right up to the point of non-existence. This may be an extreme position but it illustrates the fundamental point that reverence for life is compatible with a realistic, dignified approach to death.

The second objection is less easy to dismiss. I would agree that food prices for all

should not be distorted by welfare standards prescribed by a vocal and affluent minority. Indeed I have argued elsewhere (Webster, 1993) that, for example, attempts to use legislation to impose absolute standards for animal housing tend to be over simplistic, open to abuse and as likely to impede animal welfare as to advance it. On the other hand the vast majority of people in the developed world who can afford to buy meat and milk eat more than they need. We must acknowledge that we don't really consume meat, milk and cheese in order to live but because they are among the great luxuries that determine the quality of our own lives. This being so we have an obligation to ensure a fair deal for the animals involved in helping to improve our quality of life. I have suggested, not entirely flippantly, that a fair deal can be defined as follows: for 6 months the farmer feeds the pig and for the next 6 months the pig feeds the farmer. The purpose of consumer education is to create an increased awareness of the realities of different systems of animal production and to encourage buying habits based on a compassionate, but not sentimental, recognition of the rights of farm animals to a reasonable quality of life and a gentle death. The farming industry itself is just beginning to break free from the dogma that livestock are a commodity to be produced as cheaply as possible, not least because this tenet of economic faith is collapsing when faced by a static market, spoiled for choice and overfed to the point of neurosis. I suggest that it is in the combined interests of the farmer, the consumer, the land and the animals to redefine food of animal origin not as a commodity but according to quality, itself defined by source, system of production and, not least, quality of life for the animals. I further suggest that it is right.

REFERENCES

- Blaxter, K. L. & Webster, A. J. F. (1991). Animal production and food, real problems and paranoia. *Animal Production* **53**, 261–269.
- Dawkins, M. (1980). *Animal Suffering, the Science of Animal Welfare*. London: Chapman & Hall.
- Duncan, I. J. H., Beatty, E. R., Hocking, P. M. & Duff, S. R. I. (1991). Assessment of pain associated with degenerative hip disorders in adult male turkeys. *Research in Veterinary Science* **50**, 200–203.
- Eyton, A. (1991). *The Kind Food Guide*. London: Penguin Books.
- Farm Animal Welfare Council (1993). *Second Report on Priorities for Research and Development in Farm Animal Welfare*. Tolworth: MAFF.
- Gregory, N. G. (1993). Welfare and product quality, the need to be humane. In *Safety and Quality of Food from Animals, British Society of Animal Production Occasional Publication* no. 18, pp. 51–56. Edinburgh: BSAP.
- Hecht, S. B. (1993). The logics of livestock and deforestation in Amazonia: directly unproductive but profitable investments (DUPs) and development. *Proceedings of World Congress Animal Production*, Edmonton, Canada, vol. 1, pp. 41–62.
- Paton, W. (1992). *Man and Mouse*, 2nd ed. Oxford: Oxford University Press.
- Pimentel, D. & Pimentel, M. (1979). *Food, Energy and Society*. London: Arnold.
- Thorp, B. H., Whitehead, C. C. & Rennie, J. S. (1991). Avian tibial dyschondroplasia: a comparison of the incidence and severity as assessed by gross examination and histopathology. *Research in Veterinary Science* **51**, 48–54.
- Toates, F. (1986). *Motivational Systems*. Cambridge: Cambridge University Press.
- Waterman, A. E., Livingstone, A., Ley, S. J. & Brandt, S. (1992). Changes in nociceptive thresholds associated with chronic pain in sheep. In *Animal Pain*, pp. 378–385 [C. E. Short and A. Van Poznak, editors]. London: Churchill-Livingstone.
- Webster, A. J. F. (1984). *Calf Husbandry, Health and Welfare*. London: Collins.
- Webster, A. J. F. (1987). Meat and right, farming as if the animals mattered. *Canadian Veterinary Journal* **28**, 462–466.

- Webster, A. J. F. (1993). Farm animal welfare, The five freedoms and the free market. In *Safety and Quality of Food from Animals. British Society of Animal Production Occasional Publication* no. 18, pp. 45–50. Edinburgh: BSAP.
- Whitehead, C. C. (1992). *Bone Biology and Skeletal Disorders in Poultry*. London: Butterworth Heinemann Ltd.
- Woolliams, J. A. & Wilmut, I. (1989). Embryo manipulation in cattle breeding and production. *Animal Production* **48**, 3–30.