

How animal welfare standards create and justify realities

L Busch

429A Berkey Hall, Center for the Study of Standards in Society, Michigan State University, East Lansing, MI 48824, USA
Centre for Economic and Social Aspects of Genomics, Institute for Advanced Studies, Lancaster University, Lancaster LA1 4YD, UK;
email: Lbusch@msu.edu

Abstract

Luc Boltanski and Laurent Thévenot tell us that we live in a plural world in which actions are justified in multiple ways. Moreover, Anne Marie Mol argues that things, certainly including animals, are always multiple, their very existence dependent on the particular practices in which they are implicated. Thus, animal welfare policies must be understood in light of both the ways in which animals are 'practiced' and the particular justifications provided for these practices. Such policies make claims based on the practices involved in animal-human interactions and are justified based on appeals to the scientific (industrial), civic, market, and domestic worlds, among others. Thus, animal welfare policies must necessarily involve compromises among both the multiple ways in which animals are 'practiced' and the multiple ways in which those policies may be justified.

Keywords: animal welfare, anthropomorphism, justification, policies, practices, standards

Introduction

Perhaps I had best begin this paper by noting what it is not about. I shall not argue that one or another approach best illustrates the moral, ethical, or just stance we should take in our relations with animals in general, or with farm animals in particular. Nor shall I argue that our joint or individual endeavours to pursue the best, most appropriate, most feasible, most efficient, most effective, or most scientific policy, with respect to farm animals, has been thwarted in some way or another by politics. Although, in certain instances, that might well be the case, my goals here are quite different. What I shall attempt to do in this paper is first to ask what we mean when we set standards, laws, or regulations with respect to animal welfare. Then, I will examine, borrowing from Boltanski and Thévenot (2006 [1991]), not what constitutes just treatment for animals, but how particular practices associated with animals are *justified*. Furthermore, I shall argue, building on the work of Anne Marie Mol (2002), that animals, like all other things in the world, are multiple; they exist for us *through the practices by which we encounter them*.

Standards

The modern world is a world of standards (Brunsson & Jacobsson 2000; Bingen & Busch 2005). There are standards for everything from objects of art (Brownell 1917) to education (Apple 2006) to technoscientific 'reference materials' (National Institute of Standards and Technology 2007) to laying hens (Welfare Quality 2009c) to

farm labour (Brown & Getz 2008). As Star and Lampland (2009; p 10) put it:

Standardizing has become a central feature of social and cultural life in modernity. The purpose of standardizing — to streamline procedures or regulate behaviours, to demand specific results, or to prevent harm — is rarely queried because it has come to be understood as a valuable and necessary, even if cumbersome, process.

In short, despite their ubiquity, standards are at best poorly understood. Furthermore, they are usually understood as ordering devices — devices that (re)order an already extant reality that exists 'out there'. I want to begin by challenging that view. I want to argue that standards are not merely classifying and ordering devices (although they are surely that), but that standards are also *recipes for reality* (Busch 2011).

Consider the case of standards for poultry production. In industrial poultry production it is commonplace that production is actually outsourced to individual farmers who are expected to build poultry barns to house 50,000 birds or more. The specifications (or standards) for these barns are often supplied as well. Moreover, the birds are usually of a particular standard breed. The feed that is used to nourish them, the placement of that feed in the barn, the frequency of feeding and watering, procedures to be used to reduce lameness in flocks (eg disease reduction, diet, humane culling), the training required by staff involved in raising the birds, even the way in which the barn should be cleaned after each flock has passed through it, is subject to a set of standards. Similarly, in many nations, the disposal of

manure as well as of dead birds will be the subject of standards. These standards are, in turn, used to construct the barn, to raise the birds, and to otherwise organise the practices of poultry production. Some may be written into law (eg prohibition of de-winging or other mutilations, pollution control measures). Other standards will be inserted in contracts between growers and poultry packers (eg time to clean up between shipments of birds). Still others will be taken for granted, practices that are so well known to the participants that they may not be the subject of written documents (eg how to pick up a bird).

Together, these standards do not merely describe an extant reality; they literally provide a recipe for that reality — a reality that changes over time and space as the standards are modified. They make industrial poultry production what it is. Prior to the development of the first industrial standards, poultry production usually consisted of allowing a few chickens to run around the barnyard (NB, standards for industrial poultry production have themselves changed over time as the scale and complexity of production increased, and as public concerns, including those about welfare, have changed). They foraged for much of their food, often supplemented by table scraps and they provided ‘pin money’ to farm wives who sold a few birds and eggs at the local market. In short, prior to the development of what Sawyer (1971) called *The Agribusiness Poultry Industry*, the reality of industrial poultry production did not exist. Indeed, when that reality was created, it extended far beyond the farm. Bankers would more likely “... loan money to an agribusinessman with few questions than to a man who merely operated a chicken business” (Sawyer 1971; p 201). Moreover, what I am suggesting here about poultry production is equally true for myriad other objects/practices in industrial societies, including scientific instruments, reference materials, weights and measures, as well as the millions of products sold in commerce every day.

The same may be said about standards for people: the regulations published by the UK Financial Services Authority, the UK Department for Business Innovations and Skills, the UK Food Standards Agency and similar organisations in other nations, define and delimit what poultry farmers, poultry processors, food retailers and countless others may do. In larger companies, organisation manuals provide yet more standards to which practitioners of all sorts should conform. To the extent that these standards, laws, rules, and regulations are used, they do not merely describe a pre-existing reality; they create a reality in that (i) the various standards are imbricated or nested, and (ii) those who do not follow the rules are subject to some sort of sanction.

This same argument may be extended to animal welfare standards. Once adopted over a given space, such standards create a given reality. Hence, the recently designed Welfare Quality® (2009a,b,c) manuals for the assessment of the welfare of poultry, cattle, and pigs, if widely adopted and enforced, will create a new reality for both the animals and

the people who raise them (requiring, eg classifying the amount of airborne dust in a broiler chicken operation [Welfare Quality 2009c]), as well as all those along the supply chain who interact with those people and animals. Similarly, the California law recently passed that bans gestation crates will create a new reality for both pigs and the people who raise them.

But, in order for standards to be used and accepted, they must be justified. The standards that nearly replaced the barnyard chicken in Europe and the United States, and later in much of the rest of the world, were resisted. The proponents of agribusiness chicken production had to convince others that certain standards should be adhered to and practiced, that a particular recipe should be used to produce a particular reality. In order to do that, they had to *justify* their claims. Put differently, they had to appeal to some common higher principle(s) — feed conversion efficiency or marketability, for example — in order to convince others that reality should be reworked, altered, modified. It is to that issue that I now turn.

Justifications

Boltanski and Thévenot (2006 [1991]) note that in all non-violent conflicts we are called upon to justify our actions to those with whom we disagree. In order to be effective, these justifications must appeal to some *shared common higher principle* and, in doing so, attempt to truncate further debate. Moreover, each justification has its specific tests and trials designed to determine if people or things act in ways that are in accordance with a given higher principle. Furthermore, although most persons will satisfy their own concerns most of the time by such appeals, a few persons usually referred to as philosophers will write lengthy treatises that simultaneously clarify and further spell out the rationales for these justifications.

In their initial work, analysing ‘how-to’ manuals of various sorts (how to be a good parent, industrialist, priest, etc), Boltanski and Thévenot (2006 [1991]) identified six ‘worlds’ of justification and their requisite tests briefly described as follows:

- (i) The *domestic* world is based on appeals to tradition. It is respectful of hierarchy, of familial bonds. Tests focus on adherence to tradition, demonstration of respect for hierarchy.
- (ii) The *industrial* world, which includes that of contemporary technoscience, appeals to efficiency and effectiveness. Tests usually involve the use of instruments to measure efficiency and effectiveness with precision.
- (iii) The *civic* world appeals to the common good. Tests involve the rejection of individual concerns in the interest of group solidarity.
- (iv) The *market* world appeals to the desires of individuals to possess goods. Tests involve the saleability of goods.
- (v) The world of *fame* appeals to the opinion of others. Tests involve noting or measuring the visibility of persons or things.

(vi) The world of *inspiration* appeals to the uniqueness, the originality of persons or things. Tests involve demonstrations of that uniqueness to others.

Since their initial work, they and others have provided empirical evidence that other worlds of justification can be identified as well (eg Lafaye & Thévenot 1993; Moody & Thévenot 2000). But we need not be concerned here with how many worlds may be empirically identified, so much as with the importance that these justifications have in conflict resolution.

For example, if a farmer is (accusatively) asked why he or she treats a cow in a particular manner they might respond (world invoked in parentheses) that:

(i) She has always done it that way (domestic world). Her mother and her mother before her each adhered to this practice since time immemorial. What was good enough for them is certainly good enough for her.

(ii) It is the most efficient practice (industrial world). It can be demonstrated (or was demonstrated at some point in the past) that this practice yields the largest volume of meat relative to the volume of nutrients provided, or requires the least labour per kilogram of meat.

(iii) It is required by law (civic world). According to such and such a law, as passed by the relevant legislative body and enforced by a particular executive body, treatment of cows in such a manner is required.

(iv) It will ensure that the cow (or its milk) brings the best price on the market (market world).

(v) Her neighbours expect her to do that (domestic world). Engaging in any other practice would be seen as weird, disgraceful, scandalous, or otherwise unacceptable by the neighbours.

(vi) It is the will of God that cows be treated in that manner (world of inspiration). Based on a given religious text, cows are always to be treated in this manner (eg kosher or halal slaughter).

This list is neither exhaustive nor is it meant to limit farmers to a single response. Doubtless, there are other reasons that might be given; a farmer might give several reasons in hopes that one will satisfy the questioner and thereby truncate debate. However, these justifications do link particular empirical standards of practice to what are ultimately moral or ethical justifications (Busch 2000).

Equally important, when pursued, such justifications must be linked to particular tests or trials that are recognisable to the challenger. For example, a claim that something is required by law would need to be linked to an extant law. Similarly, a claim to bringing the best price would need to be linked to a test showing that the best price was had in the past.

In contrast, in most contemporary Western societies, a farmer who explained that he or she stroked each cow three times on each side before collecting milk because a small wood nymph had instructed them to do so would likely be regarded with considerable disdain by other farmers. The justification for this practice would literally be incredible. And, similarly, a farmer who claimed that the welfare of his

or her animals had been demonstrably enhanced as evidenced by their winning ticket in the national lottery would be regarded as having an unacceptable test of welfare. In short, both the justification proffered and the test by which it is to be measured would have to be recognised by the challenger.

Anthropomorphism

The necessity for justifications for particular practices brings us to the problem of anthropomorphism. Much of the debate about farm animal welfare has focused on the distinction between what might be termed folk approaches to animals and those of the scientific community. In brief, this might be summed up in the following way: There are numerous folk approaches to animal welfare. These are grounded in the diverse ways in which people relate to animals in different cultures or nations. Nearly all of these folk understandings are based on some form of anthropomorphism claimed between animals and humans, although the degree and character of that anthropomorphism varies from culture-to-culture. I shall call this strong anthropomorphism.

In Western societies, farm animals are also anthropomorphised through the fairytales we tell our children — stories that have remained amazingly stable for centuries — in toys, in cartoons, and in the use of animal imagery in advertising and publicity. As children, we learn of the three little pigs, the cow that jumped over the moon, bah bah black sheep, goosy gander, and so on. The names vary from language-to-language, but the stories are quite similar. In each instance, the animal in question is anthropomorphised, such that it posits a relation between humans and farm animals that is in some sense one of equality: sheep, or chickens, or cows, or pigs are just like us.

But it would be a mistake to confine this anthropomorphism to children's stories. In somewhat similar terms, contemporary advertising also anthropomorphises animals. Elsie the cow, *La Vache Qui Rit*, and other well-known advertising logos deliberately emphasise the human-like qualities of their mascots. And, an endless array of anthropomorphic depictions of farm animals can be found in the form of figurines, dolls, statues, costumes, and even furniture.

In all social classes, all occupational groups, all cultures, all human societies the message, although varied in its details, and subject to wide interpretation, is always one of anthropomorphism. In some sense(s) animals are really just like us. They feel pain, they experience happiness, fear, sadness, ecstasy, humour, and all the other qualities that we typically assign to humans. They behave similarly. They experience illness in the same ways. Their bodies have the same functional parts as do ours. (One reviewer argues that biological functioning and health of animals are less likely to be understood anthropomorphically. However, as with assigning mental states, the assumptions we make about biological functioning and animal health require at least a modicum of anthropomorphism; we must assume that animals are 'like us' with respect to health and functioning. For example, while it is not unreasonable to assume that

skin lesions in animals are a sign of ill health, we necessarily — and quite reasonably — make that determination by implicit comparison to skin lesions in humans). Of course, which qualities, to what degree, and at which times is subject to considerable debate.

Often opposed to the strong anthropomorphic view of farm animals is the scientific one (cf Veissier *et al* 2009). From this vantage point, much folk knowledge about animals is taken to be mistaken, and it is contrasted to the harsh light of truth provided by science. Science claims to go beyond the folk view using instruments to empirically validate and measure the welfare of farm animals. Importantly, the scientific view is hardly unified. At least three major perspectives can be noted in the scientific literature. (Today most welfare scientists would not stubbornly subscribe to a single perspective, but would argue about how these different measures should be weighted). The proponents of the physiological view argue that animal welfare is best determined by measurement of animals' internal states (eg Mitchell & Kettlewell 1998). This is done, for example, by examining hormonal levels, skin lesions, and other physiological characteristics of the animals in question. In contrast, the behaviourist view emphasises measurements of the behaviour of the animal, perhaps in light of what is known about its evolution (eg Barnard & Hurst 1996). Its proponents argue that welfare can be discerned by the magnitude of anti-social behaviour, such as tail-biting or feather pecking, by observing and monitoring animal behaviour in farm settings, or by engaging in various forms of experimental ethology so as to deduce the decision-making preferences of animals under certain conditions. Finally, proponents of the environmental view argue that the focus should be on the welfare impacts of various forms of housing for farm animals (eg Rushen 2003). Hence, both the scientific community and the general public have varying notions of what constitutes good animal welfare.

Barnard and Hurst (1996; p 417) argue that:

(i)t is clear that, while having some intuitive appeal, anthropomorphic criteria of welfare are undermined by careful evolutionary considerations and cannot be used as a general basis for giving benefit of the doubt.

Yet, curiously, in the same paper, they write of dogs chasing balls as a form of play — an anthropomorphic description to be sure. In contrast, Rollin (1998; p 25) asserts that:

Certainly no one objects to attributing traits which we normally attribute to human bodies or biological processes to animal bodies or biological processes. In fact, if we did not feel that there was some commonality of biological characteristics between animals and humans, there would be no point doing biological and biomedical research on animals and extrapolating the results to humans.

Put differently, despite its greater sophistication and its ability to marshal more sophisticated instrumentation and statistical procedures to demonstrate its validity, scientific claims about animal welfare must ultimately also be based on some claims of anthropomorphism.

For example, when scientists note that elevated hormonal levels among a given group of animals indicate stress, they can only do that by virtue of making an analogy between the hormonal changes found in stressed humans and those in stressed animals. Indeed, it would certainly appear plausible to argue that in two situations where the behaviour of the animal in question is the same, but hormonal action is lower in one, the lower hormonal level indicates less stress. Yet, the plausibility of such reasoning must rest on an anthropomorphic relationship. Similarly, when scientists conclude that animals are expressing fear, skittishness, hunger, or other emotions, they do so by analogy to behaviour in humans. Certainly, scientific claims of this sort are more limited and more carefully crafted; hence, they are perhaps best understood as weak anthropomorphism (cf Norton 1987).

Whatever version of anthropomorphism is subscribed to (or denied), the anthropomorphic analogy often serves as a justification for particular practices. Let us briefly consider some examples of competing justifications. Voogd (2009; p 46) argues in a recent article that animal welfare is inextricably linked to food safety. The argument can be simply phrased as: stressed animals produce meat that is of inferior quality and perhaps unsafe. Therefore, according to Voogd, animal welfare in industrial systems meets the 'five freedoms' criteria of production. She even goes so far as to argue that:

I truly believe that the best producers respect and adore the animals they raise because the challenges faced are far too many for a disinterested manager to overcome!

This is clearly a combination of market and industrial justifications: welfare is justified by virtue of its efficiency and marketability.

In contrast, consider the justification provided by Fraser (1993; p 45). Rejecting the productivist approach, he argues instead that

(f)or animals kept on farms ..., abnormal activities, such as self mutilation, extreme aggression, or behavior that appears to denote depression, are among the most persuasive indicators of impaired well-being.

He goes on to argue that research is needed to reconcile the values displayed in family and corporate farming with those of the general public. In the context of Boltanski and Thévenot (2006 [1991])'s schema, he at least implicitly justifies animal welfare first from a domestic perspective (putting animals in their place in the hierarchy of beings for which we should care), and then from the perspective of opinion — of farmers and the general public.

Doubtless, a careful examination of the popular and scientific literature on animal welfare would reveal other justifications, as well as a wide variety of nuances. However, all of this assumes that the various interlocutors are writing about the same things. At first glance, this would appear to be the case. But let us examine this issue a bit more closely.

The multiplicity of animals

Alfred Schutz (1970) and Schutz and Luckmann (1973) noted that we only know each other as types. If you are reading this paper, you know me as a sociologist. But perhaps you also know me as male, balding, speaker, American, professor, and so on. People we know well, we know as very many types, while those we hardly know may be reduced to a single type. To know someone perfectly, one would have to be that person. But, as Schutz suggests, 'if I were you' never applies.

Of course, although Schutz did not do it, we can easily extend his analysis to animals. If we hardly know an animal, it is known solely as, for example, a cow. If we know the animal well, we may then know that animal as having been given the name, Brunhilde, as a good milker, having spots in certain places on her hide, as jittery in front of strangers, as refusing to eat certain kinds of feed, as particularly attentive to her calf, and so on. This is the type of relationship that John Berger (1979) describes in his study of French peasants. Indeed, many persons have argued that animal welfare issues have arisen in part because we no longer know animals very well (eg Rollin 2004). The sheer scale of industrial production distances not only consumers, but even farmers from farm animals. No farmer with 1,000 dairy cows or 50,000 chickens can know them as more than a few 'types.' At the slaughterhouse scale is magnified yet again. The individual stalls in which animals were slaughtered a century ago in Paris contrasted sharply with the approach taken at the Chicago stockyards (Cronon 1991; Giedion 1975 [1948]).

Schutz's insight, however important it might be, nevertheless assumes the 'thingness' of things. It assumes that, even if we can never know others (whether humans or not) completely, that there is a fundamental thingness, a singularity, of others. At first glance it would appear that without that assertion, we could not function in the world. But recently his position has been challenged.

Anne Marie Mol (2002) has argued that things are fundamentally multiple. To illustrate her point she spent a year observing the goings-on in an arteriosclerosis clinic in a major hospital. As she very convincingly notes, the human body, and specifically the human leg is not the same for everyone who comes in contact with it. The patient who arrives at the hospital complaining about excruciating pain in her leg is not talking about the same thing as the surgeon who sees a potential site for an operation. Nor is the surgeon talking about the same thing as the pathologist who takes a section from the leg of a cadaver in order to analyse it and determine *ex post facto* how serious a given case of arteriosclerosis is. Indeed, when the various accounts of arteriosclerosis conflict, and they often do (consider a patient who is in pain without any physical evidence of arteriosclerosis or one whose leg shows signs of poor circulation or even gangrene but feels no pain at all), then considerable effort is advanced to make the accounts cohere, to explain away the differences. Hence, a surgeon may perform extra tests if a patient complains of severe leg pain, but lacks the

symptoms usually visible to a trained eye. Similarly, the pathologist will perhaps increase the number of sections examined if the initial section fails to confirm the surgical diagnosis. Indeed, in a few instances it will be impossible to correlate the different observations despite heroic efforts.

Note that Mol is not arguing that each of these persons — patients, surgeons, pathologists — has a different *perspective* on the leg in question. To the contrary, she is making a far more radical point: the myriad, if not infinite, number of 'features' that constitute a leg are never included in any definition, are never all relevant in any given situation, and cannot *all* be the basis for lay or professional knowledge or judgment. Instead, each encounter with an 'other,' or perhaps we should say each *type of encounter* with an 'other', is constitutive of that other. Put differently, it is through our (shared) *practices* that we constitute the things and the world we know and share. If she is correct in this assertion, then changes in our shared practices will create different worlds with different things in it.

It takes only a short step to see that this argument can be profitably applied to the debates about animal welfare. The thousands of pictures posted on the web of persons squeezed into small cages to protest the treatment of chickens or pigs are evidence that the persons involved — rightly or wrongly — have determined that chickens or pigs are (at least with respect to the space they require) just like you and me. Animal scientists may disagree, but the reality in which they operate has that form. Were chickens capable of speech, perhaps they would tell us that the small cages were just fine. But they cannot. Protestors are concerned with the reality of the subjective experience of chickens in cages; no amount of physiological data provided by scientists will be likely to convince most protestors since — like the realities of the surgeons described by Mol — those data refer to the reality of blood and guts, not that of subjective experience.

Of course, all citizens concerned about animal welfare are not talking of the same realities, either as extant conditions or as desired future states. Hence, for some persons, any attempt to confine domestic animals, and even the process of domestication itself, should be ended. In contrast, for others, farm animals have rights. For still others, the welfare of the animals is what is of importance; this should bound our interactions with them by ensuring that we treat them 'properly,' but this should in no way restrict their use as food for humans. For still others, animals are simply living machines put on the planet for our use. Importantly, proponents of these views are, if we follow Mol, not talking of the same things.

Furthermore, note that this multiplicity also spills over into the scientific community, which is itself multiple. Hence, it is highly unlikely that any scientist will develop a test that will trump all others in determining farm animal welfare (were they to do so, then for an unspecified time these realities and the practices by which they were formed would converge). Far more likely is that the correlations (or even lack of correlation) between physiological, behavioural, and

environmental perspectives on welfare will remain weak and that scientists will continue to dispute (at least some aspects of) their relative importance, ie how they should count in determining animal welfare. This will be the case not because of the inadequacy of our measures, but because the animals in question, like Mol's sclerotic legs, are multiple. Most scientists today would reject the Cartesian belief in absolute knowledge derived from armchair observation. Instead, they would agree that all human knowledge is tentative, partial, and derived from active engagement with the thing of interest. But if that is the case, then it would appear that we must admit to multiple perspectives on the world, as well as reject the idea that the world in which we find ourselves is necessarily singular.

A word of caution is in order here. There has been a great deal of confusion in the literature about the notion of 'social construction' or of construction, *tout court*. While we are all capable of feigning, of fronting, of adopting a persona that is convenient for the moment but that is designed to deflect the person with whom one is interacting away from the real, that is only of marginal concern here (Goffman's [1974, 1971] dramaturgical perspective, although extraordinarily insightful, tends toward an emphasis on feigning and concealment [cf Huizinga 1950]). What I am describing here is the constitution or construction of the real. Just as a building is both constructed and real, so are the multiples of which Mol writes, and the types described by Schutz. Similarly, the worlds described by Boltanski and Thévenot (2006 [1991]) are both constructed (in accordance with various tests and trials) and real. Put differently, reality is multiple, even though we tend to experience that multiplicity serially and we often expend tremendous energies concealing or attempting to dissolve its multiplicity.

Animal welfare implications

In short, we live in a world that is constituted by the practices in which we engage. Moreover, those practices are never entirely ours, but are given to us through the process of socialisation. We learn, through socialisation, to perform as farmers, ranchers, scientists, scholars, teachers, butchers, or meatpackers. All of those practices involve interactions with other humans, with animals, and with other non-humans. But we only know those others in the ways that they appear to us, in the aspects of their being that are revealed through *our* practices and interactions with them.

In this world, animals are multiplicities since different (types of) persons engage in different practices relative to different (types of) animals. However, animals are of concern to us because they share certain types/practices with us. It is this link which makes us invoke common higher principles through which we might resolve disputes about their welfare.

Developing animal welfare standards thus involves: (i) compromises among divergent justifications for our standards; (ii) reconciliation of divergent practices, eg for treatment and housing of animals; (iii) recognition of the

(sometimes unclear) similarities/differences between humans and animals; and (iv) recognition of the essential incompleteness of our knowledge of persons and animals.

In order to be effective, standards must link the various practices connected to animals even while recognising their differences. This necessarily involves compromises among various worlds of justification. Knowing animals means recognising the multiplicity of practices/justifications and the corresponding multiplicity of animals. Some practices can/should remain as custom or tradition would have them. Other practices can/should be formulated as standards such that concerns of those upstream can be made commensurate with those further downstream in the value chain. Finally, still other standards can and should be inscribed as law by virtue of the level of agreement as to their necessity.

In sum, effective animal welfare standards are both descriptions and inscriptions, claims about the world and means for (re)making it. Like all standards, they are recipes for reality. But like all recipes they can turn out well or fail due to inadequate ingredients or incompetent chefs.

References

- Apple MW** 2006 *Educating The 'Right' Way: Markets, Standards, God, and Inequality*. Routledge: New York, USA
- Barnard CJ and Hurst JL** 1996 Welfare by design: the natural selection of welfare criteria. *Animal Welfare* 5: 405-433
- Berger J** 1979 *Pig Earth*. Pantheon Books: New York, NY, USA
- Bingen J and Busch L** 2005 *Agricultural Standards: The Shape of the Global Food and Fiber System*. Springer: Dordrecht, The Netherlands
- Boltanski L and Thévenot L** 2006 [1991] *On Justification: Economies Of Worth*. Princeton University Press: Princeton, USA
- Brown S and Getz C** 2008 Privatizing farm worker justice: regulating labor through voluntary certification and labeling. *Geoforum* 39: 1184-1196
- Brownell WC** 1917 *Standards*. Charles Scribner's Sons: New York, USA
- Brunsson N and Jacobsson B** 2000 *A World Of Standards*. Oxford University Press: Oxford, UK
- Busch L** 2000 The moral economy of grades and standards. *Journal of Rural Studies* 16: 273-283
- Busch L** 2011 *Standards: Recipes for Reality*. MIT Press: Cambridge, USA, in press
- Cronon W** 1991 *Nature's Metropolis: Chicago And The Great West*. WW Norton and Co: New York, USA
- Fraser D** 1993 Assessing animal well-being: common sense, uncommon science. In: *Food Animal Well-Being: Conference Proceedings and Deliberations* pp 37-54. Purdue University: West Lafayette, IN, USA
- Giedion S** 1975 [1948] *Mechanization Takes Command*. WW Norton: New York, USA
- Goffman E** 1971 *Relations In Public*. Basic Books: New York, USA
- Goffman E** 1974 *Frame Analysis*. Harper and Row: New York, USA
- Huizinga J** 1950 *Homo ludens*. Beacon Press: Boston, USA
- Lafaye C and Thévenot L** 1993 Une justification écologique?: Conflits dans l'aménagement de la nature. *Revue Française de Sociologie* 34: 495-524. [Title translation: An ecological justification? Conflicts in the development of nature]
- Mitchell M and Kettlewell P** 1998 Physiological stress and welfare of broiler chickens in transit: solutions not problems! *Poultry Science* 77: 1803-1814

- Mol A** 2002 *The Body Multiple*. Duke University Press: Durham, UK
- Moody M and Thévenot L** 2000 Comparing models of strategy, interests, and the public good in french and american environmental disputes. In: Lamont M and Thévenot L (eds) *Rethinking Comparative Cultural Sociology: Repertoires of Evaluation in France and the United States* pp 273-306. Cambridge University Press: Cambridge, UK
- National Institute of Standards and Technology** 2007 *Standard Reference Materials® Catalog*. US Government Printing Office: Washington DC, USA
- Norton BG** 1987 *Why Preserve Natural Variety?* Princeton University Press: Princeton, USA
- Rollin BE** 1998 *The Unheeded Cry: Animal Consciousness, Animal Pain, And Science. Expanded Edition*. Iowa State University Press: Ames, USA
- Rollin BE** 2004 The ethical imperative to control pain and suffering in farm animals. In: Benson GJ and Rollin BE (eds) *The Well-being of Farm Animals: Challenges and Solutions* pp 3-19. Blackwell: New York, USA
- Rushen J** 2003 Changing concepts of farm animal welfare: bridging the gap between applied and basic research. *Applied Animal Behaviour Science* 81: 199-214
- Sawyer G** 1971 *The Agribusiness Poultry Industry*. Exposition Press: New York, USA
- Schutz A** 1970 *On Phenomenology And Social Relations*. University of Chicago Press: Chicago, USA
- Schutz A and Luckmann T** 1973 *The Structures Of The Life-World*. Northwestern University Press: Evanston, IL, USA
- Star SL and Lampland M** 2009 Reckoning with standards. In: Lampland M and Star SL (eds) *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life* pp 3-24. Cornell University Press: Ithaca, NY, USA
- Veissier I, Boissy A, Désiré L and Greiveldinger L** 2009 Animals' emotions: studies in sheep using appraisal theories. *Animal Welfare* 18: 347-354
- Voogd EL** 2009 Does animal welfare affect food safety? *Food Safety Magazine February/March*: 42-43, 46, 48-53
- Welfare Quality** 2009a *Welfare Quality® Assessment Standards For Cattle*. Welfare Quality® Consortium: Lelystad, The Netherlands
- Welfare Quality** 2009b *Welfare Quality® Assessment Standards For Pigs (Sows And Piglets, Growing and Finishing Pigs)*. Welfare Quality® Consortium: Lelystad, The Netherlands
- Welfare Quality** 2009c *Welfare Quality® Assessment Standards for Poultry (Broilers, Laying Hens)*. Welfare Quality® Consortium: Lelystad, The Netherlands