The Illumination of the Animal Kingdom: The Role of Light and Electricity in Animal Representation

ABSTRACT

This essay addresses the subject of animal representation via an historical account of the place of the animal in visual culture. It emphasizes the relationship between the animal as a visual image and the technology that produces this image. It explores three examples in a period covering c. 1895 to the 1930s, in Britain, that analyze the relations between animal representation, technology, and the public domain. These are film, zoo display, and slaughterhouse practice. The overall goal of the essay is to move away from emphasis on the textual, metaphorical animal, which reduces the animal to a mere icon, to achieve a more integrated view of the effects of the presence of the animals and the power of its imagery in human history.

“[s]i l’animal a le temps, s’il est «constitué» par un «temps»” [“[w]hether the animal has time, whether the animal is ‘constituted’ by a ‘time.’”] (Derrida, 1999, p. 273)

The history of animals is, among other things, the history of the disappearance of the animal, and there are two slightly different senses in which we might understand the idea of this “history of disappearance.” The first relates to a process that has been going on for a long time but in recent decades has accelerated alarmingly, namely the gradual disappearance of species of all forms of wildlife and the reduction in global biodiversity.
The second sense, which might be expressed more accurately by the term, “effacement” rather than “disappearance,” concerns the ways in which the representation of the animal - indeed the history of animal representation - is limited to a human framework or where the animals are depicted as if they were quasi-human (anthropomorphism). In such instances, the animal is overlaid with metaphors of human characteristics or becomes the bearer of purely human concerns.

Clearly, the second sense of disappearance is not as absolute and certainly is more partial than the first. However, modes of representation have a widespread impact on the way animals are culturally conceived and structure our attitudes to the real disappearances of animals. Furthermore, and this is the main concern of this essay, the way in which we portray animal representation has a crucial bearing on how we portray the place of animals in history and the trajectory such a history is conceived to take.

One of the ironies of animals’ not speaking is that so much should be written about the animal as a symbol conveying human meaning. Most of the relations humans have with animals and their reactions to animals are founded in the realms of emotion, instinct, and, in problematic ways, desire. There are exceptions: Communication is significant in companion animal caretaking and, more directly, in the ape language projects. Furthermore, many aspects of animal-human relations are bizarre.

One of the most commonly noted examples of this is the inconsistency between the celebration of animals in, say, nature films or pet-keeping and the simultaneous sanctioning of, or presiding over, the destruction of animal life on an enormous scale. It is, perhaps, to avoid the full implications of this strangeness that we choose to find a place for them in a well-organized cultural logic that divides the animal world into categories like pet, vermin, threatened species, and expendable species. Certainly, a logic of sorts can be identified at the practical interface between animals and humans, but, in truth, it is multi-faceted and the representations that arise there usually over-determined and contradictory.

Generally, problems that arise in relation to the representation of animals are exacerbated by the conceptual dyad of human-animal and, by extension, culture-nature. These oppositions concentrate on, in the sense of bringing
into focus, issues of symbolic difference and human identity, but there is a temptation to make this the template, or dominant terminology, by which we write about animals. This also leads to a tendency to make animals fit in with the dominant concerns and anxieties of a particular period, playing down the ways that they may be read against the grain of an epoch or culture. A good instance of this can be found in a study of the London Zoo in the nineteenth century: “[A]nimals were to be viewed as metonyms of imperial triumph, civic pride, and the beneficence of God or scientific discovery” (Jones, 1997, p. 5). Such a remark ignores other more ambivalent and contradictory discourses that surrounded the Zoo at the time, such as those that saw the Zoo as a site of animal indecency or cruelty. In addition, the metaphorical or metonymic status of the animal leads to the animal being treated as a type of tabula rasa that can signify anything we wish. A contemporary example of this can be found in Lippit (2000): Animals “simply transmit . . . [they are] unable to withhold the outflow of the flow of signals and significations with which they are endowed” (p. 21).

It is ironic that within the strictures of the human-animal divide the animal should have such an arbitrary and shifting representational status. It is a measure of how difficult it is to escape from this pattern of thinking that even when the terms “human” and “animal” are explored in ways that radically contest their familiar meanings, as in Derrida (1999), the conclusion, of this text at least, is a series of questions. They start with, “What is an animal?” and end with a question about self-identity, “Who am I?” (p. 301). Ironically, given the conceptual radicalism of much post-modernist writing, Derrida here follows a predictable path: the passage from the animal that always leads back to the human.

The problem that arises for the study of animals in history is that treating the animal as an icon, paradoxically, places the animal outside history. The role is purely symbolic; it reflects historical processes without truly being part of them. Being detached from what might be called the historical dynamics of a culture makes it difficult to assess the manner in which animals influence these dynamics. This is one of the reasons why the animal often is associated with the archaic and nostalgic rather than change, “progress,” or even modernity. Historians who have tended to focus on the human meanings conveyed or embodied in animals have reinforced this sense of the ahistor-
ical. Kete (1994) describes the bourgeois pet in 1860s and 1870s Paris as the “counter-icon of the scientific, and dehumanised, age” (p. 7). French (1975) considers the anti-vivisectionists of the late nineteenth century in England to be protesting at the “shape of the century to come” (p. 212). Ritvo (1987) describes the early nineteenth century attitude to nature as one of sentiment and nostalgia because nature has “ceased to be a constant antagonist” (p. 3).

To associate the animal with types of conservatism emphasizes that many histories of animal representation also are subject to the same structural principles as the ones they are describing. In addition, the choices of themes such as pedigree and breeding, civic values, and empire give animals a formidable cultural weight while reducing their role to one that is merely totemic. (I hasten to add that these studies are invaluable, and it is more a question of supplementing than rejecting them.)

To supplement such studies with an account of representation that is driven more by the idea of animals as figures in their own right does not mean writing a more optimistic or sunnier history of human-animal relations. In this particular study, which involves looking at the impact of electricity and illumination on various aspects of animal representation, the animal has a prototypical status derived from being an experimental object. Although this status evolves from its role in science, the technological aspects of animal representation that derive from this science are very much part of the popular domain. Thus, animals have complicated roles to play. Animals become central figures in the presentation of new and “progressive” technology. They are represented as acting beings in their own right. They are locked into discourses of health, moral improvement, conservation, and vitality.

These discourses, to a large extent, are future oriented and concern the improving paths society needs to take. In this instance, animals do not lead back to the human in quite the way they do in anthropomorphic discourse. Instead, the animal has a more ambivalent role because these technologies entail other ramifications such as social control and efficiency. It also is important to note that the media of animal representation are crucial to its analysis; in such a context, whether we are dealing with the twentieth century or earlier, the relations of animal to technology are just as important as relations to the human.
Changing Configurations of Animal Visibility and Invisibility

The disappearance of species and the effacement of the animal in anthropomorphism have no intrinsic relation to each other as such. However, there is an important argument famously proposed by Berger (1980) to suggest a causal relation between the disappearance and extinction of animals and an increasing diffusion of animal imagery, particularly given that they coincide historically during the nineteenth century (p. 24). In other words, animal representation comes to compensate for the growing absence of the animal in daily life.

At one level, Berger (1980) is incorrect, given the widespread variety of animal representation. Furthermore, the growth of animal representation in film, photography, and print, which is particularly noticeable toward the end of the nineteenth century, coincides with the expansion of the animal welfare movement and nature conservation (Kean, 1998; Grove, 1995). Berger, however, does point us in an important direction, because the ways in which the animal is seen and not seen - the connection between presence and absence - do change in the nineteenth century and, thus, have a direct bearing on animal representation. Changes in configurations of animal visibility and invisibility not only determine the style of presentation of animals in the public domain but also demarcate the boundaries of how animals should be treated in a civilized society. Unfortunately, as I shall now show, the interaction of animals with the technologies of visual culture, which in many ways determine their representation, cause these boundaries to be highly porous.

The link between vision and cruelty already was an important component in the history of animal welfare from the early years of the nineteenth century on and has considerable impact in making the animal, in certain moral and political contexts, a powerful visual image. A great part of animal welfare history in the nineteenth century, both at the level of state legislation and the activities of societies such as the Royal Society for the Prevention of Cruelty to Animals (RSPCA), dealt with the question of how animals were seen to be treated and implicitly linked the issue of cruelty to the visual order. This was manifested in a succession of bills beginning with the 1809 Act to prevent malicious and wanton cruelty to animals.
One of the inspirations behind the formation of the RSPCA in 1824 was the sight of animals being driven to Smithfield Market in London. The issue of visual order was an important factor in increasing control exercised over all sorts of different domains of animal-related practice - including bear baiting, vivisection, slaughter, or the clearing of the city streets of strays. An interesting feature of a Bill in 1857 was that children under 14 should not be permitted in slaughterhouses to witness killing (See Figure 1).³ In the 1876 Act laying down the rules for vivisection, public lectures involving vivisection were banned and restrictions placed on its use in illustrating lectures in medical schools. If cruelty was to take place, it was to be behind closed doors and under license.¹ Vialles (1994) describes parallel events in France. Napoleon’s reforms of the meat trade in 1806 slowly led to slaughterhouses being moved from the centers of towns and made increasingly anonymous architecturally. This transformation was paralleled textually in the twentieth century in successive editions of the Larousse encyclopedia in which pictures of activities within the abattoir were replaced in the 1982 edition by a diagram of its functions. (pp. 24-27).

In all these instances, the emphasis is not just on visibility but also on what might be called the appropriate seeing of the animal. In the context of some remarks on the early nineteenth century, Kean (1998) writes,

[C]hanges that would take place in the treatment of animals relied not merely on philosophical, religious or political stances but the way in which animals were literally and metaphorically seen. The very act of seeing became crucial in the formation of the modern person. (pp. 26-27)

I would like to extend this remark by adding the phrase, “and the modern animal.” What this also means is that the seeing of the animal becomes, in certain circumstances, a complex act that combines a preoccupation with the humane alongside codes that sanction animal killing or experimentation in areas outside the field of public vision. Where animals are seen, they become in some respects - to adapt a book title (Rose, 1986) - bearers of morality in the field of vision.

The contemporary counterpart of this can be found in the centrality of visual imagery to animal politics. Jasper and Paulsen (1995) emphasize this in a comparative study of anti-nuclear and animal rights protesters whereby the
Figure 1. A small slaughtering operation, early twentieth century (Leighton & Douglas, II, 1910, p. 377).
image of the animal is understood as a powerful condensing symbol for a range of human emotions and reactions: “[T]he visual images used in animal rights recruitment have a simple but effective structure based on good versus evil” (p. 505).5

The historical background that links the visual to the moral is important in explaining the power of animal imagery, but it also needs to be considered in conjunction with the technology of the media that articulates these images. Not only are animals linked in to a progressive, or improving, framework of civilized behavior, they also are, in a parallel manner, integrally related to the development of a technology that will enhance their visibility. I am now going to take two examples of this: moving film and changing contexts of animal display at the London Zoo in the early twentieth century.6

**Film**

In the early decades of moving film, from 1895 on, animals appeared in an extraordinary diverse and flourishing medium. Striking examples include (a) Edison’s “Electrocuting an Elephant” (1903), (b) the microscopic insect films and stop motion studies of Percy Smith, (c) Cherry Kearton’s hunting films from Africa, and (d) the racy entertainments of Colonel Selig.

In these instances, the novelty of film was reinforced by the novelty value of animals as well as birds and insects. However, the significance of the animal was due not only to imagery as such but also to the integral links between the powerful potential of representing animals and the technological challenges such a complex object for depiction presented. Animals were an important motive force in driving the new technology of moving film as well as being, in some senses, its inspiration.7 Historically, the sequential photographic work of Eadward Muybridge, Jules-Etienne Marey and Ottomar Anschütz in the 1870s and 1880s depicted all manner of living creatures and explored techniques important to the development of moving film; namely, increasingly refined timing mechanisms, fast film, and precision in camera design to capture the rapid movement of animal and human bodies.8

It could be said that, until recently, the tremendous significance of the representation of animals in moving film and still photography was in inverse proportion to scholarly interest in the topic.9 To some extent, this has been
due to an emphasis on the textual animal at the expense of the visual animal and explains the predominant focus on animals as metaphors or signs. This does not mean that these symbolic elements are absent from animal representation on film. The power of the film image, however, and its relationship to the visual status of the animal in public contexts means that this type of animal representation relates much more to collective aspects of the field of human-animal relations than to particular instances within it. In fact, film straddles a number of cultural fault-lines - most notably those that relate to entertainment and education - as well as crossing back and forth over the dividing line between the humane and the cruel.

In line with the idea that the good treatment of animals in public connotes a decent standard of civilization, early animal films also were seen as improving. A National Council of Public Morals (1917) report was primarily concerned with the need to raise the tone of cinema programs. Educational films, such as nature studies, were considered an important tool in this process. But the report also recognized that these would not be able to compete with, say, Charlie Chaplin films or the exploits of Elaine, unless they, themselves, were in some ways entertaining (National Council of Public Morals, p. lix).10

In theory, however, humane concerns were to balance the needs of entertainment. From the inception of the British Board of Film Classification in 1913, animal cruelty was one of the grounds listed for cutting or banning a film. This category became more detailed in subsequent years specifying activities like cock-fighting, branding, and - more bizarrely - animals gnawing men and children (Robertson, 1985, pp. 20-21; Low, 1997, p. 91). However, the inevitable tension between the need for entertainment and the humanitarian and educational potential of nature films was never resolved, and this was reflected most profoundly in the occasional examples of animal death on film. Nor did this rule out instances in which the making of film entailed fatal consequences for animals. When death did occur, however, it usually was treated as the consequence of a natural process, not something unnecessarily contrived for the camera.

The killing of animals on film has a long precedent. One of the first films made was of a Seville Bullfight in 1896. The limitation of short lengths of film in the early motion picture cameras meant that only snatches of the
bullfight were captured - but enough to see a horse being gored and, at
the end of the film, the dead carcass being dragged from the arena. Other
early examples include Cherry Kearton’s *Lion Hunting in Africa* (1910), in
which the Masai kill a lion. Some scenes of animal death were more contrived,
such as the setting up of artificial animal combat, a photographic tradition
that goes back to Muybridge, or the provoking of wild animals to charge
onto the camera and then shooting them. This marked a number of safari
films in the 1920s and 1930s (Bousé, 2000, pp. 42-43; Imperato & Imperato,

The comparison with pornography that Bousé (2000) makes when discussing
the issue of animal death on film highlights the particularly charged nature
of animal imagery. Taking the parallel further, it also draws attention to the
combination of repulsion and fascination that marks a response to certain
kinds of animal representation and relates, in turn, to the problematic negoti-
tation between co-existing humane and cruel impulses. Even with the most
worthy of intentions, such as in the cause of animal welfare, the photographic
exploration of cruelty has a strong voyeuristic streak. In 1914, the *Times
(Anonymous, 1914)* reported a film made by the RSPCA to protest at decrepit
horse traffic. Toward the end of the film,

[B]y way of an argument in favour of a humane killer, the film shows a
primitive method of slaughtering the unfortunate beasts by driving a knife
into the chest. As the blood surges out the animal’s death struggles are seen
with repulsive realism. The Society itself admits that these pictures cannot
be shown in public, however vividly they prove the need for some improve-
ment of existing conditions. (p. 6)

As the above example shows, the issue of voyeurism is determined also by
the rules of what should be seen publicly, creating taboo imagery and asso-
ciating the idea of animal cruelty with concealment and invisibility. Hence,
as an ironic repetition of the secret filming of wildlife from hides, present
day secret filming in laboratories and other institutions by animal rights
activists is a further consequence of a long process that has, in so many con-
texts, saturated the visual animal image with moral connotations.
These considerations are not confined to film. Another example, which again relates animal representation to technology as part of a vision of historical progress, concerns changes in zoo display at the London Zoo during the 1903 to 1935 secretaryship of Peter Chalmers Mitchell. In a similar situation to film - and it was a parallel of which the Zoo was well aware - the Zoo needed to achieve a balancing act between entertainment and its interest in animal welfare. Under Mitchell, programs were instituted to improve the health and longevity of animals in captivity, which Mitchell saw as the main purpose of the Zoo (Mitchell, 1911, p. 545). An important example of this was the creation of displays exploiting fresh air and light, particularly for primates.12

Because the health anxieties of the Zoo were comparable to those of the population at large - especially with regard to rickets and tuberculosis - the solutions explored, such as improved ventilation and exposure to sunshine, also were similar. Exposing animals to increased doses of ultra-violet light using either quartz bulbs or a special window glass - labeled appropriately as “Vitaglass” - that did not filter out ultra-violet rays from the sun, was another feature of this process.

As discussed above, there are a number of respects in which this policy had a direct bearing on the issues of visual representation. As with film, the significance and attractiveness of the animal in the zoo was that the animal was not simply an object but also an event. From an entertainment point of view, the more dynamic the event the greater the interest, and the need for dynamism was directly related to the issue of animal health. Mitchell (1929) claimed that some of his ideas concerning fresh air had derived from the work of Hill, a one-time colleague of his at the London Hospital Medical School (p. 189). Hill had published a number of studies that promoted the idea that bodily vigor and good health were derived from exposure to sunlight and fresh, preferably cold, air. Confinement in “still, warm atmospheres and lack of open-air exercise dull the fire of life and, together with lack of sunlight, produce the deleterious effects of city life on the physical development” (Hill, 1925, p. 107).
The show-piece manifestations of this thinking at the Zoo were bare environments that, in the interests of cleanliness, avoided clutter and gave clear passage to the elements deemed important for health. They also served to make the animal even more starkly visible. In the Experimental Monkey House, a temporary building erected in 1925 and designed to exploit the advantages of fresh air and ultraviolet light, all the surfaces were made of some form of impermeable material - whether glazed bricks, concrete, or asphalt. The Monkey Hill, a display of a community of Hamadryas baboons on an artificial rockscape separated from the public by a ditch, was another example of this. Inside the Hill were heated quarters containing quartz bulbs for ultra-violet lighting. Opened in 1925, this exhibit placed no obstruction such as bars or mesh between the viewer and the animals and intended to highlight the animal as living in a near natural state.

Many aspects of the Monkey Hill lent the display to anthropomorphic readings - particularly in the treatment given to it by the popular press - but it is worth highlighting the way the display was peculiarly like film. Given that there was no need to forage for food, which takes up a vast amount of time in the wild, the baboons became hyperactive socially, spending disproportionate amounts of time in sexual behavior and fighting. Rather in the way that film cuts down on the mundane to focus on the exciting, so a significant part of baboon behavior had been effectively edited out.

There also was a stage-like quality to the rockscape with its small semi-concealed entrances leading back into the rock, and it is no coincidence that another theatrical display, the chimpanzee’s tea party, was introduced a short time afterwards in 1927. It also exploited its prototypical quality as an expression, or representation, of the healthy community in an urban environment. Some newspapers picked up on the implications of the display for human health, asking why monkeys at the Zoo should be given a treatment that was not made widely available to children and slum-dwellers. “Should baboons have the sun and air that babies are denied?” (Saleeby, 1926). It was suggested that the design principles at the Zoo should be extended to the dwellings of human beings. However, Monkey Hill also combined these utopian intentions, as far as issues of collective health were concerned, with tragedy. The fighting due to pressure of space and sexual dominance conflicts led to numerous fatalities, mainly among the female baboons (Zuckerman, 1981,
pp. 219-223). As with film, the baboons represented the idea of social improvement while suffering from the framing structures that illuminate such representation.

**Invisibility and Humane Killing**

My final example, which concerns the history of electrical stunning in slaughterhouses, relates to concealment and invisibility. Although this subject has a different relationship to representation in the public domain from film and zoo display, in many respects the practices in all these examples are structured in similar ways. Historically, animals were crucial both to the exploration of the properties of electricity and its conceptualization. Apart from rudimentary experiments exploring the effects of the electrocution on animals and birds, the first significant experiment that incorporated part of the animal body into an electric current was performed in 1753 by Giambatista Becaria. He demonstrated the stimulation of muscular contractions by passing an electric spark through the exposed thigh muscles of a live cock (Rowbottom & Susskind, 1984, p. 34). Toward the end of the eighteenth century, Galvani and Volta made significant contributions to the development of electrical theory, particularly through their debates on the nature of what was termed “animal electricity,” basing much of their work on the electrical stimulation of parts of animal (and human) bodies (Pera, 1991; Galvani, 1953).

Through its use in medicine in the later eighteenth and nineteenth centuries, electricity came to be seen as both cathartic and rejuvenating. Paralyzed limbs could be revitalized, and, later, as electro-convulsive therapy (ECT) appeared to demonstrate from the late 1930s on, obstacles to sound mental functioning could be cleared. In fact, the experimental groundwork for working out the dosages for ECT was conducted by Ugo Cerletti on hogs in a Rome slaughterhouse. From a cultural point of view, the cleansing aspect of electricity incorporated both moral and physical connotations. However, the most significant historical episode in the development of the electrical stunning of animals was the development of execution by electrocution, and two elements of this particular story concern us here.

First, electrocution was seen as a “cleaner,” and hence morally more acceptable form of killing. Second, it reflected a shift from what was seen by some as the barbarism of public hangings to something more private and efficient.
In other words, it was a process in keeping with a more civilized and technological modernity. Again, animals were crucial to its development.

Alfred Southwick, a dentist from Buffalo and an important promoter of this mode of execution in the 1880s, excited the interest of the head of the Buffalo Society for the Prevention of Cruelty to Animals, who had been looking for an alternative to drowning unwanted pets and strays (Brandon, 1999, pp. 20ff). Furthermore, during this period, animals, particularly strays, were used in large numbers in experiments to establish what constituted a lethal dose (Brandon, p. 59). Sometimes, this even was done in a public demonstration, including Harold Brown’s notorious “canine execution show” (not the actual title of his lecture series!) that traveled round New York State electrocuting up to a dozen dogs in an evening (Brandon, p. 78). In 1887 and 1888, Edison also presided over similar experiments at his West Orange laboratory in New Jersey. Some were attended by members of the public and journalists in an atmosphere, summarized by one recent commentator, as “a cross between a circus side show and an abattoir” (Metzger, 1996, p. 99). These experimental displays eventually included the killing of larger animals in response to the criticism that dogs were too small and not comparable to the human body. When the electric chair was installed at Auburn prison in 1889, it was tested with a horse and a four week old calf (Metzger, pp. 112-114).

Considerations that brought together the issue of civilized, or humane, behavior and technology also were important to the meat industry. Despite the increasing importance of technology in the processing of meat from the early nineteenth century on, it had long been recognized that, to produce decent meat, animals had to be treated decently. They could not be subjected to stress or anxiety. As Wynter (1854) put it, somewhat dramatically, “. . . for anything like fright or passion is known to affect the blood, and consequently the flesh. Beasts subjected to such disturbances will often turn green within twenty-four hours after death” (p. 284). In what essentially was the first scientific text book for the meat industry, Leighton and Douglas (1910) described the goal of the industry as the ability to produce the optimum amount of meat of the best quality in the shortest time (pp. 87ff).

Later, from about 1927, experiments in electrical stunning before slaughter offered new possibilities for attaining such a goal. As with execution by elec-
trocution, electrical stunning offered options of efficiency, low cost, and hygiene as well as meeting humane considerations. In addition, it was a technology that could be operated with relatively little skill compared to, say, wielding a poleaxe (See Figures 2-4). In the words of Müller (1932), one of its pioneers, it indicated, “the higher standard of modern civilisation” (p. 487). As Müller, 1929) wrote elsewhere,

[T]he setting up of electrical stunning devices for the slaughtering of animals will further the cause of humanity. The question of the stunning of animals for slaughter, to the humane slaughterman, is a matter which is not a party, political, or religious one, but one that must be answered from the point of view of humanity and justice to animals. (p. 166)

In the production of meat, the need to bleed the animal thoroughly is essential as residual blood causes damage to the carcass and can lead to the spoiling of the meat. This problem was called “splashing . . . the term commonly applied to a more or less disfigurement of dressed carcasses, which takes the form of haemorrhagic areas” (Parker, 1929, p. 197). Splashing was recognized as particularly apparent in carcasses of animals who had had long journeys before slaughter or who had shown fear or been difficult to handle. This was one of the main reasons why the inhumane treatment of animals needed to be avoided. Stunning seemed a partial solution to this by offering an efficient method of pacifying the animal and calming the atmosphere of the slaughterhouse. A number of scientists such as Hill (1935) noted how unusually quiet the slaughterhouse was when electrical stunning was being used (p. 53). Thus, slaughter was to be not only unseen but also unheard.

Early efforts at electrical stunning had not been entirely satisfactory, mainly because of the difficulty of establishing correct voltage levels (Ducksbury & Anthony, 1929). Too heavy a voltage could lead to a convulsion in the animal severe enough to cause skeletal damage. Too low a voltage, and it could not be guaranteed that the animal would be unconscious when it actually was killed. This debate, incidentally, has continued to be an issue to this day (Hickman, 1954, p. 501; Roberts, 1954, p. 565; Eisinzt, 1977, pp. 64-66).

In late 1931, a new model improving on the Müller-Weinberger machine, known as the S. R. V. Electrolethaler 2, was demonstrated in Britain with
Figure 2. A simple version of a captive bolt apparatus (Leighton & Douglas, III, 1910, p. 762).
Figure 3. The electro-lethalizer applied. © reprinted from Müller, M. (1932a). By permission of the publisher, Baillière Tindall.
Figure 4. © reprinted from Hickman, J. (1954). By permission of the Veterinary Record.
favorable results (Anthony, 1932, pp. 380-381). However, Dryerre and Mitchell pointed out in a 1933 report on stunning to the RSPCA that the requirements for electrical work were not likely to be promoted when slaughterhouse workers were operating under the pressure of time. All that the worker really required was for the animal to be pacified before hoisting, which could mean that correct voltages were not necessarily applied. Whether an animal was truly unconscious would not necessarily be a primary consideration (Longley, 1950, p. 264). This argument over unconsciousness versus bodily paralysis really could not be decided. However, its ramifications extended beyond a simple matter of the humane precisely in those areas that Müller (1929, 1932b) saw as irrelevant to modern slaughter: religion and politics.

When Müller (1929, 1932b) wrote that stunning should not be a religious matter, he had in mind primarily the Jewish method of slaughter, which he considered barbaric. This practice, known as shechita, involves the cutting of the throat of the animal in one swift action with an extremely sharp knife. The animal is not permitted to suffer any kind of bleeding, external or internal, before this act. This form of killing had been the focus of much debate throughout Europe and was banned in a number of northern European countries, beginning with Switzerland in 1893 (Sax, 2000). Müller believed that electrical stunning would be acceptable in shechita because no blood would be spilt before slaughter.16 However, the debate raised an issue that went to the heart of whether stunning was a humane practice - the possibility that animals actually may not lose consciousness when stunned. With shechita, it was claimed that loss of consciousness was virtually instant. In the debate, as conducted in the pages of British veterinary journals, two Dutch scientists pointed out that Leduc’s electrocution experiments on himself in 1903 led to the loss of motor functions and speech but not consciousness (Roos & Koopmans, 1934). One response to the Dutch was to suggest that their arguments were flawed because they were Jewish: “[B]y his explanations, Professor Roos perhaps intends to assist his co-religionists in the question of killing according to the Jewish rite” (Müller, 1934, p. 413). Roos was compelled to respond, “in Holland a Jewish professor is as credible as any other” (Roos, 1935, p. 64).
Conclusion

This debate over stunning crystallized many themes concerning the relation of the animal to technology and culture. In all three examples, the issue of the humane is bound up with technological development at some level. The animal is not outside the changing dynamics of this technology but integrally related both to its development and its articulation in the public domain. The changing configurations of visibility and invisibility - indeed, one cannot consider one without the other - are what determine both the nature and power of animal representation. To see animals as straightforward metaphors for human attributes, whether individual or social, is too limiting. Animal representation is related to a much broader and ambivalent structure of ethical practices and social control. This seems to me to be central to the way we might express the animal’s relation to modernity. To refer to Derrida’s (1999, p. 273) question that I quoted at the very beginning of this essay, animals inevitably are constituted by the time in which they live. They also have time, but it is edited - by film - manipulated and re-organized - by zoo display - and accelerated - by the mechanization of slaughter. This is the temporality of modernity for all creatures, human and animal. Thus, in many ways, animals are representations of themselves as subjects to the technology that frames them.

Notes

1 Correspondence should be sent to Jonathan Burt, Ferry House, Bottisham Lock, Waterbeach, Cambridge, CB4 9LN, United Kingdom. This paper has been inspired and influenced by two very important articles. The first is by Erica Fudge (1999) and examines the particular problems presented by animals to historiography; and the second by Diana Donald (1999) dealing with the animal in the visual culture of nineteenth century London. My thanks also to Steve Baker, Bob Mckay, Roger Yates, and Nicolette Zeeman.


3 This concern continues for a long time. The text under Fig. 1, from Leighton and Douglas, includes the remark: “An objectionable feature of the private slaughter-
house is that the operations can be seen by children, who are often to be seen standing in the doorways.”

4 Parliamentary Papers (1857). A Bill to amend the act for the more effectual prevention of cruelty to animals. 1, 4. Parliamentary Papers (1876). A Bill entitled an Act to amend the law relating to the cruelty to animals. 1, 3.

5 See also Munro’s study of the relationship between the Australian Coalition against Duck Shooting and the media.

6 With the exception the work of Gregg Mitman and Derek Bousé, the lack of detailed analyses of animals and film has been surprising. Furthermore, even less attention has been given to the already existing visual contexts of animals, as outlined above, that moving film relates to as it develops at the fin-de-siècle. However, it is perhaps no coincidence that the focus on animal metaphor in historical writing has avoided the subject of film, as well as still photography, given that animal representation in film bears a more abstract, ambivalent, relationship to the idea of the human. On the relation of film to other art forms in the nineteenth century see my (forthcoming) Animals in Film. London: Reaktion Books.

7 Bousé writes, “It is tempting to propose a variation on the . . . statement that ‘the history of animal art must begin at the beginning of all art,’ and to say that the history of wildlife film must begin at the beginning of all film” (p. 41).

8 Anschütz began making pictures in 1882 and his experiments on equine and aerial locomotion was undertaken for the Prussian military from 1885. See Braun, Haas.

9 There has also been a spate of anthologies of still photography recently. Interesting examples include Hall, Merrit & Barth.

10 See also Mitman for parallel concerns in the United States (pp. 8-9).

11 For a colourful, contemporary, account of the more chaotic side of using animals in early films see Delmont.

12 For Mitchell’s account of this see the chapter entitled Air, Heat, Light and Monkeys in Mitchell (1929, pp. 187-208). On the relationship between zoo architecture and health one might also note the design of Lubetkin’s 1932 Gorilla House at the London Zoo in relation to his plans for London clinics see Allan (pp. 114-117, 202), Coe and Reading (pp. 140-144).

13 On electrocution as means of killing strays in London by the RSPCA and the Battersea Dogs’ Home, see Cottesloe (pp. 68ff).

14 On histories of the meat industry contemporary with the period under discussion see Critchell and Raymond, Cronshaw and Anthony.

15 Gregory mentions that the very first account of electrical stunning was in 1775 involving the stunning and resuscitation of two chickens using a Leyden Jar (p. 82).
A number of people raised the possibility that electrical stunning might involve some tissue damage, for example Hill, (1935, p. 53). See also Hyamson, Sassoon. It is worth bearing in mind that protests against kosher slaughter came from many different sides of the political spectrum. See, for instance, Bell, (p. 13).

References


Anthony, D. J. (1932). Electricity for the slaughter of animals. Veterinary Record, 12, 380-386.


Derrida, J. (1999). L’animal que donc je suis (à suivre) The animal that I am (to


