

CHAPTER TWO

The Ethics of Qualified Moral Veganism

2.1 Introduction

Whereas the first chapter abstracted any GHIs that may be associated with how other organisms ought or ought not to be treated by us from the argument, no assessment of the GHIs associated with the consumption of animal products can be complete without considering the impacts of such a consumption upon the nonhuman world and how these impacts affect moral agents. The consideration of these two last points is the objective of this chapter. Much of the literature in animal ethics has focused mainly on the concern that the consumption of animal products is frequently associated with the infliction of pain or suffering on animals (Singer 1975; Marcus 2001; Hills 2005; Safran Foer 2009; Cochrane 2012). Pain can be defined as an ‘aversive sensation’ associated with nociception, the latter of which in turn has been defined as ‘the ability to perceive a noxious stimulus and react in a reflexive manner’ (Barr et al. 2008, 745). Much debate has been held over the question of which animals might be capable of experiencing pain, which can be distinguished from nociception as the latter perception of a noxious stimulus can be unconscious. An example of nociception that does not trigger pain sensations is provided by Palmer (2010, 13), who discusses a study reported by McPhail (1998) that showed that nociception continues in human beings with severed spines who report not to be in pain.

The capacity to feel pain must also be distinguished from the capacity to suffer. A very small number of people are born with congenital insensitivity to pain as they lack functional nociceptors, which Varner (2012, 110–111) defines as ‘specialised elements of the peripheral nervous system whose function is to respond to damaging or potentially damaging stimuli’. People who lack functional nociceptors may nevertheless still be able to suffer, for example from the emotional impact of not being able to register tissue damage. This might occur, for example, when they fail to withdraw from a hot surface and consequently

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sustain burns. The reverse is also possible. Masochists are able to feel pain, but they do not appear to suffer from feeling some kinds of pain. If individuals are capable of experiencing either pain or suffering, it is appropriate to say that they are sentient. More precisely, sentience is associated with the capacity to experience pain or suffering, as well as its reverse, the capacity to experience pleasure or joy.

In this chapter I shall recount some personal experiences that I have had with some of the main groups of animals who are used for human food purposes, complemented by the experiences of others. The aim of this exercise is to provide a reasonably good picture of how animals fare in the food industry. It will thus become clear that the human consumption of animal products supports practices that inflict pain and suffering on numerous animals. This will be followed by a discussion of the moral relevance of sentience in section 2.6 and by other sections where I shall identify and discuss the moral relevance of a number of other concerns associated with how human beings regard and treat other animals. A new moral theory will be developed to address these concerns: 'qualified moral veganism'. Those who are familiar already with how animals are treated in the food industry may wish to skip the ensuing sections (2.2–2.5) to continue reading from section 2.6.

2.2 The lives of chickens

On one of the farms where I used to help out, the chickens were kept in tiny cages that each held four birds. There were long rows of these battery cages, and a big lagoon of droppings underneath them collected the excrement that fell through the wired mesh of each cage. Hens were placed in the cages when they arrived from chicken breeders, just before they started laying. At this stage, they had already been debeaked to avoid injuries from pecking at each other. Whereas pecking is a normal activity for chickens, excessive pecking at each other is an example of redirected behaviour, which Webster (2013, 76) defines as normal behaviour that is directed at the wrong object and which he identifies, together with stereotypic (aimlessly repetitive) behaviour, as signs of frustration and deprivation. Debeaking is a process whereby about one fourth of the beak of the chick is removed by means of an electrically heated blade that cauterises the chick's blood vessels as part of the animal's beak is snipped off.

After they had arrived to live on the farm, chickens left their cages either after they had died or when they were transported to the slaughterhouse. They experienced little daylight during their lives, could hardly move, and spent their entire lives on metal wires. Profit margins were tight, so that all chickens would be sent off to the slaughterhouse when the costs of keeping them outweighed their yield in eggs. They were then replaced by new chickens and the whole process would start again. The male chicks who were bred by the people who bred these hens were killed as soon as they had hatched. I am not sure how this

occurred, but a common method that is still used today to dispatch of these useless birds is to gas them. Marcus (2001, 102–103) also claims that the practice of throwing them into plastic bags where they are slowly smothered under the weight of other chicks is applied widely, as is the practice of killing them by means of a grinder.

Chickens would actually lay more eggs if they were looked after better, for example by reducing the number of birds placed in each cage, but the reason why this tends not to happen is that it would reduce the number of eggs that would be produced per cage. Financially, it pays more to stack a larger number of chickens into each cage than to reduce the number of birds who live in each one of them. According to Marcus (2001, 106), stocking densities have now increased to a density of five birds per surface area no bigger than 30.5 by 50.8 cm for the vast majority of ‘layers’—the name given to hens who are kept to lay eggs—who are kept in the USA today. Even more restrictive space allowances have been reported for India, Brazil, and Ukraine (Hawthorne 2013, 18). In the European Union, however, conventional battery cages have recently been phased out, as Council Directive 1999/74/EC was fully implemented in 2012. The directive allows enriched or ‘furnished’ cages to be used, which must contain litter, roosts, and ‘claw-shortening devices’ (scratch mats), and which must be at least 45 cm high and provide each bird with at least 750 cm² of space, including 150 cm² for a nest-box (Council Directive 1999/74/EC). Webster (2013, 215) claims that evidence supports the view that these enriched cages cater for the welfare of chickens as well as many free-range systems (see e.g. M. Appleby et al. 2002). Whereas it is unclear why this is concluded, it may relate to the fact that mortality in furnished cage systems has been documented to be lower than in any other systems, and foot health tends to be better—as the incidence of footpad dermatitis and bumblefoot tends to be lower (Sherwin et al. 2010). At the same time, parasitic diseases tend to be more common, and the range of behaviours displayed has been observed to be more limited (Lay et al. 2011). In addition, some furnished systems have also been associated with an increased risk of cloacal cannibalism (Moinard et al. 1998).

When birds are kept in tiny cages and become aggressive with each other, they cannot escape from each other’s company, resulting in injury and death. When ventilation systems fail or are inappropriate, many birds can die from overheating, a problem that may aggravate with climate change. Marcus (2001, 107) and Loughnan (2012, 60) also describe the practice of forced moulting, whereby birds are kept in the dark for a long period of time and their food intake is withdrawn for up to two weeks or altered to a very-low-nutrient diet in the hope that this will stimulate moulting and boost egg production afterwards. This practice may trigger stress, greater morbidity—caused, for example, by *Salmonella* Enteritidis—and death for a large number of chickens. After about one and a half to two years of laying, all chickens are replaced by new chickens who lay more eggs. I remember participating in a process that was called ‘the catching of chickens’, a process whereby birds are pulled out of their

cages and transferred to crates that are loaded on trucks to transport them to the slaughterhouse: I used to pull all the chickens out of each cage, hold each chicken by one of their feet, walk down the corridor, and put them inside the crates used to transport them. This appears to be common practice, and many hens sustain leg injuries as a result of being carried in this way (Broom 1990).

Chickens are by far the land animals the most frequently consumed by humans in the world, accounting for more than 80% of all flesh consumption (Weis 2013). In Australia, for example, the per capita consumption of chickens increased from half a bird per year in 1950 to 27 birds per year in 2010 (Wallis 2014). Broiler chickens—who are named after the way in which they are cooked—are different varieties of chickens who put on weight faster compared to hens who are kept because they lay eggs. This is why male chicks of breeds kept for laying are considered to be useless, resulting in their being killed at the hatchery. Unlike chickens who are kept because of the fact that they lay eggs, chickens who are kept for their flesh are housed on concrete floors. Stocking densities have been reported to average between 10 and 20 birds per square metre in the USA and in Australia (Marcus 2001, 110; Loughnan 2012, 56). In the European Union, the law makes their individual lives abstract by expressing stocking densities in terms of kilograms per square metre. Stocking densities should not normally exceed 33 kg/m², even though they could be allowed to reach up to 42 kg/m² under specific conditions (Council Directive 2007/43/EC, art. 3). If we add the fact that chickens currently weigh about 2.4 kg at slaughter (Tuytens et al. 2014), it can be concluded that the European Union allows the co-existence of up to 17 mature birds per square metre.

Breeds that are used today put on seven times more flesh around their breast by the time they are eight-weeks-old than did nine-week-old chickens around their breastbones in 1976 (Marcus 2001, 109). As the chickens used today grow older, their movement becomes more and more restricted. As they are fed high-protein diets, they grow so fast that their bones find it hard to support this rapid increase in weight, leading to a wide range of problems, including lameness. Other problems include leg deformities, dislocated joints, fractures, and various metabolic disorders, including convulsions and ascites, a disease of the liver related to fluid build-up in the abdominal cavity. Blisters, hock burns, and footpad deformities are also common as birds spend a lot of time lying down (Turner 2010). Many of these problems are particularly present in those animals who are kept for reproductive purposes: as they live longer than their offspring, their particularly large size poses significant health problems (Webster 2013, 31).

Most chickens who are kept for their eggs or their flesh are kept in vast barns where many processes that are used to look after them are automated, so that the amount of attention that each bird receives from farmers is reduced to a minimum. By consequence, farmers are unlikely to identify birds who are in poor health. Incidentally, most turkeys are kept in a very similar fashion. Because genetic selection has been so successful in increasing the size of

turkeys, they can no longer mate—which Webster (2013, 180) claims does not present any welfare issues; this is why turkey farmers use artificial insemination to breed turkeys.

The vast majority of chickens do not die naturally. Most are killed in slaughterhouses. For most chickens who are kept for their flesh, this happens within 40 days after hatching; for most hens kept for their laying qualities, this happens about a year and a half after birth. Chickens are hung upside down on a conveyor belt with their feet in overhead shackles before they are killed. Chickens may suffer from inversion (being hung upside down) and suspension as they do not experience this posture at any other stage during their lives. In a research project funded by the UK's Department for Environment, Food and Rural Affairs, it was shown that the 'welfare' of chickens might be slightly improved when their breasts are supported before they enter the water bath used to kill them, yet breast support conveyors appear to increase the risk of birds disengaging their legs from the shackles (Lines et al. 2011). Some birds have wide legs that do not fit easily into these shackles, so that their legs may be pulled hard to make them fit into the shackles, resulting in compression. Birds tend to become agitated, which causes bruising, and wing flapping causes haemorrhaging of the wing tips. Shackling is known to cause pain, particularly for birds with joint problems and bone fractures, some of which they may sustain through being handled.

After being shackled, chickens move towards electrified water baths where their heads touch water that is charged electrically in order to stun them, which aims to cause loss of consciousness and to induce cardiac arrest. Some birds touch this water with their wings first, which results in their sustaining small electric shocks before being stunned. Research has shown that many birds are not stunned effectively and that they therefore either recover consciousness or do not lose consciousness before the next stage (Shields et al. 2010). It has also been found that some birds are stunned inappropriately by the process taking place too slowly. Some birds who appear to be unconscious may actually not be, but merely be undergoing muscular paralysis. The food quality of the corpse that is used for human consumption is influenced by the frequency of the electric shock that passes through the animal, which is why many birds are not stunned in such a way that they lose consciousness. Stunning efficacy is also influenced by many other factors, including the presence of other birds, the quality and resulting conductivity of the water in the water bath, the depth and duration of immersion, the size of the water bath, the size and nature of the birds, and the nature and tightness of the shackles (Hindle et al. 2010).

After being stunned, chickens are pulled through a tunnel and meet a rotating blade that makes a ventral neck cut that may sever either one or both of the chicken's carotid arteries in the neck. Cutting both arteries has been found to be most effective at bringing about a quick death. Chickens are known to regain consciousness if this takes place too long after stunning, or if the cut is inadequate, which has been shown to occur due to differences in bird size; some

slaughterhouses decapitate birds immediately after stunning, but this does not lead to immediate loss of consciousness in the severed head. The chickens then move through a scald tank of boiling water and their feathers are plucked out. Those animals who had not yet been killed now drown and burn in the boiling water. Their feet and heads are then cut off, and they are eviscerated. Finally, they are packed for sale (Shields et al. 2010). As many of these processes inflict pain on these animals, some have suggested that alternative systems should be developed; one of these alternative systems could be ‘controlled atmosphere killing,’ a method that uses gas to render birds unconscious, but it has been remarked that many slaughterhouses may find this system ‘too expensive to implement’ (Lines et al. 2011, 129).

2.3 The lives of pigs

I used to help out on pig farms too. The numerous health risks associated with intensive pig farming have been well-documented and are summarised by Webster (2013, 142). I shall not list them here as I prefer to focus on the systemic problems that underlie these more specific health issues.

The vast majority of pigs who are kept for their flesh are kept inside barns where they are crowded together and experience no or little daylight until they are herded into trucks to be transported to the slaughterhouse. They are kept on concrete slats, which reduce labour requirements as excrement falls in between the slats to be stored in lagoons inside concrete pits under the pigs’ living spaces. The farms where I worked were no exceptions: sows were kept in sow stalls and farrowing crates, which are known to increase the risk of lameness, for long periods of time. Sow stalls are metal-barred crates that measure no more than a few metres long and less than a metre wide. The sows could stand in them but not turn around. The sows were confined even more when they were moved, just before giving birth, into farrowing crates, where they lacked opportunities to engage in nesting behaviour. The main purpose of these latter crates is to keep the sows as immobile as possible during the early days of nursing, to avoid piglets being crushed between the sow’s weight and the concrete floor on which she stands.

Whereas the European Union has now banned the use of sow stalls during the early stages of pregnancy (Council Directive 2008/120/EC), it is worth pointing out that the problems associated with spatial confinement have been aggravated by a change in consumer preference, developed over the last 50 years, for less fatty flesh (Webster 2013, 31): this triggered a trend to kill pigs at earlier stages of their lives, when they were significantly smaller and leaner than their mature-sized mothers, who have been selectively bred to reach a very large size when they reach maturity.

On the farms where I worked, piglets were kept with their mothers until they were big enough to be weaned off, when they were about three weeks old.

Webster (2013, 143) comments on this practice as being ‘profoundly unphysiological’ as their intestines are not well-adapted to this dietary change and they struggle to keep warm, necessitating the purchase of expensive feed and machinery to keep them warm inside buildings that are kept as sterile as possible, as well as vaccines and antibiotics. In the earliest stages after weaning, the piglets would be most susceptible to enteritis and post-weaning multi-systemic wasting syndrome (PMWS). By that time, males had been castrated, their needle teeth had been clipped, and their tails had been docked, all without anaesthetic. Tail-biting is an example of redirected and stereotypic behaviour for which the main risk factors appear to be a lack of space and a lack in opportunities to forage (Taylor et al. 2010); tail-docking results in the creation of amputation neuromas, which increases the sensitivity of the docked tail, thus acting as an incentive for the pig to avoid being bitten. Both tail-docking and the reduction of corner teeth are now illegal in the European Union unless ‘there is evidence that injuries to sows’ teats or to other pigs’ ears or tails have occurred’ (Council Directive 2008/120/EC, annex 1, chapter 1, par. 8), but research has found that this law is flouted routinely (Lerner and Algiers 2013). All of these practices are measures that aim to reduce aggression or the consequences thereof. Castration is also supposed to improve the taste of pigs, and to speed up the rate of growth. Aggression increases with high stocking densities, which are maintained in many systems so that pigs gain weight rapidly, rather than expend energy on moving. Hormonal growth promoters—synthetic hormones that were created about 30 years ago, such as porcine somatotropin—are also used in some countries to the same effect of rapid weight gain (Marcus 2001, 121–122; Wolfson and Sullivan 2004, 218).

Because many pigs were in such poor shape at the farms where I helped, several pigs died from heart attacks or had to be given drugs whilst they showed signs of breathlessness when I helped to transfer them between buildings or to herd them on to the trucks that moved them to the slaughterhouse when they were about half a year old. Pigs do not always move easily in the direction in which farmers want them to move. Shouting and slapping were some of the methods used to make pigs move in the desired direction. The mixing of pigs who are not familiar with each other has also been reported to increase stress, as well as has the fact that pigs are not provided with opportunities to forage, a lack of opportunity which encourages bar-chewing and tail-biting. Webster (2013, 144) interprets that these behaviours are not primarily aggressive acts, but acts that stem from the animals’ frustration at being kept in thoroughly uninteresting surroundings, a situation that cannot easily be remedied by the provision of enriched environments—now mandatory in the European Union—as pigs become bored quite easily with things like tennis balls as they do not offer rewards, whereas ‘ethologists will recognise similarities in the behaviour of sows foraging for worms in the mud and punters working the slot machines in Vegas’. One farm that I worked for also used plastic tubs suspended on cables from barn ceilings to try to reduce boredom, which presumably also

would have done little to help the cause. Marcus (2001, 116) documents that in typical farms in the USA each pig may not receive more than 12 minutes of human care during his or her lifetime.

When pigs are taken to the slaughterhouse, they are often moved to where the workers want them to be by means of electric prodders. Pigs are slaughtered after being stunned, which aims to make them unconscious. This can happen by various means: an electric current can be applied to the head to cause a grand mal seizure; a bolt can be fired through the skull by means of a captive bolt pistol; or they can be gassed using CO₂. The use of this last method appears to be increasing, as other methods are deemed to pose greater welfare concerns (Atkinson et al. 2012). The pigs are then shackled and hoisted up before being stuck in the neck with a sharp knife that aims to cause the pigs to bleed to death. Sometimes, this takes a considerable amount of time, so that some pigs regain consciousness before dying (Anil et al. 2000). The pig's body is then submerged in hot water where a pig scalding removes the pig's hair. Big scissors and a blowtorch may also be used in this process. The pig is then eviscerated, and the head is usually removed, as well as the body cut into two halves. The body is subsequently fragmented and processed further before being consumed.

2.4 The lives of cows

I worked on three dairy farms too. In the 1970s cows were tethered continuously during the winter months and milked in the places where they stood. In the summer months they would spend a lot of time in the field and come into the stable twice a day to be tethered while they were being milked and provided with additional feed. Each cow had their own place in the stable, and the name of each cow was written on the rafters that stretched out across the stable to support the roof underneath which the cows lived. I remember some of their names, including Nora, a cow whom I held in admiration, as she had defied the odds merely by still being alive whilst she was already about 12-years-old. Most cows had long gone by then as the cost of replacing them by a younger cow who produced more milk and had fewer health problems was smaller than the cost of keeping the older cow. By the 1980s this system had changed: cows were no longer tethered in their stables, so that they could move around more in what is known as a 'loose house'. Milking took place by cows learning to queue up outside the milking parlour, which they would enter in order to be milked whilst being fed concentrated feed pellets. Automated systems now read the computerised information held on a chip around each cow's neck to provide them with the correct quantity of pellets that they need for optimal production.

These systems are now used very widely. The fact that cows have been able to move around in stables since the 1980s means that the farmer has less of an incentive to send their cows out into the field. Many farms now operate systems whereby dairy cows spend their whole productive lives inside stables

while all their food is brought to them. Even if this suppresses natural grazing behaviour and increases the risks of disease triggered by inadequate bedding, cubicles, and nutrition (Webster 2013, 127), farmers may still lose money by sending their cows out into the field as any energy that is spent walking around by the cow is energy that is not spent on producing milk. Cows now produce about twice as much milk as they did 40 years ago. It is almost impossible to find cows who are allowed to live as long as Nora lived for. By the time they are about four- to six-years-old, most cows are killed to be replaced by younger cows who produce more milk (Whitaker et al. 2004). In order to produce as much milk as possible, dairy cows are inseminated about three months after they have delivered their first calf. This process is repeated after every new calf they deliver to maintain high milk yields. Cows are also routinely de-horned, a process whereby cows' horns are removed to reduce risk of injury to the farmer.

As dairy herds are not as suitable for the production of flesh as other breeds—such as the Belgian Blue with their 'double-muscling' traits, who are bred specifically because their muscles develop much more quickly—in dairy herds many male calves and a smaller number of females who are surplus to requirements are shot as soon as they are born. Calves who are not killed are frequently taken away from their mothers immediately after birth, and one of the farmers I used to help out uses 'the bag' (an oesophageal feeder) for calves who do not learn to suck from a rubber teat shortly after they are born: a plastic tube that is connected to a bag filled with colostrum (the milk that is produced just after the birth) is inserted into the mouth of the calf and a valve is opened once the farmer thinks the tube sits deep enough in the calf's throat. Sometimes the tube is inserted in the wrong place, in the windpipe rather than in the oesophagus, resulting in the milk being released inside the calf's lungs, with lethal consequences.

The same farmer has also used recombinant bovine somatotropin (rBST), also known as recombinant bovine growth hormone, which is produced by genetically engineered bacteria. Its use is banned in the 27 countries of the European Union as well as in some other countries, but is legal in more than 40 countries (Fredeen 2006). When I asked him why he used this, he answered that it increased milk profits as the cost of each injection of rBST was smaller than the price of the additional milk the cow would consequently produce. Any other concerns that he may have had were side-lined. I am unsure whether the farmer in question still uses rBST, but its use has declined in the USA in recent years, which Webster (2013, 71) attributes to the fact that its use was demanding so much from cows who were already stretched to the limits of productivity that it was unsustainable.

Research has found that cows who receive rBST have increased risks of mastitis and lameness, but that these concerns may not be significant enough for farmers to avoid its use because of cows' increased productivity (Dohoo et al. 2003; Fredeen 2006). Together with a perceived lack of fertility and unacceptable yield, the two conditions of mastitis and lameness are, however, the most

common reasons given by UK dairy farmers in relation to why they send their animals away to be slaughtered (Whitaker et al. 2004). Mastitis is a very common inflammation of the udder that has increased in frequency as bacteria have more opportunities to enter the udder due to selective breeding for greater milk production (Turner 2010). Cows nowadays spend more time on milking machines, unless these machines pull harder to get the milk out—where malfunctioning machines that pull too hard are a significant concern related to mastitis. Lameness, which can manifest itself in various forms, including infections of the horn of the cloven hoof or of the surrounding skin, is also very common. Webster (2013, 72, 131) estimates that it features in about a quarter of dairy cows, resulting in ‘more or less severe pain,’ and he identifies inadequate foot hygiene and the use of wet silage (instead of dry hay) as major concerns.

Veal is the name given to the flesh taken from calves. Most veal is produced from dairy breeds, as almost all bull and about three quarters of heifer calves are not needed by the dairy industry. There are at least three different kinds of veal. ‘Bob veal’ is produced from slaughtered calves when they are no more than a few days old. Formula-fed or ‘milk-fed’ veal is produced from calves who are fed a diet that contains milk as well as other things, and that is deliberately low in iron, making the calf anaemic. This produces flesh that is light in colour. These calves are slaughtered when they are about 16 to 20 weeks old. Veal that is darker in colour is produced from calves who are killed when they are slightly older and who have been fed a more varied diet. The rennet that is found within calves’ stomachs is also used to produce cheese. Some calves are tethered and kept in crates wherein they can hardly move, which results in their flesh being tender. To this effect, they are also fed very restrictive diets, increasing their chances of contracting pneumonia, diarrhoea, and abomasal ulceration (which is associated with high milk diets). They are also kept in the dark, as well as in isolation from other animals. Several jurisdictions have now banned the use of crates, including Australia and the European Union, but the practice continues in many other countries (Webster 2013, 139).

Beef is the name given to the flesh that is taken from cows and bulls who are usually from non-dairy breeds. Many of these bulls are turned into steers by being castrated, usually without anaesthetic. To identify the animals, some are branded, a process whereby a mark is burned on their bodies. Tags that may be pierced through the animals’ ears may also be used for this purpose. Some breeds, for example the Belgian Blue, are so big—partly because of careful selection for a natural genetic mutation in the myostatin gene—that they struggle to give birth naturally. Many animals are delivered by caesarean section, causing injury and pain to the cow. As many cows are out in the field, farmers may not notice for a long time that their cows are in distress, particularly if they possess large numbers of them. Many cows who are kept primarily for their flesh enjoy outdoor lives, but this necessitates a lot of chasing by farmers. I remember an incident when a cow was chased for several hours after she had escaped from the field.

Whilst many cows, bulls, and steers who are raised primarily for the nutritional value of their bodies spend parts of their lives in fields, many are moved to feedlots during the last few months before they are slaughtered. Here, the animals are locked up into outdoor pens and their diet is changed from one that consists mainly of grass to one that is very high in grain. The extra calories and protein fatten them up, but the animals' digestive systems are not able to cope very well with this new diet. Feedlot illnesses are mainly caused by these inappropriate diets. They include acidosis (a digestive condition), laminitis (a condition affecting the horny laminae of the hoof), ergot poisoning (through grain contaminated with ergot fungus), polioencephalomalacia (PEM, caused by vitamin B1 deficiency), vitamin A deficiency, bladder stones (caused by the overconsumption of phosphorus, which is fed as a supplement to some animals), and urea poisoning (Webster 2013, 136; Loughnan 2012, 51–52). Bovine respiratory disease is also common amongst feedlot cows and stems from cows having been subjected to a range of stresses (Engler et al. 2014). Ionophore poisoning also occurs where cows are given synthetic growth promoters, which are allowed in many countries (Kart and Bilgili 2008). Apart from these diseases, foot lameness, diarrhoea, and pneumonia are also common (Webster 2013, 137).

The 'shackle and hoist' method used to be the dominant mode in which cows, bulls, and steers were slaughtered: animals were shackled on one of their legs and lifted into the air before their throats were cut. They would often suffer broken bones and torn ligaments before being slaughtered. Whereas many Jews and Muslims still prefer slaughter to occur in this way (Farouk et al. 2014), motivated by their respectively kosher and halal traditions, most animals are now hoisted into the air after being stunned in a box that restrains them: a captive bolt stunner or pistol is used to drive a bolt, made out of an alloy such as stainless steel, through the skull of the animal, in the hope that this will render the animal unconscious soon after. Exsanguination is then attempted by cutting the main veins or arteries in the throat or by a stab in the chest close to the heart. I am unaware of the extent to which concerns about the spread of mad cow disease via brain tissue may have altered stunning practices in slaughterhouses, but Grandin (2014) has written that 'effective stunning and reducing skull fracturing are two opposite goals', where the latter goal serves to reduce the risk of people contracting nvCJD.

2.5 The lives of fish

I used to engage in recreational fishing too. Fish include animals from several taxonomic groups. The more than 32,000 species that have been identified make up more than half of all vertebrate species (C. Allen 2013). In relation to this diversity, C. Allen (2013) mentions the interesting anecdote that the coelacanth is more closely related to us than to tuna, who themselves are more closely related to us than to sharks.

Even if I used to fish as a child, there has never been any doubt in my mind that fish are capable of suffering and that fishing inflicts suffering. Whilst some scholars deny that fish are sentient (e.g. Rose et al. 2014), some animal welfare scientists have conjured up sophisticated experiments to determine whether fish might suffer, and many provide a positive answer when they interpret the findings resulting from these experiments (Chandaroo et al. 2004; Braithwaite 2010).

Many fish may live far better lives than farmed animals as they are allowed to live relatively free from human intervention until they are caught. This freedom allows them to behave in the self-directed ways for which there is much less scope in factory farms. However, the number of fish who are used for human consumption is much greater than the number of other animals who are consumed. Modern boats benefit from ever more sophisticated methods to catch fish, including bottom trawling, which has already damaged more than 50 million km² of seafloor, which is partly why a recent review states that 'humans have had profoundly deleterious impacts on marine animal populations', even if this has been 'less severe than defaunation on land' (McCauley et al. 2015, 1255641–5). Whilst fish from approximately 1,500 species are caught, about half of all fish who are now consumed have lived in aquaculture systems, a number that has increased rapidly in recent decades (Anthony et al. 2013). The farming of some fish, such as salmon, also results in significant impacts upon their wild relatives, as large quantities of wild fish are caught, killed, and used to feed farmed fish (Naylor et al. 2009).

Aquaculture is sometimes called the 'Blue Revolution', comparably with the 'Green Revolution' that greatly increased agricultural production in less affluent countries. This rise in productivity has been associated with significant animal welfare concerns. Mason and Finelli (2006, 110) refer to aquaculture as 'the factory farming of aquatic species'. Various health concerns have been reported (Bergqvist and Gunnarson 2013). These include malformations of the spine resulting from the lack of genetic diversity in many species who are bred for maximal productivity and fast growth, as well as from environmental factors, for example the keeping of fish at water temperatures that are unhealthy for them and their being provided with inadequate nutrition. Other concerns include injuries and stress caused by handling and by hormonal injections and vaccinations that are administered to control, respectively, spawning and exposure to diseases. Female fish may also experience stress whilst being subjected to a process called 'strip-spawning', whereby they are taken from the water and squeezed to extract their eggs (Hawthorne 2013, 32). Bergqvist and Gunnarson (2013, 78–83) also report increases in aggression, stress, and injury in some species, increases that are associated with inadequacies in water quality, housing systems, stocking densities, feeding methods, and transfer systems such as the pumps and pipes that are used to transport farmed fish. Finally, aquaculture also traps migratory fish, for example salmon, preventing them from engaging in natural behaviour.

Further concerns include the effects of fish farms that are situated in oceans or rivers on wild fish who come into close contact with their farmed relatives and who may contract their diseases without having the benefits of all the drugs that the farmed species are given. Fish are frequently crammed together in small cages that provide good environments for the spread of disease, for example infection by sea lice (Mason and Finelli 2006, 111). Fish farms use a wide range of pharmaceuticals to keep these diseases at bay, and this also results in negative health impacts on other species. Some anti-parasitic drugs that have been used to treat sea lice infestation in Atlantic salmon, for example, have been found to be toxic to lobsters and shrimps when they were exposed to these drugs in high concentrations (Haya et al. 2001). Another concern is that many farmed fish escape from fish farms and interbreed with wild relatives, which may reduce the genetic variety and resilience of the latter. A related concern is that wild species may be transformed radically now that the commercial use of one genetically engineered species, a type of salmon, has been legally approved in the USA (Issatt 2013; Waltz 2016).

A range of concerns have been raised in relation to the methods that are used to kill fish. In the days when I engaged in recreational fishing, we used hooked fly maggots or worms to lure fish, and sometimes we impaled other fish on hooks in our attempts to catch pike. These methods are also used by many others in the fishing industry. Most fish, however, are caught in nets, which can injure other animals and cause severe damage to underwater ecosystems. Fish who are caught by deep-sea trawlers are dragged from the bottom of the sea. The presence of large numbers of fish stresses the animals, and many fish die before they are hauled on board by being crushed under the weight of other fish, resulting in death by injury and suffocation. Those who are still alive when they are on board either die from being cut open when they are being 'cleaned' or are left to die whilst being stored in ice water, which results in anoxia. Some species lose consciousness only after several hours of being immersed in ice. Other stunning and slaughtering methods include clubbing, spiking, gassing (leading to narcosis), bleeding, and electrocution. In the Netherlands, eels are also killed by immersion in salt baths followed by evisceration, during which they can remain conscious for several hours (Bergqvist and Gunnarson 2013, 85–87).

2.6 The moral imperative to take sentience seriously

From the account presented in the preceding sections—which has focused on the main categories of animals who are used for human food, but could be complemented by other reports and personal experiences with other animals who are also used for human consumption—it should be clear that the consumption of animal products inflicts a lot of pain and suffering (see also Brambell 1965; FAWC 2009). Whilst the infliction of pain can sometimes be positive,

for example when people undergo painful operations in order to remedy health problems, most people, apart from some masochists, generally seek to avoid pain and suffering. Therefore, human beings have an interest in avoiding pain and suffering, and anyone who proposes to subject other people to pain or suffering ought to either have their consent or make a convincing case for wishing to do so.

Similarly, there is no reason to suspect that other animals lack an interest in the avoidance of pain or suffering. Though many animals may not be aware of the fact that they have such an interest, the question whether they are seems irrelevant: human infants are not aware of the fact that they have an interest in the avoidance of pain either, but nobody seems to doubt that they have such an interest. More importantly, barring exceptional circumstances, of which I mentioned one in the preceding paragraph, I have not been able to identify a good argument that it would be acceptable to inflict pain on human infants. It is generally recognised that they, as well as older human beings, possess a right not to be harmed through the human infliction of pain or suffering that should be respected in most circumstances. By analogy, it could be argued that we ought to grant such a right also to all sentient organisms where the infliction of pain or suffering does not serve their interests.

Before we decide on granting such a right, however, we must consider a complicating issue. The question must be asked whether there is such a thing as an insentient organism. If there is no such thing, we might have a problem. If we assume that it is acceptable for us to eat other organisms, any moral theory that adopts a duty to avoid inflicting pain or suffering would stipulate a duty that would be violated routinely if all organisms were able to experience pain or suffering, which would perhaps call into question the relevance of such a moral theory. A lot has been written on this topic. Although I shall engage with a number of studies, I must emphasise that I do not endorse some methods that have been used to explore the matter as some of the experiments in these studies have inflicted a lot of pain and suffering or death upon animals.

In earlier work, I grappled with this insentient-organism problem by discussing what Whiteheadian scholars—scholars who are influenced by the work of Alfred Whitehead—have written on the theme (Deckers 2011d; Deckers 2011e). One such scholar whose view on this matter I did not engage with previously is Palmer (2010, 14, 18), who thinks that many organisms may only be capable of ‘unconscious responses to pain’, by which she may mean that they are only capable of nociception (given that pain is, by definition, a conscious experience), and who takes the ‘relatively conservative view’ that only mammals and birds are capable of feeling pain. Whereas Palmer (2010, 12) thinks that ‘many organisms, including some plants and amoeba[e], move away from noxious stimuli’, she adds that ‘it seems extremely unlikely that they feel pain’. The evidence that she provides for this conclusion is that ‘research on human fetuses indicates withdrawal reflexes before the development of the thalamo-cortical circuits associated with pain perception’ (Palmer 2010, 12). One of the

problems with this claim is that the fact that foetuses can experience pain once they have obtained 'thalamocortical circuits' does not imply that they are unable to feel pain before the emergence of these circuits; another is that neither plants nor amoebae are human foetuses, which calls their comparability with the latter into question.

A different Whiteheadian scholar, whose work I engaged with before, is Dombrowski (2006, 225), who claims that clams (also known as bivalves; a group of animals that includes mussels, scallops, and oysters) may not be sentient as they 'only have a cluster of ganglia' and lack 'a central nervous system'. This is in line with Singer (1975, 188)'s early position, where Singer draws the 'prudential' line between sentient and insentient organisms 'somewhere between a shrimp and an oyster'. In the second edition of *Animal Liberation*, however, Singer (1990, 174) expressed doubt about this position, which is perhaps not surprising as the study of pain and suffering in other animals is complicated. This may be related partly to the fact that most, if not all, nonhuman animals are unable to communicate to us that they are in pain, as all lack the power of speech. However, the significance of language should not be overstated, at least if we accept that talking about pain and feeling it are two very different things. Though clams are not able to tell us whether they are sentient, animal welfare approaches typically focus on anatomical, physiological, and behavioural data to explore whether an organism might be sentient.

If we focus on clams, starting with anatomical evidence, we may agree with Dombrowski's claim that they lack central nervous systems, but whether we do depends on our understanding of what counts as a central nervous system. If the possession of a brain or a brain-like organ that both receives information from and exercises a great deal of control over all parts of the body is assumed to be a necessary condition for the possession of such a system, then a clam may not have a central nervous system. If, however, all that is required for the possession of such a system is the ability to act as an integrated individual where the organism as a whole can respond to and direct its parts, then clams would possess central nervous systems (as the clam as a whole would be brain-like). Whereas I shall not engage with the question of which definition we should adopt, the main point in this discussion is not whether clams have central nervous systems, but whether they are sentient. Crucially, the possibility that they may be sentient cannot be ruled out by the potential absence of a central nervous system. Nervous tissues are clearly present in clams as they generally have three pairs of ganglia: the cerebropleural ganglia that control the sensory organs and the mantle cavity, the pedal ganglia that control the foot, and the visceral ganglia. These are connected with each other and with other body parts by means of various connections, allowing clams to act in integrated ways. Physiological support for the possibility that some clams may be able to experience pain comes from the observation that the common mussel (*Mytilus edulis*) releases substances that are similar to the dopamine that mammals release, when they are thought to experience pain, to produce analgesic effects (Stefano et al. 2008).

In spite of these observations, the existence of significant physiological and anatomical differences between human beings and clams may have tempted Dombrowski (2006) and Singer (1975) into thinking that clams lack sentience. The cognitive ethologists Bekoff and Sherman (2004, 179), however, question the ‘view that only big-brained creatures’ have developed modes of awareness—a view which they claim stems from anthropocentrism. Apart from focusing on anatomical and physiological similarities and dissimilarities between different animals, we may also learn something about an organism’s mental capacities by studying their behaviour. Common mussels, for example, close their shells rapidly when they identify toxic chemicals, whilst scallops start swimming when they detect starfish as they try to escape from these predators (Crook and Walters 2011, 188). These observations do not imply that these organisms are capable of feeling pain. However, the same could be said about any other animal who exhibits an evasive response in the presence of a negative stimulus, prompting the question of why some animal welfare scientists accept this kind of behaviour as an indicator for sentience in some species, but not in others (J. Smith and Boyd 1991). More generally, as similar physiological and behavioural features have been associated with sentience in other species, it might therefore be inferred from these features that the common mussel may be capable of experiencing aversive sensations, and the same applies to any other clams who possess features that can be interpreted similarly.

Accordingly, what Varner (2012, 105, 112) calls the standard response in relation to the question of which animals are sentient, namely that vertebrates probably are, and that invertebrates are not, with the possible exception of the group of cephalopods (octopuses and squid), is doubtful. This standard picture results from the standard approach that has been used to conduct research on sentience, which has focused almost exclusively on whether the following features are either present or absent: particular neuro-anatomical structures that might be associated with affective states, for example the lateral pallium in fish; structures that might be interpreted as nociceptors; substances that can be interpreted as endogenous opioids (substances that are produced by the body to reduce pain); and a narrow range of behavioural features, including whether organisms respond to damaging stimuli in ways that are analogous to how human beings normally respond and whether they can vary such responses after being exposed to substances that are known to be analgesics (Anthony et al. 2013; J. Smith and Boyd 1991). In light of this approach, the view that mussels may not be sentient seems surprising, but I guess that the answer that will be given would depend a great deal on how much weight is given to the presence or absence of particular features. Those who consider mussels to be insentient arguably bestow great weight on the absence of neuro-anatomical structures that are sufficiently similar to the neuro-anatomical structures of animals who are believed to be sentient, but this need not be the only solution to this puzzle.

The more general problem with those who rely exclusively on the standard approach is that it ignores the possibility that organisms who lack what we perceive to be (central) nervous systems may have developed radically different ways to detect pain, as well as other endogenous and behavioural responses. The existence of these difficulties does not imply that we should abandon the standard approach. Some have argued that an anthropocentric bias—which results in a tendency to anthropomorphise—is inevitable: the possibility of ascribing sentience to other organisms would necessarily depend on our capacity to detect similarities between human beings and organisms who belong to other species (Proctor 2012). I do not think that this interpretation is accurate. We should rather speak of an individualistic bias: it is from my own experiences of pain or suffering that I am able to ascribe similar capacities to others, where the concept of ‘others’ includes other human beings. Accordingly, someone who is not capable of experiencing either pain or suffering would not be able to identify pain or suffering in others. The idea that there is such a thing as an anthropocentric bias merely results from the belief that there is a strong consensus that all human beings experience pain and suffering in similar ways. If we bear in mind that absence of evidence is not tantamount to evidence of absence, we must remain open to the possibility that organisms who are radically different from us may have capacities to experience pain and suffering that are hard or even impossible for us to understand much about. Crucially, any evidence that might be presented one way or the other will always be constrained by our individualistic bias, ‘a single point of view’, which prevents us from feeling what it is like to be another (Nagel 1979, 167).

Accordingly, the view that is held by Varner (2012, 123) and by J. Smith and Boyd (1991, 63) that earthworms do not respond to damaging stimuli in ways analogous to how human beings normally respond need not be taken to indicate that earthworms lack sentience. The fact that they behave differently should hardly be surprising. These organisms are so different from us that it may be hard for us to imagine what might constitute a response from them that would indicate pain sensitivity. This lack of understanding is compounded by the fact that invertebrates in general have received relatively little scientific attention and constitute a more difficult study group because of their biological differences (Proctor 2012). However, anyone who has ever tried to pull an earthworm out of the ground may think that they resist, and anyone who has ever injured an earthworm may also think that their movements can be—to use the words that Naess (1995, 15) once used when he saw the death struggle of a flea through a microscope—‘dreadfully expressive’. One person who studied worms more than just about anyone else is Darwin (1881, 98), who thought of them as possessing ‘some degree of intelligence’ whilst also recognising the widespread bias against this possibility: ‘This will strike every one as very improbable; but it may be doubted whether we know enough about the nervous system of the

lower animals to justify our natural distrust of such a conclusion.' A similar bias surrounds the question whether earthworms might be sentient.

To return to the class of crustaceans, research found that not only mussels but many other crustaceans release hormones when they are exposed to situations that might be stressful (Elwood et al. 2009). Not only have *Chasmagnathus* crabs been shown to be able to learn to avoid electric shocks (Fernandez-Duque et al. 1992), but shore crabs (*Carcinus maenas*) have also been observed to vary their avoidance behaviour depending on whether several aversive stimuli are present, showing that their avoidance behaviour is not an uncontrollable reflex that might have indicated no more than unconscious nociception (Elwood et al. 2009). Also, crayfish (*Procambarus clarkii*) can learn to move to a safe spot by associating the turning on of a light with a shock that is given 10 seconds later (Kawai et al. 2004), and glass prawns (*Palaemon elegans*) have been observed to groom and to rub one of their antennae against the flank of a tank after noxious stimuli had been applied to the antenna in question (Barr et al. 2008). Several species of crustaceans have also been shown to respond in ways similar to how vertebrates respond when they are given analgesics (Elwood et al. 2009). The grooming and rubbing observed in glass prawns, for example, stopped when the animals in question had been treated with benzocaine, a local anaesthetic in humans (Barr et al. 2008).

Regan (1983, 30) has expressed the view that he is inclined to think that a snail cannot feel pain, but this is doubtful too. In an experiment with snails (*Helix* sp.) carried out by Balaban and Maksimova (1993), snails had to displace the end of a rod in order to receive electrical stimulation. Compared to a control group, snails who received stimulation to the parietal ganglion decreased the frequency with which they touched the rod, whilst snails who received stimulation to the mesocerebrum—which is known to fulfil a role in sexual activity—increased the frequency with which they did so. Sherwin (2001, 111S) provides a thought-provoking comment on this research: 'if this experiment had been conducted with a vertebrate species, we would almost certainly ascribe these responses as being due to the animal experiencing sensations of pain or discomfort when self-stimulating the parietal ganglion, and pleasure when self-stimulating the mesocerebrum.' In arthropods, some spiders (*Argiope aurantia*) have been observed to autotomise (to cast off from their bodies) a leg when ambush bugs (*Phymata fasciata*) sting the leg in question in an attempt to escape from being caught by the spiders, while autotomy was avoided when the leg was merely being grasped (Eisner and Camazine 1983). These spiders also cast off legs when they are injected with various venomous substances, some of which are known to cause pain in humans. These findings suggest that autotomy may be triggered by pain rather than by an unconscious reflex triggered by nociception, with the effect of saving life in the presence of a noxious stimulus. Several examples of other invertebrates who have shown similar behaviour are provided by Elwood et al. (2009).

The possibility that some invertebrates might be sentient is also supported by recent research that explored whether honeybees might, like human beings, develop negative cognitive biases when they experience negative feelings, where negative cognitive biases, also known as the 'glass-half-empty syndrome', are expectations of negative outcomes (Bateson et al. 2011). Bateson et al. (2011, 1070) explored whether honeybees show negative cognitive bias 'when they are subjected to an anxiety-like state induced by vigorous shaking designed to simulate a predatory attack'. They found that shaken bees had a greater propensity for interpreting later ambiguous stimuli 'as predicting punishment' and that honeybees are therefore likely to be able to experience emotions (Bateson et al. 2011, 1070). After bees were conditioned to extend their mouthparts (probosces) in the presence of a positive odour and to withhold their mouthparts in the presence of a more negative odour, it was found that shaken bees showed similar behaviour to the control group in the presence of the more positive odour, but that they showed a greater propensity to withhold their mouthparts from the less positive odour and from a selection of odours that were similar to the less positive odour that they had been exposed to before being shaken. The experimental group and the control group therefore differed in their perceptions of either the impact or the probability of what is referred to as 'being punished': the former were more likely to interpret ambiguous stimuli as threats. Bateson et al. (2011) also found that shaking reduces the presence of particular hormones (dopamine, octopamine, and serotonin) that might affect the olfactory memories of the bees, resulting in the observed cognitive bias.

But why stop at honeybees? Animals who may appear to be much simpler than honeybees may also be sentient. Even unicellular eukaryotic organisms, such as *Physarum polycephalum*, have been observed to exhibit remarkable behaviour, including: solving mazes and geometrical puzzles; controlling robots; and adjusting their behaviour in response to their anticipation of unfavourable conditions (such as cold temperature and humidity) that they had already been exposed to at regular intervals in the past (Pershin et al. 2009; Saigusa et al. 2008). If no nervous system is required for these actions, the capacity of sentience may not require what is commonly understood to be a necessary prerequisite for its existence.

Even plants are described as 'sensitive organisms' in a recent review of research into 'plant neurobiology', a discipline which the authors claim has had a 'difficult start' because of the existence of a 'deeply-rooted, almost "dogmatic", view of plants as passive creatures not in a need of any neuronal processes and capabilities' (Baluška and Mancuso 2009, 61), a view that the authors trace back to Aristotle, but that they think might have been partially overcome by Darwin and Darwin (1880, 573), who thought that plants have sensitive zones at the tips of their radicles that act like the brains of animals (Baluška et al. 2009). Accordingly, Darwin and Darwin (1880, 199–200) compared the behaviour of plant roots with the behaviour of moles who carefully feel around to detect where the ground is most fit for burrowing. Baluška and Mancuso (2009) also argue that

the neurosciences associate complex neural systems primarily with animals who move, but that recent research on animals who are sessile, for example on corals such as the purple sea urchin (*Strongylocentrotus purpuratus*), or on animals who move slowly, for example *Trichoplax adhaerens*, a marine animal that is only about 1 mm long, has revealed their 'surprising neuronal complexity', in spite of their great similarity to plants (Baluška and Mancuso 2009, 61; with references to Pennisi 2008 and to Materna and Cameron 2008). Perhaps the most interesting thing about plants in relation to the topic of whether they might be sentient is that some have been observed to rapidly increase their production of ethylene when they are exposed to stressful situations (Baluška and Mancuso 2009, 62). Until recently, ethylene was used as an analgesic in human medicine. Could it be that some plants increase their endogenous production of ethylene when they are in pain? It has been argued that 'plants lack central nervous systems, nociceptors ... and other morphological features associated with the capacity for sentience' (Steiner 2013, 221), but I think it is a mistake to interpret the absence of traits that we confidently associate with sentience as evidence of the absence of sentience.

And why stop at plants? Even bacteria can communicate with other bacteria by means of quorum sensing, a chemical way to communicate that leads to coordinated behaviour; they can also anticipate events that are about to occur in their environments (Waters and Bassler 2005; Shapiro 2007). Could it be that they vary their behaviour to avoid painful experiences? Nagel (1979, 168) may have been right sociologically that 'if one travels too far down the phylogenetic tree, people gradually shed their faith that there is experience', but this should hardly be surprising in a culture that is dominated by dualistic and reductionist-materialistic ontologies, where both ontologies share the view that there are things that are wholly devoid of subjective experience, but where only the former allows for some exceptions. Where the latter is unable to account for mental phenomena, the former faces the problem of how they could emerge in a world that would supposedly once have been totally devoid of them. Elsewhere, I expressed my support for the theory that all simple and what Hartshorne (1972) called 'compound' individuals (as opposed to aggregates such as stones) possess mental or experiential capacities, but that the degrees to which they have such capacities may vary with entities' relative material complexities (Deckers 2011d).

The most elaborate defence of this Whiteheadian ontology against the rival ontologies of reductionist materialism and of dualism is by Griffin (1998), who coined the label of '*panexperientialism*' to describe it. Whereas my position differs from Griffin's as I consider the universe as a whole to be an aggregate rather than a compound individual (God) and as I consider plants to be compound individuals (rather than aggregates of cells), I think that my position might also be called '*pan-sentientism*'. Whilst Dombrowski (1988) has made a distinction between individuals whom he considers to be 'proto-sentient' and others whom he considers to be sentient, I do not think that we can infer the existence

of an experiential capacity in any individual unless we think of that individual as possessing the capacity to experience things either positively or negatively. Whitehead (1978, 211–212) did not think that a neutral experience was possible, speculating instead that reality was the stuff of emotions or feelings. In this light, sentience can be understood as a capacity, held by all individuals, to distinguish between what is positive (or pleasurable) and what is negative (or painful), which can then be used to make emotional decisions on how to act that either may or may not be mediated by thoughts about one's emotions.

This Whiteheadian ontology clashes with the views of most ethicists, who adopt the view that sentience features only in a select number of biological organisms. For organisms that have an interest in staying alive, it seems plausible to hold the view that the evolutionary function of pain may lie in warning the organism so that it can avoid that which may undermine its health or result in death. When it comes to thinking what the function of pain might be for, for example, a water molecule, it is much more difficult to envisage any purpose. However, it might perhaps be said that a similar function operates here: could it be that a water molecule uses its feelings to try to maintain its structure? Whereas I provide an affirmative answer to this question, it must also be emphasised that Whiteheadians do not adopt the view that the feelings of entities at different levels of reality have the same intensities. In order for a complex individual such as a human being to exist as a unity, the billions of feelings that constitute the individual must be integrated, which is thought to generate a greater depth of experience than the level of experience that might feature in, for example, a single cell or a water molecule. In this ontology, the concept of nociception still refers to an unconscious perception of damage, but only to refer to the individual as a whole being unaware of this damage; at a more localised level, for example in the leg of someone with a severed spine, the conscious feeling of pain after injury still exists.

I shall now address the relevance of these considerations for the question whether all sentient organisms should be granted a right to be free from the human infliction of pain or suffering. If we accept that human beings should be allowed to consume other organisms, it might be argued that it will be problematic to grant other organisms such a right on the basis of the view that it would justifiably be violated as a matter of routine practice. If we accept that we must eat living beings and that all organisms may be able to experience pain, it may not be possible to feed ourselves without inflicting pain or suffering. However, the fact that we may inflict pain and suffering through eating does not imply that we should refrain from granting all sentient organisms a *prima facie* right to be spared from the human infliction of pain. As mentioned in the introduction, the words '*prima facie*' are important: in the absence of other morally relevant considerations, it would seem to be highly appropriate to give other organisms such a right, given that sentient organisms generally seek to avoid painful experiences. Indeed, it would seem to be odd to hold the view that we ought to be concerned about inflicting pain on other human

beings, but not about inflicting it on our more distant relatives. Accordingly, it makes sense to say that someone who steps deliberately on an earthworm, for example in an attempt to release their frustration, violates unjustifiably the earthworm's right to be spared from pain. Similarly, it is meaningful to say that someone who tramples on a plant for a similar reason wrongs the plant in question. As a general rule, we should, all other moral considerations being equal, inflict as little pain and suffering on other organisms as possible when we make dietary choices. Where we fail to do so, we act immorally as we fail to minimise negative GHIs.

When it comes to deciding which organisms we should use to feed ourselves, it is appropriate to allow ourselves to be guided by evidence about the differences in the capacities of different organisms to experience pain and suffering, without losing sight of the fact that what it means to be another individual will always be a matter of speculation. Consequently, moral agents are not accountable for any errors that they may make in assessing differences in organisms' capacities to feel pain and to suffer, provided that they have not been negligent in their attempts to assess such differences. Any differences that might plausibly be held to exist in the psychological complexities or in what Birch and Cobb (1984) term the capacities for 'richness of experience' of different organisms would seem to be relevant, as it would, *ceteris paribus*, be more problematic to consume organisms who might endure more pain or suffering than others in the process of being turned into food.

This is illustrated by the following example. If we are correct to assume that a lettuce does not feel much pain by being confined in its growing space, but that a pig may undergo much more pain and suffering by being confined—which may prompt her, for example, to start biting bars out of frustration when she is kept in gestation or farrowing crates—we are right to be more concerned about confining pigs. Accordingly, I would argue that a pig's interest in not being confined to a small space ordinarily outweighs any human interest in confining a pig, but that any interest in not being confined that a lettuce may possess does not trump the human interest in confining the lettuce. The desire to confine a lettuce, for example, could be motivated by the desire to reduce weeds, which would seem to be an appropriate desire to act on. The desire to minimise the human infliction of pain and suffering on other animals is precisely what motivated Singer (1975; 1990) to write his *Animal Liberation*, which shows limited support for the project of 'ceasing to rear and kill animals for food', even if the goal of 'stopping the suffering' and the infliction of pain on animals cannot be reached (Singer 1990, vii, xii).

It is time to take stock. Many ethicists have argued that it is more problematic to use (particular) animals than to use plants for food, arguing that this is merely related to only the former being sentient. This picture has been questioned. Nonetheless, I have endorsed the view—adopted by many animal ethicists—that sentience matters and that, *ceteris paribus*, we ought to make dietary choices that minimise pain and suffering. An animal ethic that rests

only on Singer (1990, 228)'s main concern, namely the 'wrongness of inflicting suffering' and pain, however, is unsatisfactory.

2.7 Is the minimisation of pain and suffering all that matters?

The *prima facie* duty to minimise inflicting pain and suffering does not *ipso facto* provide grounds for an obligation to abstain from eating animals. Many animals die naturally or accidentally, for example; in a moral theory that focuses only on the avoidance of inflicting pain and suffering, these would be legitimate candidates for consumption. Even the consumption of animals who are killed deliberately would be allowed, provided that they are killed painlessly. This issue was brought up for discussion by Singer at the second Minding Animals conference, which took place at Utrecht University in the Netherlands in July 2012. Specifically, Singer questioned whether it would be wrong to kill a cow by going up to her in the field and shooting her in the head with a well-aimed shot, an example of a general issue which has presented a 'real difficulty' (Singer 1990, 228) for him for quite a long time.

Whereas I have questioned, in the preceding section, whether it is ever possible to kill painlessly, there is nevertheless sufficient evidence, for example from surgical operations on anaesthetised people, to suggest that people can be anaesthetised to such an extent that it may be possible to kill while inflicting hardly any or no pain at all on the individual as a whole. This is why I adopt the view that it is possible to kill individuals painlessly, even if the cells, molecules, atoms, and sub-atomic particles that compose an individual may continue to experience pain after death.

If the painless killing of an individual is possible, a theory that values only the minimisation of pain and suffering could not object to the painless killing of a cow. Indeed, a theory that valued only this goal would find it difficult to object to the killing of a human being if death could occur painlessly. Such a theory clashes with our moral intuition that it would, in many situations, be very wrong to kill a human being. The reason why killing may be wrong, therefore, cannot lie simply in the fact that killing might cause pain or suffering.

In attempting to solve this problem, many philosophers have argued that a distinction should be drawn between those organisms who merely seek to avoid pain and suffering and those who also value a continued life. For Singer (2006, 6), an organism who is able to value a continued life would be able to have 'a clear conception of the ... (possible) future', in the sense of being able to form clear 'hopes and plans' of what the future may hold in store for them. Accordingly, the painless killing of many human beings would be problematic in view of the fact that many human beings value continued life. Though Singer (1990, 20) does not answer the question of which 'capacities are relevant to the question of taking life', he proceeds by stating that 'the life of a self-aware being, capable of abstract thought, of planning for the future, of complex acts

of communication, and so on, is more valuable than the life of a being without these capacities.' Elsewhere, he comments on the moral relevance of this difference: 'Since neither a newborn human infant nor a fish is a person, the wrongness of killing such beings is not as great as the wrongness of killing a person' (Singer 1995, 220).

In a similar vein, Varner (2012, 219) has argued that special significance should be given to those human beings who possess a biographical sense of self, a sense that would not be possessed by any other animals. Yet, unlike Singer, who merely distinguishes between animals who are persons and animals who are not, Varner (2012, 219) claims that special significance should also be given to what he calls 'near-persons': animals who possess the capacities to 'remember pleasant and unpleasant events', as well as to form 'more complicated, longer-term desires than merely sentient animals are capable of'. Accordingly, he uses scientific evidence to claim that great apes, cetaceans, elephants, and corvids (ravens, crows, jays, magpies, and nutcrackers) should be included within the category of near-persons, and he proceeds by stating that 'contemporary societies' are not justified in killing near-persons for food (Varner 2012, 249).

But while persons and near-persons should not normally be killed for food, it would be acceptable, according to these theories, to kill the vast majority of animals—the 'merely sentient'—in many situations, provided that this could be done without inflicting pain or suffering on them. A scholar who is very clear in this regard is Scruton (2000, 126, 141–142), who argues that cows and bulls can justifiably be killed as a matter of routine farming practice, 'provided they are killed humanely', in light of his view that 'to be killed at one year is not intrinsically more tragic than to be killed at two or three ... for that they must be killed is evident, this being the reason why they live'. Whereas Scruton (2000, 142) would probably exempt human infants from this moral imperative on the basis of the putative 'affections' of others and the positive value of allowing them to achieve things in their lives—a subject that he does not deal with clearly—Singer (2006, 6) has claimed that, provided that 'parents agree that it is better that their child should die ... perhaps it is *not* wrong to take the life of a severely brain-damaged human infant' [emphasis in original]. However, it is unclear why he picks this particular example, given that he writes elsewhere that 'we value the protection given by a right to life only when we want to go on living', where personhood, a category from which he excludes all infants, rather than just those who are severely disabled, is held to be a necessary condition for the existence of this want (Singer 1995, 218–219).

Whereas I am at one with Singer that there may be situations where continued life is a curse and death a blessing, I do not adopt the view that human beings who lack a biographical sense of self and 'merely sentient' animals should not be granted *prima facie* rights to life. In reflecting on these issues, Cochrane (2012, 65) has argued that 'ordinarily [vertebrate] animals have an interest in continued life' because it would give them opportunities for 'well-being' or

'pleasant experiences.' The ability to value continued life is here distinguished from the ability to value other things, for which being alive is a prerequisite. Even if many animals may not be able to value continued life in the sense that they would be able to pursue 'self-chosen life goals,' which may presuppose the ability to attribute negative value to one's death, Cochrane (2012, 66) appears to argue that a vertebrate animal's interest in continued life relates to their ability to value many things that keep them alive, such as water and food. We might thus be able to derive the fact that such animals have an interest in the continuation of their lives from the fact that they act in ways that serve the preservation of their lives. Even if many animals may not be able to develop ideas about the projects that they wish to pursue in the future, the mere fact that they strive to avoid things that could jeopardise their existence in the future would be sufficient to recognise that they have an interest in continued life.

In this regard, Cochrane's view about killing animals appears to be similar to Regan's, even if the latter is much less clear on the issue. In his early work, Regan (1983, 243) claims that we should ascribe a right to life to those animals who are what he calls 'subjects-of-a-life,' where 'individuals are subjects-of-a-life if they have beliefs and desires; perception, memory, and a sense of the future, including their own future; an emotional life together with feelings of pleasure and pain; preference- and welfare-interests; the ability to initiate action in pursuit of their desires and goals; a psychophysical identity over time; and an individual welfare in the sense that their experiential life fares well or ill for them.' Such subjects would include 'normal mammalian animals, aged one or more' (Regan 1983, 78, 247). However, it is unclear why these animals would stand out from others. An animal who is capable of having 'a sense of ... their own future' would seem to possess the ability to imagine themselves to exist in the future, a necessary condition for an animal to have the capacity to value a continued life. Evidence is lacking to suggest that this capacity, which may depend on the ability to have thoughts about thoughts, is possessed by most mammals (Carruthers 1992; Bermúdez 2003).

What is even more questionable is that, in a later edition of *The Case for Animal Rights*, Regan (2004, xvi, xl) widens the category of animals whom he considers to be 'subjects-of-a-life,' writing that birds are also included, and that fish 'may be' as well, but that 'plants and insects' are excluded. In this respect, Cochrane's account is similar, as he draws a distinctive line between vertebrates and invertebrates. Though Regan does not—at least to my knowledge—question his 'subject-of-a-life' criterion and definition explicitly anywhere, in his later work he first appears to shift his focus to 'nongognitive criteria ... such as sentience' (Regan 1997, 110), and then appears to identify those who are not and those who are subjects-of-a-life with, respectively, those who are 'in the world but not aware of it' and those who are both in the world and aware of it (Regan 2004, xvi). Regan appears to broaden his category of animals who are subjects-of-a-life here and, like Cochrane, adopt the view that animals need not be able to value a continued life in order to possess an interest in continued life.

Though I accept the view that animals may possess a *prima facie* right to life in spite of the possibility that they may not be able to attribute value to a continued life, the claim that this right is grounded in the fact that animals take an interest in things that keep them alive has devastating consequences for the theories defended by both Regan and Cochrane, as well as for the theories espoused by many other ethicists. The reason for this is that evolution has selected for all living beings possessing an interest in seeking out things that serve the continuation of either their own or some of their species' members' lives and in avoiding things that might undermine life. Regan (2004, xvi) claims that 'amoebae ... are in the world but not aware of it' and Cochrane (2012, 24) claims that 'we can be reasonably sure that creatures such as amoebas and oysters lack the capacity for consciousness', but I reject these claims. Consequently, any theory that distinguishes between the painless killing of (some) animals who are not able to ruminate on their future lives and the painless killing of plants based on the assumption that these animals, unlike plants, have interests in continued life adopts a moral distinction on the basis of what I take to be a false assumption. If the possession of interests in things that serve the continuation of their own or their species' members' lives is sufficient for it to be meaningful to say that an animal has an interest in continued life, it is impossible to distinguish between the painless killing of animals who are unable to value continued life and the painless killing of plants. If the making of such a distinction makes any sense, the reason for it must lie elsewhere.

2.8 Is the killing of anaesthetised animals for food acceptable? Weaknesses of existing theories

Cochrane (2012, 65)'s answer to the question whether animals whom he considers to be sentient should ordinarily be allowed to be killed for food is negative, as he finds that it would deprive them of 'pleasant experiences', where it would not be too demanding of us to allow these experiences to occur. Someone who is inspired by his account but accepts that invertebrates and plants also possess interests in pleasant experiences would be faced with a tricky dilemma: should any moral distinction be made between killing anaesthetised animals and killing anaesthetised plants for food?

Whereas Cochrane (2012, 205) does not deal with this particular question as he dismisses that plants may be sentient, there is no doubt that a Cochranean interest-based theory would resolve the issue by weighing up the different interests 'in not being made to suffer and in continued life' of 'moral patients'—which I define in this book as any others who might be affected by the actions of human moral agents—and choose the action that would inflict the least harm on them, where harmful actions are defined as those that harm the above interests the most. This approach is associated with some problems.

One issue is the problem whether to prioritise the interest in not being made to feel pain or suffer or the interest in continued life. If the former deserves priority, it does not necessarily imply that plants would lose out, given that we lack knowledge about how they might be anaesthetised. If the latter deserves priority, we must address the epistemological problem of how we might be able to know which organisms have greater capacities to enjoy pleasant experiences compared to others. As mentioned before, relatively little research has been done on the mental capacities of invertebrates and plants. Even if more research had been done, the questions would remain of how we might be able to infer from our external observations what might take place inside the bodies of other organisms and how we might rank the values of different experiences (Nagel 1979). Whereas I am prepared to assume that animals are normally capable of having richer experiences, this assumption does not answer the question why we should value the lives of those who may be able to enjoy richer experiences over those who may only be capable of enjoying less intense experiences. Whilst I am also willing to adopt the view that we should grant more weight to the former, my main concern with Cochrane's approach is that he ignores some relevant, important interests that human moral agents may have, but more importantly ought to have, which should complement his focus on weighing up the competing interests of moral patients. My unease is illustrated by the consistent way in which Cochrane ought to deal with the question of what to do with the bodies of animals who either are killed justifiably or die naturally, as well as with the inconsistent way in which he deals with the question whether the act of killing animals for food might, in some situations, be preferable to its alternatives.

In relation to the first question, Cochrane (2012, 132) appears to agree with my view that it is acceptable to kill some animals for their own good in some situations. For example, if a nonhuman animal has been hit by a car and experiences severe pain and suffering associated with irreparable damage to her body, both Cochrane and I agree that euthanising the animal in question would be justifiable. Incidentally, this is in line with the recently implemented European Union Directive 2010/63/EU on the protection of animals used for scientific purposes, which accepts that it may be appropriate to kill other animals who are 'likely to remain in moderate or severe pain, suffering, distress or lasting harm' (Council Directive 2010/63/EU, art. 17, par. 2). I am not satisfied, however, with what Cochrane should conclude in relation to the question of what to do with animals who are killed mercifully (to save them from agonising deaths where imminent death is inevitable through injury or disease), which—incidentally—should also apply for animals who die accidentally or naturally. If animals could be euthanised without the use of drugs that may be harmful to human beings, or if it were (made) safe to eat animals who had been killed mercifully or those who had died naturally, this theory would oblige us to eat them to avoid harming the interests of others either intentionally or accidentally, given that Cochrane (2012, 88–89, 206) cannot see anything wrong

with eating the corpses of nonhuman animals *per se*. I shall reject this theory in section 2.10.

If Cochrane had been consistent, he should also have granted that diets that avoid the deliberate killing of animals in order to procure their body parts for human consumption are not necessarily better than other diets. However, Cochrane (2012, 101) claims that they are, at least where the killing concerns animals whom he considers to be sentient, as diets that refrain from killing such animals in order to use their bodies for food would result in ‘the fewest animal deaths overall’. Steven Davis (2003; 2008) has mounted a powerful objection to this claim, arguing that some vegan diets inflict much more harm on moral patients than other diets. This is so because numerous animals are killed by agricultural practices that are used in arable farming—for example ploughing. Several authors have engaged with Steven Davis’s challenge (see e.g. Matheny 2003; Lamey 2007). The most recent challenge comes from Cochrane himself (2012, 98–102), who argues that Davis does not get his numbers right. If Davis had calculated the number of deaths per consumer (rather than assumed that an equal amount of land would feed the same number of human beings, regardless of which diet they adopted), Cochrane argues that he would have come to the conclusion that diets that refrain from killing the farmed animals that he is concerned with cause fewer animal deaths.

This last claim is extremely implausible. Cochrane and Davis base their estimates on the assumption that crop cultivation kills about twice as many animals as ruminant grazing. Cochrane admits that the accuracy of these figures is compromised by a lack of research data on how different farming practices affect other organisms but, if invertebrates were included in this calculation, I estimate that the real figures would reveal a much greater difference, this time in favour of grassland, with the number of animals killed there much lesser. In the South of England, for example, it has been recorded that managed pasture contains about 354 earthworms per square metre (D. Knight et al. 1992), and it has also been estimated that ploughing may halve this number (Darlington 2010, 275). Cochrane might retort that this is not a problem for his theory, given its lack of interest in invertebrates, but Schedler (2005) has reported rightly that arable farming kills many vertebrates too, for example voles and mice.

The questionable nature of Cochrane’s conclusion becomes even clearer when we take note of the fact that his calculations simply take for granted that the current practice of feeding large quantities of feed from arable crops to farmed animals constitutes a necessary practice of diets that include products taken from grazing animals. Though it is correct to assume that, in reality, many diets that rely on the consumption of animal products use more arable land than vegan diets as the farmed animals in question are fed large quantities of feed—a concern that I mentioned in the previous chapter—it is very unlikely that vegan diets necessarily result in fewer animal deaths. A large amount of land is unsuitable for arable cropping. If farmed animals graze on this land and if they

are allowed to eat nothing other than grass, particularly when they are kept in low densities and when browsing animals are kept (rather than animals who graze closer to the roots of plants), it is highly likely that an omnivore who uses some of these animals for food will be responsible for fewer animal deaths than someone who adopts a vegan diet. In light of his preference to choose the diet that causes 'the fewest animal deaths overall', Cochrane (2012, 101) is therefore not justified in claiming 'that livestock animals have a right not to be killed by us in agriculture, but that field animals do not', where 'field animals' are understood to be the wild and feral animals whom Cochrane considers to be sentient. The necessity to adopt a diet that includes the consumption of sentient animals would be even greater if Cochrane (2012, 205) had not ignored his other main concern in this context: 'animals' interests in not being made to suffer'. Indeed, the balance would shift even further in favour of some omnivorous diets if we consider the fact that the killing of animals who are used for food occurs relatively quickly, in sharp contrast to the killing of many animals who die by the cultivation of arable land, who do not benefit from quick deaths as they are cut into pieces by agricultural machinery.

The fact that omnivores may, in some situations, inflict less pain, suffering, and death upon animals than vegans is also a problem for the theories espoused by many other scholars in animal ethics, for example Francione (2010a). Though I agree with Francione (2010a, 72) that 'the fact that animals are accidentally ... killed in the cultivation of crops is different morally from intentionally killing individual animals', it must nevertheless be pointed out that there are situations where the foreseeable but accidental killing of animals is worse than their being killed deliberately. Francione (2010a, 72) draws an analogy between the accidental killing of animals in arable farming and the accidental killing of human beings in road accidents, where the practices that result in these deaths are nonetheless acceptable. Though the analogy works in showing that there is a moral difference between accidental and deliberate killing, as well as that some activities that may result in accidental killing, for example driving a bus, should not necessarily be banned, it ignores an important distinction between the two scenarios: some carnists might argue that road casualties should be tolerated because of the high value that many people attribute to some forms of modern transport, but that the extra deaths that are caused by some vegan diets do not serve any purpose, for example where vegans refuse either to consume animals who were killed intentionally out of compassion—to relieve the animals' suffering—or to eat those who die naturally or accidentally. In such situations, the vegans in question could avoid the extra deaths that their diets inflict on any animals who are killed accidentally but foreseeably through arable farming. They might add, contrary to Francione's suggestion, that many animals who are killed in arable farming are killed intentionally, for example through the use of pesticides, and that even vegan-organic (or veganic) farming systems that do not rely on chemical pesticides might need to resort to intentional killing in some situations, as I shall document in sections 3.5.2 and 3.5.3.

2.9 Recognising that speciesist and animalist interests are morally relevant

Like interests should be treated alike, regardless of which species the individual with interests happens to belong to. In this respect I do not disagree with the positions developed by many animal ethics scholars (e.g. Singer 1975; Cochrane 2012). What I do take issue with, however, is the view that any interest that a human moral agent may have to attribute special moral significance to those moral patients who happen to be or to have been human beings, regardless of whether they possess particular capacities, should be dismissed as irrelevant. We might call this interest a '*speciesist*' interest: an interest to attribute special moral significance to human beings merely on the basis of the fact that they either belong or, in case they had died, once belonged to our species. Whereas it would be more accurate to refer to this as a human speciesist interest, given that the term '*speciesism*' could be used to refer to a tendency to privilege any species, human or otherwise, I shall in this book simply speak of a speciesist interest whilst assuming that the interest privileges a human interest. If speciesism, conceived of in this way, is a fundamental, morally relevant human interest, which is required to maintain good human health, I believe that good human health also demands that we recognise that we have interests in attributing moral significance that is less than the moral significance of human beings, but nevertheless greater than that of other nonhuman organisms, to: other animals, whether they be dead or alive, because they are biologically more closely related to our species than other (non-animal) organisms are; and those animals who are biologically closer to us than other animals are. I shall refer to the former interest as an 'animalist' interest and to the latter interest as an 'evolutionist' interest.

The reason why these interests should be morally relevant is informed by my reflection upon three considerations. Firstly, as all biological organisms are related to each other, there is no boundary between species in the sense that they would be distinct kinds. Though in organisms that reproduce sexually a species could be defined—if we accept what is known as the 'biological species concept'—as a group of organisms who are able to breed with each other (Lewens 2012), so that members of one species are separated from members of another by the fact that they are not able to interbreed, accepting this definition does not imply that there is no biological continuity between species. The Darwinian view, which I support, is that all species have descended from a common ancestor (Darwin 1859). All living organisms are our kin. Secondly, though we are all related, we are more closely related to other animals than to plants. Animals are closer kin than plants. Thirdly, human beings have been endowed with the ability to recognise, using phenotypic information, that there are various degrees of proximity in how different organisms are related to them, similarly to how other animals—even if their capacities may be more limited—recognise animals who are and who are not closely related. Recently, some genotypic knowledge has also been gained, which may correct phenotypic

understandings. Even then, we may not always be right in our judgements, but people who are sceptical of this capacity to differentiate closer kin from further kin biologically might be persuaded that we possess it if they ponder whether we are more closely related to chimpanzees than to mussels. Some animals are closer kin than others. In my view, these biological facts matter morally, which is why my account differs from that developed by Diamond (1978, 474): whereas I agree with her that the notion of an animal as a ‘fellow creature’—which she claims to be relevant for animal ethics—‘is not a biological concept’, biological facts are nevertheless relevant to determine how much of a fellow any other is, bearing in mind that what ought to count as a ‘biological fact’ will always be determined by normative assumptions.

Before explaining why I believe that the biological perception that there are varying degrees to which other organisms are related to the human species matters in relation to the question of how we should make dietary choices, I would like to argue for the moral relevance of a speciesist interest. Cochrane (2013, 671) imagines a situation where the right to life of a human being would clash with that of a rat, arguing that—all other interests being equal—the right of the human being in question would win out given that ‘the human interest in continued life is ordinarily much stronger than that of rats’. The problem with this claim is that the devil is in the detail. Whilst this interest may ‘ordinarily’ be stronger, it may not apply to those human beings who are largely dependent on others for their lives to continue, such as severely disabled or demented people. In such situations, Cochrane would be obliged to prioritise the life of the healthy rat, given that healthy rats are able to experience things that are beyond the sorts of things that can be enjoyed by a severely disabled human being. Even if, for the sake of the argument, we adopt the unlikely view that there might not be much of a qualitative difference between their experiences, Cochrane would at least be obliged to toss a coin to resolve the conflict.

Those who adopt a relational approach to ethics might aver that it would still be possible to prioritise the human being in question on the basis of their relationship with other human beings, but the problem with this is that the rat in question might be a companion animal, in which case an approach that points at the moral relevance of relationships only might again settle the matter by means of a coin toss, which is precisely what May (2014) has argued. Whereas I do not adopt the view that contingent relationships—any relationships that are based on a subjectively felt closeness to the entity that one relates to—are irrelevant to morality, the relational approach clashes with the views of many scholars, including myself, who would adopt a moral duty to prioritise the lives of human beings, however badly disabled they may be, at least as long as it cannot be deemed to be in their own interests for their lives to be ended, in which case our care should still be directed primarily towards them (Crary 2011; Deckers 2005a; Diamond 1991).

It is also impossible to make sense of why many people feel that they have particular duties towards human beings who have died without adopting the

view that we ought to have a speciesist interest. Cochrane (2012, 88) tries to deal with this issue when he ponders the acceptability or otherwise of human cannibalism. In his view, the thought that one might consume dead human beings or be consumed by human beings after one's own death is unpleasant. This is why he adopts the view that people ought not to eat the corpses of other human beings. The problem with this is that he cannot accommodate this conclusion within his own theory, which appears to demand merely that we ensure 'that our use of animals does not cause them to suffer or be killed' (Cochrane 2012, 206). As Cochrane himself recognises, those who are dead do not have any interests, and therefore are not in any way disadvantaged by being consumed.

In this light, one would expect Cochrane to approve of their consumption, given that doing so would safeguard the interests of any others who might be consumed otherwise. A fairly rational human being who accepts Cochrane's theory might admit that they have emotional concerns with the thought of being eaten by or of eating someone else, but they would be expected to reject these ethically irrelevant perceptions to safeguard the morally important interests of those who might be eaten instead, which they can be expected to find even more upsetting to ignore. If we should not ignore these interests in other situations, it is unclear why a mere dislike of cannibalism should be sufficient to override these interests. Cochrane (2012, 88) tries to resolve the problem by arguing that what is required to spare the consumption of those who have died is 'a significant set of individuals who are happier in the knowledge' that particular organisms are spared from being eaten. It is unclear why the question whether one is a legitimate candidate for consumption or not should be settled by the arbitrary matter of whether it happens to make some group happy. The logical outcome of this view would be that we should also honour the view of an imaginary group of people with a great love for particular plants who may argue that they would be really upset by the thought of their being eaten.

If we adopt the view that human moral agents ought to have a speciesist interest, on the other hand, and that this interest ought to outweigh the interests of other organisms, which we may decide to consume instead of a human corpse, a coherent justification is offered why we should not normally engage in human cannibalism. The gustatory or nutritional benefits that we might derive from eating a dead human body should normally not stand in the way of our greater, morally significant interest in showing proper recognition to other human beings by not eating them. Some people may well have an interest in eating other human beings or in being eaten by them, but any such interests should normally be overridden by our speciesist interest. Giving adequate consideration to the special moral significance of human beings demands that we refrain from consuming dead human beings.

One objection to speciesism is that adopting it or—perhaps more accurately—recognising its existence would imply that we should also adopt racism, given that we are more closely related to people from our own race than to people from a different race. I am not convinced by this objection. I know

that a moral agent from a different race would object to me giving less moral significance to them, and I also know that I would object to being granted less moral significance by them. In spite of our biological distance, which should not be overstated, it would therefore seem wise if we both agreed to grant each other (as well as members of both races who may not possess moral agency, but are nevertheless held dearly by the imaginary parties) equal moral significance, at least if it is agreed that no party should be allowed to occupy the moral high ground. A world in which I experience discrimination on racial grounds and discriminate against others on racial grounds would seem to be worse than a world in which there is no such discrimination. Our interest in human equality therefore trumps any interest that we may have to attribute marginally more moral significance to someone who belongs to one's own race.

When it comes to the question of what a nonhuman animal might think about being granted less moral significance than a human animal is, by contrast, we have no answer. The fact that nonhuman animals have no concept of what it means to be granted less moral significance would seem to be relevant here. I might wrong a nonhuman animal by not giving them their due, but the resentment that such an animal may feel towards me for being wronged is of a different—in a morally relevant way—order to the resentment that a human moral agent from a different race might feel. The perception that another human being is one of us, in spite of our differences—racial or otherwise—seems unquestionable, as well as its moral relevance. I am therefore unpersuaded by the charge that speciesism would be as questionable as racism (see also e.g. Brennan 2003).

2.10 Animalism's distinctive answers in relation to the morality of killing and consuming animals

In a similar way to how tending to our speciesist interest stands in the way of killing human beings and consuming dead human beings other than in exceptional circumstances, animalism sheds new light on the questions whether the killing of anaesthetised animals for food is acceptable and whether it is acceptable to refrain from consuming animals who die naturally or accidentally.

I have argued that we should not normally (i.e. in situations where human beings can consume other things without great difficulties) kill human beings or use their corpses for food, even in situations where refraining from doing so may result in the killing of other animals and in their associated loss of pleasurable experiences, for example those associated with the loss of animals killed accidentally in arable farming. In an animalist perspective, in similar circumstances other animals should not be killed for food either, and neither should animals who die naturally or accidentally be consumed. Their consumption should normally be taboo, a word that Milner (2011, 105) documents to have been introduced into European languages by the explorer Captain Cook and

his successor, Captain King, who described how the concept was used in Polynesia—for example to refer to tabooed women who were forbidden to touch the flesh of animals after they had touched human corpses, as well as on some other occasions.

Research has revealed that the consumption of some animal products has been tabooed in many cultures and that taboos on the consumption of animals are far more common than any other consumption taboos (Fessler and Navarrete 2003). Many people accept taboos in relation to the consumption of some animal products. The kosher and halal practices of, respectively, many Jews and Muslims are well-known, yet one need not be religious to adopt a taboo in this domain. Think for example of some people who would not wish to eat certain body parts, for example an animal's eyes, in spite of their nutritional benefits, or of people who have companion animals and who refrain from eating their animals after the latter's natural or accidental deaths. Many people who object to the thought of eating their companion animals when the latter are, for example, rabbits nonetheless eat their companion animals' species members, so the question remains why a taboo should be accepted, and, if it is, where to draw the line.

In earlier work I argued for a taboo on the basis of the possibility that consuming the bodies of animals might whet people's appetite for turning living animals into corpses (Deckers 2009). This position also appears to be endorsed by Gruen (2011, 102–103). According to this line of reasoning, the displeasure that ought to be associated with killing animals may be weakened by the pleasure derived from eating animals. Whereas the latter would not be problematic *per se*, it would be problematic if those who eat animals were more likely to support the killing of animals for food. Whilst many people who consume animal products did not kill the animals from whom their products derive and the idea of doing so may never cross their minds—indeed they might even abhor the thought of doing so—one's gustatory pleasure at eating animals might still motivate one to be more supportive of practices that kill animals unjustifiably.

The problem with this (slippery slope) mode of reasoning is that the sheer fact that a practice that is in itself good might motivate one to be more supportive of a similar practice that is bad may not be sufficient to justify a ban on the former. By using a plane for a justifiable cause, I might develop an appetite for the morally questionable practice of travelling by plane for pointless reasons, but the fact that I may do so does not seem sufficient to justify a ban on the former practice. However, the difference between this example and the problem discussed in this section is that banning the justifiable use of plane travel would seem to undermine a very important interest, whereas it might be argued that the same cannot be said about banning the consumption of animals where doing so does not rely on a violation of their interests—as any interest in eating them could, at least in many situations, also be fulfilled by eating plants. Some might argue that the relative absence of important interests that might be harmed in the latter case and the fact that human beings may be prone to

slippery slope reasoning, particularly when they are influenced by their gustatory pleasures, must be taken into consideration in the development of a moral theory—perhaps a more general ban could be justified on this basis?

I am no longer persuaded by this mode of reasoning. As I have mentioned already, refraining from consuming animals in situations where doing so does not violate their interests does not imply that no morally significant interests are sacrificed. Any choices that we make to eat other foods also harm, both intentionally and accidentally, the interests of many nonhuman organisms. In many situations, this harm includes harm to animals, even if they are not actually eaten. This is a real problem for the theories in animal ethics that I have encountered so far: if—once any nutritional, zoonotic, and human resource concerns have been given adequate consideration—a human moral agent's main concern should be to safeguard the interests of any moral patients who may be affected by their food choices, it would be their duty to consume animals where doing so minimises harm on any moral patients who might be affected. If a general taboo on the consumption of animals can be justified, its justification must therefore lie elsewhere.

It might be objected that a mere interest in healthy food is sufficient to ground such a taboo given that foods derived from animals may be more likely to affect physiological human health negatively than plant foods because of the fact that many pathogens thrive in the tissues of both nonhuman and human animals, particularly shortly after death (Fessler and Navarrete 2003). Whereas this might account for the fact that we have good reason to avoid unsafe animal products, it does not explain why a taboo should be adopted where safety concerns can be minimised. Rather, I do not think that the moral relevance of the perception of various degrees of commonality between different animals and human beings can be ignored. If this perception is not neutral, but morally laden, our psychological health may be undermined if we consume animals, perhaps because our emotions should stand in the way of objectifying those whom we should have related to as subjects before they died.

Those who struggle to accept either the existence or the moral nature and claimed relevance of this emotion might wish to consider whether a fairly general taboo on the consumption of animal products ought to be adopted in light of the question whether they would consume their companion animals after they had died. Whereas some people who refrain from consuming their companion animals and their companion animals' species members might claim that there is something special about the nature of the species of the animals in question that sets them apart from other animals, my view is that a necessary condition for this claim to be satisfactory is that it fits with our evolutionist interest. In other words, for this claim to be valid, these people ought not to consume animals who are more closely related to us either. Whilst recognising the significance of this interest implies that some species—i.e. those who are more closely related to us than others—are better candidates for a taboo than others, it does not imply that there are no grounds for a general taboo.

If people have an interest in the consumption of animals—an interest that appears to have been selected for in the evolution of our species—it would seem strange for taboos to emerge and to be maintained unless there is also something that human moral agents across the world find objectionable about eating animals. Anthropological research reveals that many cultures adopt taboos on the consumption of particular animals, for example of animals kept for companionship, in spite of the fact that they may kill their species members for food. Whereas this does not rule out that the development of one's gustatory pleasure might make one more likely to approve of killing animals for food, it shows at least that it does not prevent the adoption of a taboo. Indigenous populations of the Caribbean and of lowland South America, for example, reserve a taboo only for those individuals within particular species who are kept as '*iegue*'—a Carib term that can denote both an adopted child and a tamed animal, the latter of which meaning is thought to have influenced the meaning of the word 'pet' when it was first defined in an English dictionary in the early 18th century (Norton 2015).

Some might argue that what is doing the moral work here is the 'pet bond'. Whereas I do not wish to question the view of those who claim that eating one's pet poses a greater moral problem than eating a member of one's pet's species, a theory that is based on animalism generalises the feeling of moral revulsion that one ought to have towards eating one's pet to a moral interest in the avoidance of consuming all animals. It supports the view that speciesists might adopt, namely that it is normally inappropriate to consume the bodies of dead human beings because of the conflict of such a consumption with honouring our interest in a 'species bond', but it expands this principle to a concern with consuming the bodies of all animals based on an 'animal bond'. Our evolutionist interest explains why it might be particularly troublesome not to adopt such a taboo when it concerns the consumption of animals who are relatively close to us in evolutionary terms.

To the extent that 'perceived intelligence' acts as a proxy for the perception of relative evolutionary similarity, empirical research supports the view that people experience more disgust when they contemplate eating animals who are more similar to them than other animals (Ruby and Heine 2012, 49). In addition, sociological evidence supports the view that greater empathy for companion animals is causally related to greater feelings of discomfort not only with eating them, but also with eating animals who are farmed for food and who are, presumably, empathised with as well based on the perception that they bear an evolutionary similarity to one's companion animals and to oneself (Rothgerber and Mican 2014). Indeed, it is perhaps only through having developed some empathy with some animals, who need not necessarily be pets, that we can develop the kind of empathy that is required to embrace the idea of 'universal benevolence' that Mancilla (2009, 15) recognises in the work of Adam Smith (1982, 235), who writes that 'we cannot form the idea of any ... sensible being, whose happiness we should not desire, or to whose misery, when distinctly

brought home to the imagination, we should not have some degree of aversion'. Similarly, Scruton (2000, 36) writes: 'Two of our sympathetic feelings are of great moral importance: pity towards those who suffer and pleasure in another's joy'. What I have argued here is that this empathy can survive the animal's death and that we ought to foster such a culture of empathy to protect and promote holistic human health.

In spite of the fact that we have capacities to empathise with all sentient beings, I have argued that we are bound to empathise more with some than with others. Some might accept that our capacities to empathise with plants are more limited, but nevertheless argue that we should extend our evolutionist interest further. Accordingly, they might argue that plants that have died naturally ought not to be eaten by us either, and *a fortiori* that they should not be killed for food in situations where we can consume other things. To avoid killing plants, we could consume parts of plants without killing them, or use only fruits and berries to feed ourselves, being careful not to damage seeds in the process. As only a small percentage of many plants would be used whilst others (for example plants of which only the roots are edible) would not be used at all, adopting this proposal would lead to: a much greater demand for agricultural land, aggravating its associated problems; a significant increase in demand for agricultural labour, with the potential to jeopardise other important human endeavours; and, finally, more restrictive diets and greater food insecurity that may undermine human health. In light of these considerations, I consider that plants are sufficiently remote from us in evolutionary distance to justify the view that their consumption by us is the lesser evil. In addition, the view that living plants have more limited capacities to experience harm than living animals seems plausible, as well as morally relevant.

It might be objected that human beings also have health interests in eating animals, and that their interests in eating the body parts of pigs, for example, would be thwarted unjustifiably if they had to refrain from doing so. I disagree with this perspective in situations where human beings can safeguard human health without eating animals. Compared with the human interest in relating appropriately to pigs and with pigs' interests in, for example, wallowing in the mud, which they cannot fulfil by being killed, the putative human desire to eat pigs' body parts seems to pale into insignificance, at least in situations where human beings can eat nutritious foods that are not derived from the bodies of animals or products from animals who are more distantly related without increasing negative GHIs. Accordingly, for all people who take animalism seriously, the human interest in relating appropriately to pigs and the pigs' interests in doing things that keep them alive should be sufficiently weighty to impose a strong *prima facie* obligation to refrain from eating pigs, where the former interest alone should be sufficiently weighty to impose a strong *prima facie* obligation to refrain from eating pigs who have died naturally or accidentally.

To make the central claim defended in this section more concrete and show how it differs from the claim made by those who argue against the implications

of animalism, let us imagine a group of vegans on their way to their allotments, where they have planned to harvest some fruit and vegetables in order to have a garden party. One vegan individual drives the car and accidentally runs into a deer who is crossing the road; the individual laments the fact that the deer has been killed by the collision, as well as the error of not seeing the deer in time to avoid the animal. Rather than risk harming further sentient animals in their garden in the process of harvesting, scholars such as Singer (1975), Regan (1983), Varner (2012), and Cochrane (2012) should argue—if they are consistent with their own theories—that the group ought to eat the deer instead, at least if we assume that it would not make the group more likely to support killing animals for food and that it would not increase nutritional or food safety concerns relative to the alternatives. Admittedly, to enjoy a balanced meal the group might need to supplement the flesh from the deer with some fruits and vegetables, but this does not detract from the point.

This is precisely what our imaginary car driver suggests. Remembering the days when eating the bodies of animals was a habit, the driver decides not to waste an opportunity and tells everyone: ‘Vegan party is off, barbecue is on.’ Anyone who thinks that there is something odd, something surreal, about this fellow may understand that qualified moral veganism cannot be based on the desire to minimise the infliction of pain, suffering, and death upon other animals. Rather, it is motivated by the feeling, rooted in animalism, that we should not eat animals. A theory that takes our animalist interest seriously adopts the view that we have a moral duty to avoid eating the deer, at least in the vast majority of situations. Giving proper recognition to the deer demands that the deer’s body be not regarded as a consumable object by human beings, even after the deer has died, at least in situations where people are able to feed themselves adequately by other means without increasing negative GHIs.

2.11 Human health, the genetic engineering of animals, and animals’ interests in living independently

A human moral agent undermines their health not only by rejecting speciesism and animalism, but also by ignoring or downplaying our interest in protecting the integrity of nature. A major threat to this interest is the genetic engineering of animals, which has been carried out for various purposes, including the provision of human food. In thinking of the scenarios of ‘decerebrated’ animals envisaged by Rollin (1995, 193) and the ‘living egg machines’ imagined by Comstock (2000, 152), Varner (2012, 276–278) has welcomed the conventional breeding and the genetic engineering of animals that aim to make them insentient. One scenario that he finds particularly attractive is no longer in the realm of science fiction, but concerns a strain that was created by the selective breeding of chickens who suffered from a natural mutation that caused them to be blind; this strain was found to be useful to overcome the problems posed by

feather-pecking, comb-pecking, and cannibalism amongst confined chickens, as the blind chickens did not engage in these behaviours (Ali and Cheng 1985). Whereas I am not aware that any farmers have started using blind chickens since their creation over 30 years ago, in light of a positive assessment of these blind chickens' welfare (Sandøe et al. 1999, 321–322), which has been thought to be better than the welfare of other strains within the systems that dominate the farmed animals' sector, Varner (2012, 277–278) would welcome the replacement of sighted chickens with blind strains, although he recognises that the existence of a 'yuck factor' might imply that 'consumer preferences cannot be changed by the waving of a philosophical wand'.

I am less pessimistic about philosophers' abilities to change people's preferences. The problem might actually lie in the kind of wand that the philosopher waves, rather than in the possibility that others may resist change. What is being approved of here appears to be analogous to an employer who gives his employees pills so that they are better able to cope with the miserable conditions that they are working in, for example by forgetting about them. It might be objected that the right way to address these miserable conditions is not to give pills to one's employees, but to improve their working conditions. Some might say that giving pills to one's employees under these circumstances would violate human dignity. Though the concept of human dignity is difficult to define, its meaning could be clarified—in true Wittgensteinian fashion—from how the concept is used. Diamond (1978, 475) invokes the concept in discussing the moral issues related to animals performing circus tricks, which she calls an 'indignity'. Whereas I am unsure about the precise meaning of the term for Diamond, I would relate this concept back to my fundamental interest in health, conceived holistically. Unless there is no other way to improve one's employees' health, it might be unhealthy for an employer to provide these pills, even if they might improve the employees' welfare. Whereas it is hard to imagine how they could, as employees may feel that swallowing such pills would be degrading, it is nevertheless possible to imagine that they might, for example if employees lacked awareness of swallowing them because the employer gave them covertly, for instance by adding them to the employees' drinks. The employer should tend not only to the welfare of others, however, but also to his own welfare, which might not be compatible with the pill-giving practice: merely entertaining the thought of addressing the problem in this way may indicate that one has the wrong attitude towards one's employees.

Similarly, if the sighted strains of chickens engage in fighting and cannibalism, it would seem to be appropriate to question whether the conditions under which these animals are kept could be altered so that chickens may be able to display more normal behaviours. As fewer chickens engage in fighting and cannibalism when they are kept in slightly better conditions, for example when they are allowed to live outdoors for some of the time, another solution than the breeding of blind chickens ought to be preferred to the problems caused by chicken aggression.

Some might object that this is an ideal-world solution that fails to consider the real world in which we live, where farmers may be forced by the competitive market to keep chickens in conditions that are far from ideal. Consequently, these farmers might favour out of economic necessity the technological solution proffered by the creation of blind chickens. Barring exceptional circumstances, for example where the farmer's own survival would depend on adopting this solution, I am not persuaded by this line of thinking. One might argue that farmers should explore and adopt better alternatives to the problem posed by the human infliction of pain and suffering upon chickens.

The problem remains, however, that, given that many farmers and consumers are currently unwilling to refrain from using chickens for food, focusing merely on the ideal scenario fails to do something right now about the conditions in which many animals are kept. Consequently, it might be argued that a dual strategy should be adopted where one part of the strategy advocates the adoption of vegan diets where appropriate, whilst another part advocates the genetic engineering or the selective breeding of farmed animals as a temporary measure, in the hope that the latter part of the strategy will at least reduce animal welfare concerns in the short term. To add force to this objection, one might even consider that the welfare of blind chickens or of any genetically engineered or selectively bred animals might be better than the welfare of, respectively, sighted chickens and non-selectively bred animals, even if the last two groups were kept in the best possible conditions. This also shows why the project of what Thompson (2008) refers to as the 'disenhancement' of animals, where the concept of 'disenhancement' suggests that animals gain something (for example reduced exposure to violent behaviour) whilst losing something else (for example sight), presents a significant moral challenge.

One way to tackle this objection is to deny the empirical claim on which it rests by arguing that whenever animals are bred to lose some function their welfare actually deteriorates as well, regardless of whether there may be improvements in specific areas of their lives. In this vein, Sandøe et al. (2014, 735) have recently questioned Ali and Cheng (1985)'s contentions in light of new research into the welfare of blind chickens, concluding that 'blind laying-hens do, after all, have poor welfare compared with similar sighted birds'. The authors proceed to state, however, that this does not yield a principled objection against animal 'disenhancement' as there may be cases where such projects do increase the welfare of other animals overall. Whereas the authors may be right in this regard, it is important to recognise that this issue must not be considered in light of the question of what may or may not increase different entities' purely subjective experiences of welfare, but in light of a normative account of what ought to be deemed to be constitutive of good welfare for all affected parties, regardless of any differences in subjective perceptions.

In this light, the authors point out rightly, albeit cautiously, that the welfare of nonhuman animals might be improved by these projects, but they conclude wrongly that 'arguments that disenhancement is "disrespectful of telos" do not

seem to stand up to critical scrutiny' (Sandøe et al. 2014, 740). More specifically, this conclusion is wrong because, when we consider the question whether to alter the *telos* or nature of an animal, we must consider not only how the genetic engineering or the selective breeding of animals might affect the health of the nonhuman animals concerned, but also how it might affect human health.

Regardless of any differences in subjective assessments of our health or welfare, I claim that human health *is* undermined by the selective breeding of blind chickens and, more generally and *a fortiori*, by the genetic engineering of animals. Whereas I do not adopt a 'nature knows best' philosophy, I nevertheless adopt the view that we must adopt a *prima facie* duty to safeguard the integrity of nature in order to protect good human health. Looking after our own health interest demands that we cultivate the right attitude towards nature. When I use the word 'nature' in connection with the concept of the 'integrity of nature', the word refers in the first place to everything that is not affected by conscious human design (rather than to the extended sense of 'nature' which encompasses everything, including human beings). A paradigm case of the 'natural' in this sense is a dinosaur, whose existence was not in any way influenced by human beings, given that we were not around at the time that the dinosaurs existed. However, now that we do exist, few natural things exist that have not been affected by human beings. Still, even a wild animal who lives today is more natural than a farmed animal. Classifying things in terms of whether they are natural is therefore not a simple 'yes' or 'no' matter, but a matter of degree. To explore how natural or unnatural something is, it is therefore important to question not only whether human beings affected it, but also how they did so.

In the Whiteheadian ontology that I adopt, all natural individuals have autonomous teleological (or goal-directed) centres that drive their development. In this light, a computer is not a natural individual. Even if its programme works to accomplish particular goals, these goals have been designed not by the computer itself, but by an external designer. Whereas a computer is composed of billions of natural individuals, such as molecules, atoms, and sub-atomic particles, that do possess autonomous teleological centres, the ways in which these individuals function may not be changed much by their being assembled into a computer. Or, to provide another example, when driftwood is used to develop a sculpture, the teleological centres of the molecules inside the wood are also unlikely to be altered much by the human design: they do what they do regardless of the shape that is imposed upon the wood.

This differs from the processes that used artificial selection to bring about modern breeds of cows and bulls. It is unimaginable to think, for example, that nature might have selected for the creation of cows with very high metabolic demands that facilitate the production of milk at the rates that modern dairy cows produce it, or to think that it would have selected, as for example in the case of the Belgian Blue breed, for the creation of cows who are so muscular (through selection for a 'double-muscling' trait) that they can hardly or no longer give birth naturally. The integrity of nature has been undermined

by these projects as the internal teleologies of these cows have undergone significant changes compared to the internal teleologies of their distant ancestors, so that they are now programmed to do very different things. These cows have been designed by the external teleologies of human beings who aimed at increasing the production of milk and flesh, in similar ways in which the natural creation of blindness in some chickens might be selected for by chicken breeders. In some situations, this external design has been so successful in modifying the internal teleologies of the cows who are used to produce dairy products and flesh that their survival depends on human beings, rather than on their internal teleologies. The Holstein-Friesian cows who dominate the dairy industry, for example, rely on the human provision of high protein concentrates to satisfy their high metabolic demands, whereas the Belgian Blue cows rely on caesarean section to reproduce.

The genetic engineering of animals differs from these conventional selective breeding methods in that the animals' teleological centres are altered from the inside, rather than from the outside. To produce change, conventional selective breeding methods rely on indirectly manipulating the internal capacities of organisms or gametes (by selecting males and females for sexual reproduction, which introduces change through the creation of offspring with given traits) whereas genetic engineering frequently alters the internal capacities of organisms or gametes directly. I write 'frequently' as there are exceptions. Some genetic engineering techniques used on bacteria, for example, rely on the internal capacities of bacteria to alter themselves through a process that is known as horizontal or lateral gene transfer, a process whereby bacteria spontaneously adopt genetic material from their surroundings. Some genetic engineering techniques exploit this intrinsic capacity, for example by heating bacteria, which triggers the desired adoption behaviour. The genetic engineering of multi-cellular animals, by contrast, does not rely on coaxing the natural capacity of an organism to incorporate foreign DNA.

Even if the changes that occur either through conventional breeding or through genetic engineering might favour the welfare of the animals thus created, I question whether they are desirable in light of my claim that we should adopt a *prima facie* duty to safeguard nature's integrity to protect human health or welfare. In a world that is manipulated to a great extent by human design, which has conferred significant benefits to humans, I believe that we must also give some moral weight to the autonomous, internal capacities of all individuals to direct their own developments. Consequently, any proposal to modify other organisms, particularly if the method involves genetic engineering technologies that force genetic changes on organisms that—whilst they may be able to respond well to those changes—lack the natural capacities to bring about those changes themselves, must provide a positive answer to the question why forcing external (or 'unnatural') changes on these organisms would outweigh my *prima facie* concern. I am not arguing that nature always promotes the health of organisms better than human beings may be able to do, but that giving due

consideration to our own health demands that we ascribe some positive value to maintaining the autonomous capacities of all biological organisms.

In this light, the human creation of blind strains of chickens, for example, is not a positive thing. The dual strategy objection, however, remains. If the (unlikely) assumption is made that blind chickens do actually fare better within some current farming systems and that we are unable to move away from these systems by campaigning for the adoption of vegan diets, it might be argued that approving of the creation of blind chickens may be the lesser evil, even if it is granted that doing so undermines human health by allowing human beings to be relatively unrestrained in controlling nature. Advocates may concede that care must be taken to avoid the possibility that alleviating some animal welfare issues in this and similar ways might undermine broader human health and animal welfare objectives. The underlying concern could be articulated as a worry that people might habituate to these new methods and, consequently, become less likely to adopt vegan diets because of the fact that they have accepted the objectification of animals, which might be more readily accepted because of the associated improvements in the welfare of other animals. Whilst acknowledging this concern, advocates might argue that it nevertheless would be insufficiently strong to justify a prohibition.

The rationale underlying this way of reasoning might be illustrated by returning to the analogy mentioned above. Imagine an employer with many employees who are treated badly and a moralist who talks to the employer about improving conditions on the factory floor. The employer does not want to listen to the moral argument and the employees cannot escape from the fact that they are treated badly. The moralist might either continue to argue with the employer or invest their energy in supporting a change in the law on drugs so that the employees could be provided with new pills that they could take so that they would become less aware of their predicaments, and consequently suffer less. I would argue that the moralist should be allowed to support the latter option, provided that they maintain their primary focus on their long-term goal and that there are very good grounds to believe that supporting the latter option does not undermine this long-term goal.

I am not persuaded, however, that this case provides a good analogy to support projects that undermine the integrity of animals in radical ways. A better analogy for these projects is the sale of human kidneys. Some who support a dual strategy might point out that we should also allow the sale of human kidneys as long as human poverty continues to exist. Given that there are poor people in spite of efforts to eradicate poverty, the argument might be made that we should allow poor people to sell one of their kidneys, provided that we have reasonable grounds to believe that the greater good of reducing their poverty in this way outweighs any health concerns for those who might decide to sell a kidney and that it will not undermine the goal of reducing poverty overall. Should we deny them this option by prohibiting the sale, even if doing so may impose greater health risks upon them than permitting the sale of kidneys?

I believe that we should, as the negative GHI associated with allowing people to compromise their bodily integrity in exchange for money outweighs the negative GHI associated with denying some people this opportunity to escape from poverty.

Whereas the 'disenhancement' of animals is dissimilar from the sale of kidneys in that the lure of a financial incentive is irrelevant to the former *per se*, what the suggested solutions to the dilemmas posed by these two scenarios have in common is that it is not necessarily wrong to allow pain and suffering even where something could be done about it as safeguarding the integrity of nature, of which safeguarding the integrity of the human body is one particular instantiation, ought to be the overriding interest. Incidentally, this does not imply that we should also prohibit people from donating kidneys voluntarily; allowing this voluntary practice does not remove the morally relevant fact that kidney donation relies on altering the natural functioning of a human body, but the risk of coercing someone else into using their body for this purpose through the offer of money is more problematic than the negative value associated with appropriating part of one's own body, where I believe that only the latter can be justified as a voluntary contribution to the greater good.

None of the above implies that anyone who makes the dual strategy objection fails to make a valid point, which is why I believe that minor compromises on the value of maintaining the integrity of nature are justifiable if they reduce the human infliction of pain, suffering, and death upon farmed animals. If it was found that a particular strain of chickens coped much better with current farming conditions than another strain where the reason for this did not stem from the removal of a basic physiological trait such as the capacity to see, for example, greater human intervention in the breeding of chickens (through artificial selection for the desirable trait, for instance) might be justified in order to replace the latter by the former. Great care must be taken, however, that any support that is given to this strategy does not undermine the objective of promoting vegan diets.

Attributing sufficient value to the integrity of nature demands not only that we question the breeding of animals through artificial selection and genetic engineering, but also that, where appropriate, we allow animals to live independently. In relation to the possible interest that some nonhuman animals may have in living independently, my position is different from that of Cochrane (2012, 13), who denies that most nonhuman animals have such an interest, for example where he argues that dogs 'are not rational autonomous agents with an interest in leading their own freely chosen lives,' and that they therefore should not be provided with a 'fundamental right to be free'. If freeing dogs or any other animals caused them more harm, Cochrane (2009) also suggests that their liberation may not be appropriate. I disagree with this view for two reasons.

Firstly, a nonhuman animal's right to freedom need not necessarily hinge on the question whether the animal in question has the capacity—which Cochrane

rightly appears to consider necessary for the dog to be a rational agent—to compare reflectively the options of a free life with that of a life under human domestication or, more generally—in Cochrane (2009, 660)’s words—to ‘frame, revise and pursue their own conception of the good’. Though I share Cochrane’s assumption that dogs (as well as most other animals) are not rational agents, and accept that some breeds of dogs seek out the company of human beings in some situations and that many would struggle or even be unable to live independently from human beings, the dingo provides a good example of a domesticated animal who turned to a feral existence upon being introduced into Australia (Savolainen et al. 2004). The dingo may well have a serious interest in living independently from human beings that might be undermined by a domesticated life. Given the right environmental context, for example the presence of sufficient prey animals, some other breeds of dogs may well have a serious interest in living independently too. Whilst this need not imply that we should always grant them a right to be free—given that feral dogs might attack human beings, for example—those animals who may thrive better whilst living independently must at least be given a *prima facie* right to be free. The same applies to animals who are being farmed. For this reason, I am puzzled that the release of domesticated animals does not appear to be considered by Francione (2010b, 36), even if I agree that it would not be a good idea to release ‘domesticated nonhumans to run wild in the street’. Even if there might be good reasons why human beings should not allow animals who used to be farmed to roam wherever they like (as feral pigs might, for example, destroy arable crops), nonhuman animals need not be rational agents in order to be granted *prima facie* rights to roam freely.

Secondly, the question whether to release an animal from human domestication need not depend on the animal being better off by being liberated from human interference. Whereas the nonhuman animal’s welfare is relevant, any decision to liberate an animal should ultimately be decided by whether it is best for us to relinquish our control over a particular animal. Where animals have at least some interest in living independently, it may be appropriate for us to liberate them as our health interest demands that we value nature’s integrity, which in turn may demand that we relinquish some of the great control that we exercise over our fellow earth inhabitants.

2.12 Human health and in-vitro flesh

The virtue of maintaining a focus on one’s holistic health can be undermined in many ways. Mark Packer (1996, 58) considers that, one day, flesh for human consumption may be grown from cultured human somatic cells, extracted painlessly from consenting humans, and comments that ‘consumers might be willing to pay more in order to enjoy the naughty thrill of cannibalism without any pangs of conscience’ as ‘nobody would suffer any pain, and no one would

be killed'. The consumption of in-vitro flesh that has been developed from a tiny skin cell previously removed from the body of just one consenting human being might well be healthy in a narrow sense that it could provide people with adequate nourishment, but if health is understood more holistically, the development of such flesh is not normally healthy, neither for those who consume it nor for those who might develop it. Human body parts are not the sorts of things that people should normally perceive to be good candidates for human consumption. Apart from the fact that human cells do not grow naturally outside human bodies, the value that is relevant here, additionally to this interest in 'naturalness', is our speciesist interest.

This raises the question whether we should be equally concerned about the creation of synthetic flesh from nonhuman animals. Laestadius (2015) has reported that discussions over in-vitro flesh started at least from 2000 when a NASA-funded project cultured goldfish cells into tissue with the aim to explore its potential as a possible food source for astronauts—even if the actual tissue was not consumed. The first time that in-vitro flesh was actually consumed was in 2003, when cells were taken from frogs and grown outside their bodies to be consumed in an art installation called 'Disembodied Cuisine', which was part of the *L'Art Biotech* exhibition in Nantes, France (Catts and Zurr 2013).

The controversy over lab-grown flesh has grown significantly, however, since August 2013, when a team from Maastricht University created the first lab-grown burger, which was consumed publicly in a media event held in London (Post 2012; Jha 2013). The burger was created by extracting satellite cells (skeletal muscle-specific stem cells) from a cow through a needle biopsy. The cells were then cultured on a scaffold in a lab. Whereas the development of the burger in question relied on the use of foetal bovine serum as a growth medium, efforts are being made to steer away from using animal products as a growth medium, and Post (2014, 30) has expressed the view that this seems 'attainable' in light of the fact that many other cells can already be cultured in media that do not include any animal products, for example in those containing amino acids obtained through bacterial fermentation.

If we assume that these efforts will pay off so that the technology would rely only on the usage of animals to extract the cells from which the flesh is cultivated, the question must be asked whether this technology should be embraced. Arguably, such cells might be able to be obtained from animals without inflicting any pain on them as it might even be possible to obtain them immediately after the animal has died. Whilst the cells in question, as well as their descendants, would—in accordance with a Whiteheadian ontology—still be sentient, it seems plausible to assume that the sentience of these cells would pose much less of a question in terms of whether pain or suffering should be allowed to be inflicted on them than using a whole animal for human consumption would.

Whilst proponents of this technology may concede that the technology may not eliminate pain, they might argue that the production of food in this way, particularly when it is done in a carefully controlled laboratory environment,

may inflict less pain and death upon sentient life than other modes of producing food. Some vegans might even warm to the prospect of eating lab-grown flesh as their decision to refrain from consuming flesh need no longer rest on a choice between killing animals or killing plants for food. Rather, the choice would now be between killing the latter or killing animal cells, where the question of which might impose more harm on moral patients may be much less certain. Even if answering this question also depended on the processes involved with the development, use, and transportation of any growth media that were used, the view that consuming animal cells might be associated with a reduction of the pain, suffering, and death that is imposed on moral patients seems plausible.

Whereas many concerns that have been expressed over in-vitro flesh might be allayed by these considerations, an animalist perspective also considers this topic by starting from my speciesist unease with the consumption of human flesh. Both Cochrane (2012, 116) and Varner (2012, 276–277) argue that the concerns of those who object to the development and the consumption of in-vitro flesh from nonhuman animals should not really be taken seriously as they would be based on nothing more than aesthetic feelings or matters of taste, rather than on considerations related to ‘well-being’, but neither rule out the possibility that the health of those human moral agents who consider this technology to be—in the words used by Rollin (1995, 193)—‘aesthetically abhorrent’, as well as the health of others (who might be affected negatively without being conscious of it), might be undermined by the realisation of the in-vitro flesh project. As for lab-grown human flesh, I believe that the production and the consumption of in-vitro flesh derived from other animals presents a holistic health care problem.

I have argued already that holistic health may be jeopardised by projects that undermine the integrity of nature. Even if my concern with safeguarding the integrity of nature is less pronounced with in-vitro flesh than with the genetic engineering of animals, it is not allayed altogether. Research has already found that many invoke the concept of the ‘unnatural’ when they comment on this former technology (Laestadius and Caldwell 2015). I think that people are right to invoke this concept in this context: cultured flesh is more unnatural than conventional methods to produce flesh as stem cells do not grow into flesh outside living bodies without human intervention. However, the technology is likely to be more natural than genetically engineered flesh, depending on the extent to which the attempt to merely coax or trick these cells into doing what they might have done had they still been inside living organisms is successful. Whereas the teleological centres of the cells that are extracted from the animals who are used in the process may not be altered as much as the teleological centres of any animals who are engineered through anthropogenic genetic alterations, it is not because the latter present a greater concern in relation to safeguarding nature’s integrity that the former should be acceptable.

However, as I argued in relation to the creation of blind chickens, the concern that I have with the ideology, which is perpetuated by in-vitro flesh, that

conceives of animals' body parts in terms of flesh that can justifiably be eaten by human beings in many situations and the concern that I have with the jeopardising of nature's integrity are only two concerns that I have in relation to the consumption of animal products. If, in order to avoid malnutrition, I had to choose between consuming lab-grown flesh, developed in the fashion envisaged here, or consuming flesh taken from animals who had been killed for food, I would choose to consume the former on the basis of the fact that, in the circumstances described, only the former would avoid the killing of animals for food. Accordingly, I would support the development and use of in-vitro flesh if it could be argued convincingly that a serious concern, such as human malnutrition, could be minimised by its development without increasing overall negative GHIs compared to other options that might be available.

More realistically, it might be argued by those who support the dual strategy outlined in the previous section that there is a moral imperative to develop in-vitro flesh given that there is no sign that large numbers of people are willing to switch to vegan diets and that, in most if not all jurisdictions, legitimate procedures to prevent people from consuming animal products are lacking. As the human use of cells poses fewer moral concerns than the human use of whole animals since mere parts rather than whole individuals are manipulated, and as the processes involved with the development of in-vitro flesh appear to be more natural than those involved with the genetic engineering of animals as these cells appear to be merely coaxed to do what they naturally do in a different environment, I agree. I am cautious, however, as our resources could also be used to support other projects that reduce the human infliction of pain, suffering, and death upon other animals, where careful consideration must be given to which option maximises positive GHIs and to how any short-term gains should be balanced with the aim to maximise positive GHIs in the long term.

However, the environmentally responsible production of in-vitro flesh ought to be welcomed at least for one other reason, which has nothing to do with the human consumption of animal flesh, but has to do with the consumption of animal flesh by companion cats. If we assume that it is not justified to euthanise these cats—an assumption that I cautiously support—and that they cannot be weaned off either partially or wholly from human domestication without unacceptably large welfare concerns, it will be necessary for human beings to continue feeding them. If cats cannot thrive without consuming animal flesh—a subject that is not without controversy (see e.g. Gray et al. 2004)—and if they cannot be fed from animals who die naturally or accidentally or from those who are killed justifiably, the production of in-vitro flesh would seem to be preferable to the alternative of killing animals in order to feed them. My stance on this, however, is also one of caution. Whilst the promotion of research into the adequacy or otherwise of vegan cat diets must be encouraged, other options—discussed by Milburn (forthcoming)—may be preferable at the present time, including the feeding of eggs from rescued hens, the feeding of flesh that would otherwise be disposed of and that is obtained without giving out any

financial or other compensation, or the feeding of flesh obtained through skip diving. As these products would become very scarce if large numbers of people converted to vegan diets, however, the development of in-vitro flesh in order to feed cats would seem to be a positive development.

2.13 The duty to adopt qualified moral veganism

In my opinion, the ethical concerns that I have described in this and the preceding chapters can only be given the consideration that they deserve by the adoption of qualified moral veganism. My commitment to veganism is qualified as my theory does not demand that human beings abstain from eating animal products in all situations. It is a moral, rather than a dietary, position that can be adopted by everyone, even by those who ought not to adopt vegan diets for justifiable personal, social, or ecological reasons: in a similar way to how even those who might justifiably resort to consuming human bodies in emergency situations may agree with the view that it would not be appropriate to do so in more ideal situations, my claim is that even those who might justifiably eat animal products in some situations ought nevertheless to refrain from doing so (with the exception of consuming human milk and—in very specific circumstances—honey) in more ideal situations. It is a vegan theory in the sense that vegan diets ought to be the default diets for the majority of the human population. Recall that I defined a vegan diet as a diet that does not include animal products, apart from human milk and honey.

In the first chapter I argued that many people's diets fail to minimise negative GHIs. This conclusion has been bolstered in this chapter as I have argued that, in many situations, omnivorous and vegetarian diets increase negative GHIs by neglecting our duties towards the nonhuman world. Though we must give moral consideration to how our actions affect both animals and plants, I argued that animals, and particularly those who are most closely related to human beings, should be granted greater moral significance. In this light, I recognised that some vegan diets can, in some situations, impose greater negative GHIs upon other animals than other diets. However, I also argued that, in many situations, this does not undermine the validity of a vegan diet as some diets that impose relatively greater negative GHIs upon other animals may produce fewer negative GHIs overall due to their smaller negative GHIs upon moral agents' interests in holistic health. The duty that many people have to adopt a vegan diet does not stem merely from our *prima facie* duty to avoid actions that inflict pain, suffering, and death upon animals, but also from the *prima facie* positive GHI of accepting a taboo on the consumption of animals, regardless of whether the animals in question have been killed for food. This is also why I questioned research that aims to create animals with reduced sentience and research into synthetic flesh.

I emphasise that I do not argue for a universal duty to adopt veganism. *Contra* Francione (2010a, 74; 2010b, 36), veganism is not a 'nonnegotiable moral

baseline'. Imagine a population living on a remote island with very poor soil conditions. If it were impossible for the people in question to obtain sufficient quantities of fruits and vegetables without tilling the soil, they could either feed themselves by digging over a lot of land, killing lots of animals in the process, or they could dig over a much smaller area and use some of the mussels who happened to live on the shore. I would argue that adopting the latter diet should at least be permissible as—even though the duty not to eat the mussels may be stronger than the duty to avoid killing any of the organisms that they might kill by tilling and using the arable land—the fact that more organisms with comparable degrees of moral significance would be harmed if they refrained from eating mussels ought to be one of the deciding factors. It is also my belief that no human being should be obliged to toil relentlessly to feed themselves, as we have a wide range of other interests that are very important and that we would not be able to satisfy if we had to 'dig deep' to provide food for ourselves. Taken together, these two considerations seem sufficient to justify the consumption of mussels in this situation. Similar considerations could also be invoked to justify the killing and the consumption of fish, even if soil conditions would need to be less favourable to override the greater moral significance that we ought to grant to fish than that we ought to grant to mussels. Also, if the islanders in question were to stumble upon an animal who had died naturally whilst they struggled to obtain adequate nourishment by other means, it would be appropriate for them to consume the body of that animal in spite of the fact that this might be taboo under more ideal conditions. Whereas this is an imaginary example, the same considerations apply to some groups of people who were mentioned in section 1.1.

When reading these lines, some readers may question whether the human consumption of eggs from rescued hens, obtained justifiably from a farmer who considered that these birds were 'spent', might be considered another legitimate use, even in situations where human health does not depend on such a consumption. Although I must declare that the thought of eating such eggs does not provoke the aversion in me that I feel when I consider eating the hens themselves after their natural deaths or after they have been killed in situations where their killing could be justified on compassionate grounds, I must express my reservations. It would seem to me to be preferable to feed the eggs to the hens themselves after cracking them or after boiling or cooking them so that the hens are able to benefit from reabsorbing the nutrients that they have lost through laying, particularly if we consider that the bodies of modern-day breeds might be strained by the heavy demands of having been programmed to lay large volumes of eggs. Whereas I have sympathy for people who rescue hens from bad farming conditions and have done so myself in the past, another option in situations where the right habitat can be found for these hens is to release them to allow them to roam freely, which may be preferable to confining them to one's land, even if their health prospects might be worse than they would be if they lived under human management.

Another question that is the subject of debate amongst those who think about these issues is whether honey ought to be allowed to be consumed when such consumption is not essential to maintain good health. I know some vegans who eat honey, raising the question whether there is something that sets honey apart from other animal substances. Whereas I am unsure why these people consume honey, I shall explore some arguments that might be advanced to support their position.

The fact that the lives of honeybees may be managed to a lesser extent by human beings than the lives of other domesticated animals may seem relevant to some. Domesticated bees do not seem to mind the fact that they are domesticated as many have the opportunity to leave their hives at any time, unlike many other domesticated animals who may stay for a number of reasons—for example because their movements are restricted by human beings, because they have nowhere else to go, or because they are lured regularly into staying by being provided with shelter and food. This might be a morally significant difference where the systems that are used to keep honeybees do not restrict their movements, but it must also be recognised that many beekeepers confine queens in their hives or clip their wings to reduce the likelihood that they may leave the hive.

Another argument—which I have encountered in this debate—is the view that restoring dwindling honeybee populations may be vitally important to increase the pollination services that honeybees provide for a large number of crops. However, it must also be said that these services are mainly provided by only one of the seven known species of honeybee, the Western or European honeybee (*Apis mellifera*), and that bees pollinate not only valuable crops, but also weeds (Goulson 2003). It is also quite plausible that habitat changes away from monocultures might produce similar benefits, so that the pollination of valuable plants could also be carried out by wild bees and other insects who are now in decline because of these monocultures and of the use of some pesticides (for example neonicotinoids). The fact that a wide range of these other pollinators are dwindling does not provide an outright argument for the keeping of honeybees either, as we have evidence that many wild populations of bees are under strain at least partly because they compete for nectar with domesticated honeybees and are infected by their diseases (Buchmann and Nabhan 1996; Goulson 2003; Goulson and Sparrow 2009; Fürst et al. 2014).

If we assume that my concern about competition with wild species can be managed adequately by keeping domesticated bees in appropriate places or that it is outweighed by the significant crop losses that might result from inadequate pollination, so that the keeping of domesticated bees may be justifiable, it does not imply that taking their honey is justifiable. In many situations, the process of taking honey agitates the bees and—if accompanied by the use of smoke—causes bees to gorge themselves on honey, which might be caused by stress (as bees may expect the imminent arrival of fire in the presence of smoke and respond by filling themselves to prepare for evacuation), and—more

importantly—may accidentally kill some bees. Many people who consume honey also sustain the practice of killing queens, who are killed deliberately by many beekeepers when they replace old queens with new ones to maintain fertility in their hives and who regularly kill queens to prevent swarming. For these reasons, I remain unconvinced of the justifiability of consuming honey produced by domesticated bees where these are kept by beekeepers who kill bees either intentionally or foreseeably.

However, this also raises the question whether it would be appropriate to consume honey from beekeepers who do not kill any of their bees intentionally and who also take great care to avoid inflicting both stress and accidental deaths upon their bees, perhaps by—amongst other things—using the ‘sun hives’ promoted by the Natural Beekeeping Trust (<http://www.naturalbeekeepingtrust.org/>). The moral argument in favour of the consumption of honey under these conditions would seem to be bolstered by the fact that research with a limited sample of people from Wales showed that people who included the consumption of honey in their dietary records—taken over the course of seven days—lived longer, when followed up over 25 years, than those who did not do so, a finding that remained significant after adjustments were made for a number of possible confounders (Cooper et al. 2010). On this basis, I am inclined to give a positive answer to this question, subject to the condition that the honey that is taken should be genuinely surplus to the bees’ own requirements, to avoid bees being fed with sugary solutions that may be less healthy for them.

Some might object that this qualified endorsement is much too restrictive in light of the fact that sugar—a sweetener that many vegans use—is possibly worse not only for human health, but also in that its cultivation kills far more insects than the production of honey does. This may be so, but this is hardly an argument for the use of honey. Rather, it is an argument that vegans must also abstain from the consumption of sugar where its consumption does not yield any health benefits that could be provided by more benign means.

Even if a good case for the consumption of honey might be made in some situations, the fact that those who are committed to qualified moral veganism may, more generally, be justified in eating some animal products in some situations should not be taken to mean that I believe that they are also justified in eating products that contain tiny amounts of products that have been derived from animals who have clearly been used unjustifiably, at least in situations when their ability to enjoy good health does not depend on it. This is at odds with the view of Friedrich (2006, 191), who claims that refusing to eat animal products in some situations, for example when visiting a restaurant where no vegan food is available, might actually cause ‘significantly more harm to animals’ than eating some foods that do contain animal products. The rationale for this would consist in the fact that the people with whom one eats might be left with the impression that adopting a vegan diet is difficult, and that they would consequently become more hesitant to adopt such a diet themselves.

I think that this possibility is extremely unlikely. If vegans were to adopt diets that were not consistent with their beliefs, their companions might rather be left with the impression that their commitment to qualified moral veganism was only half-baked. Accordingly, anyone who compromises their position every time they walk into a restaurant that does not offer vegan food might communicate to their companions that qualified moral veganism is not a serious ethical position. Unlike what Friedrich (2006, 191) claims, it is not necessarily the case that vegans who go to great lengths to avoid the consumption of animal products pretend that their diets do not cause any suffering. For Friedrich (2006, 191), the question whether a vegan diet should be adopted in any particular situation is one of 'basic math': adopt the diet that causes the least suffering to other animals. I have argued, however, that the question whether a vegan diet should be adopted must depend primarily on the question whether other animals ought to be conceived of as sources of food for human beings, regardless of the fact that, in some situations, eating vegan food may cause more harm to other animals.

2.14 Conclusion

Against the standard picture, I questioned the line that many have drawn between vertebrates and invertebrates, and I argued that all individual entities are sentient. If all living things have health interests, all should be granted a *prima facie* right to those interests not being harmed. Diets that include animal products inflict a lot of pain, suffering, and death on living beings, but the same applies to most other diets. Nevertheless, many diets that include animal products impose a much greater quantity of negative GHIs than many other diets.

In order to stay alive and enjoy good health, human beings must eat sentient organisms or some of their parts. Adopting the view that we should treat like interests alike, but recognising that we have both speciesist and animalist interests, I argued that we ought to embrace qualified moral veganism. This position does not result from the erroneous belief that vegan diets necessarily cause less pain, suffering, and death on moral patients, but results from the belief that human health is, in many situations, undermined by conceiving of other animals as sources of human food. My focus on human health also explains why killing intentionally is more problematic than killing accidentally but foreseeably, a distinction that is considered irrelevant by Cochrane (2012, 96–98) and relevant by Francione (2010a, 72), where the latter refrains from explaining why this might be so. Whereas it does not make any difference for an animal to be killed either intentionally or foreseeably, a virtuous human being will have more problems with the former type of killing of animals. Another virtue that is constitutive of good human health is to show adequate respect for the integrity of nature, which is why I questioned the breeding of animals by artificial selection, the use of genetic engineering, and the creation of synthetic flesh, even if

the last technique must be supported to reduce my overriding concern with the infliction of pain, suffering, and death upon animals.

In spite of my considerations, some carnists and vegetarians may remain convinced that human beings do not have any duties towards other animals, or that whatever duties we may have are not so demanding that we should commit to qualified moral veganism. Unless a law existed that demanded carnists and vegetarians to change their ways, forcing dietary change upon them would seem to be hard to justify, particularly if those who would wish to do so did not benefit from being supported by a decent number of people—a reasonable democratic principle. However, when carnists and vegetarians share meals with others, things become slightly more complicated. Most people attach great significance to the practice of sharing meals with each other. Many vegans feel deeply uncomfortable when they share meals with others who consume foods that they disapprove of, or even despise (Adams 2008, 187). The moral response to the death of an animal, and particularly to the deaths of those animals who are biologically close to us, should be one of sadness. It is not normally appropriate to celebrate human togetherness by sharing meals that include the corpses of those whose loss we ought to feel sad about. The corpses of animals who have died are inextricably connected with the animals they once were; their deaths demand a different response. Many vegans may also share my discomfort with sharing meals with vegetarians, where the former believe that the latter eat animal products that have been appropriated unjustifiably. Carnists and vegetarians might retort that vegans are not obliged to share meals with them. Though they are right that vegans could, at least in some situations, eat elsewhere, they should recognise that, if *they* cherish sharing meals with others, vegans might also value some aspects of shared meals, for example the opportunities that these provide to build relationships.

If carnists and vegetarians grant that vegans may have a serious interest in sharing meals with them, particularly in view of the relative shortage of other vegans on the planet, they could argue that, given that vegans do not amend their dietary preferences when they share meals with carnists and vegetarians, carnists and vegetarians should not amend their dietary preferences when they share meals with vegans either. This line of defence, however, is rather weak, for it is unlikely that carnists and vegetarians would object to the consumption of vegan food on moral grounds. Unless carnists and vegetarians could argue convincingly that the consumption of animal products would be required to protect important human interests, an argument which may apply in some situations, the only defence that they would seem to be left with in support of their resistance to dietary change is simply that they prefer the taste of food that contains animal products. They might accept that vegans may be uncomfortable about sharing meals with them, but argue that any moral weight that they may want to give to the interests of those who adopt qualified moral veganism ought to be trumped by their interest in consuming their preferred foods as not doing so would be—in Caney (2008, 539)’s words—‘unreasonably demanding’.

I am not persuaded by this argument. The food choices that are made by carnists and vegetarians when they share meals with vegans may demonstrate a lack of (desire to act on our) empathy not only with the nonhuman world, but also with the people with whom they share meals, who may nevertheless be very close to them in many ways, for example by being family members or friends. It is perhaps because the empathy with animals and with their table companions is felt but not acted upon that—in my experience—it is carnists and vegetarians who frequently feel the need to apologise for their food choices to vegans or to sit far away from them at the table, rather than the other way round. More generally, it would seem to be highly appropriate that, when people share meals with each other, those who do not object to consuming particular foods adjust the food items that they eat to accommodate the values of those who do have moral objections where doing so does not undermine a more important moral interest. In chapter four I shall return to this issue in the context of discussing a comment that was made by a vegetarian research participant in one of the studies that I have been involved with: ‘Christmas dinner was dreadful’.