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Picturing the Pain of Animal Others: Rationalising Form, Function and Suffering in Veterinary Orthopaedics

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Keywords
picturing, orthopaedics, pain, animal, others; rationalising, form, function, veterinary, suffering

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Key Words: Veterinary History, Pain, Orthopaedics, Human-Animal Relations
Introduction

Since the beginning of the twentieth century, the veterinary approach to companion animal orthopaedic injuries and diseases has followed in the wake of developments and innovations in human medicine. By century’s end, the clinical attitude amongst veterinarians to these visibly debilitating conditions had changed from a policy of benign neglect to a posture of aggressive intervention. To meet a growing concern for the emotional and physical states of some companion animals, veterinarians have redirected their orthopaedic practices from pragmatically ‘letting nature take its course’ towards procedures that aim for the accurate restoration of anatomical form. Like orthopaedists treating human patients, veterinarians have been guided by the assumption that good form promotes good function because anatomical ‘reconstruction’ is believed to be the most biologically sympathetic means of minimising the possibility of lasting pain and disability.

In transforming their practices veterinarians have been confronted by two interrelated and long-standing problems. First they have needed to improve their diagnostic, therapeutic and palliative routines to match the expectations of animal owners. Second, to rationalise and justify their choice of intervention, veterinarians have needed to somehow access and assess their patient’s experiences of the initial injury, therapy and their sequelae. Throughout this time, the owner and veterinarian’s ‘views’ of the animal patient’s condition have been subject to socially- and scientifically-contingent transfigurations. Many canines have come to be valued and recognised as ‘selves’ within almost ‘priceless’ deeply personal human-animal relationships (Fox, 2006). It has been suggested that in certain cultures—such as our own—the continuity of human and non-human animal relationships is produced by a mutual recognition of each other’s “self-reflexive inwardness” or interiority. (Descola 2006, 3) With a broader acceptance of the depth of this inter-species bond amongst their clientele, veterinarians have latterly been forced to somehow clinically-accommodate socially contingent renderings of their animal patient’s ‘sense-of-itself’. As a consequence, practitioners have increasingly been asked to consider whether animals are aware of their own physical wellbeing, and, if so, can it be assumed that debilitating conditions produce some form of self-awareness and suffering?

At the other objective extreme of veterinary clinical activities, evidence derived from radiographic technologies has become central to the construction and validation of most orthopaedic practices. At the nexus between the development of these subjective and objective views of an animal’s interior mental life, attaining visually- and psychosocially-acceptable standards of patient wellbeing became the goal of veterinary intervention. In this article I describe how the relative contributions of visual evidence, changes in the perception and understanding of pain in animals, and a gradual escalation in the social—and therefore clinical—importance of each canine’s interiority have been synthesised and then clinically-stabilised at various times to reshape the norms of twentieth-century veterinary orthopaedic practices. I focus upon the ideas and attitudes that surrounded one particular type of painful canine malady to map out subtle transformations in the relationship between veterinary professional ideologies and clinical actions. I demonstrate that evidence produced by visualising technologies like X-rays has informed the gradual blurring of the distinction between human and
animal experiences of pain, and supported a wider clinical acceptance of the cogency of owner understandings of their patients. As a consequence for orthopaedic ailments, rather than just treating the obviously debilitating fracture, veterinarians are now being forced to learn to read, rationalise and compellingly communicate the more subjective facets of each animal’s experience of its function.

**Contesting Canine Selves: Fractures, Pain and Sentience**

At the beginning of the nineteenth century, fractures in companion animals were not a pressing veterinary professional concern. Orthopaedic appliances like splints, bandages and plaster casts were sometimes used, but the authoritative advice remained “the parts soon reinstate themselves, even without assistance, though in such cases the limb in general remains crooked”. (Blaine, 1824, 77) It would seem that most veterinarians and their clients were satisfied with this type of success. Although there was the occasional spectacular failure producing an unusable crooked limb, the majority of animals appeared to regain adequate function after basic treatment. Nonetheless, by the end of nineteenth century, public opinions about pain and what was an acceptable level of deformity and disability in humans and animals had begun to change. In Britain the owners of dogs who walked “clumsily” with badly misshapen hind legs reported that they were “continually stopped by people in the street and advised to have the animal destroyed on account of the apparent cruelty”. (Prime, 1906, 249)

Under the pervading influence of new social norms that tended to conflate health with comfort and appearance, the very ‘look’ of badly impaired canines began to require some form of social acknowledgement. In line with a highly visible campaign to generate anti-vivisection sentiment, the general mood was that in a civilized society, prevention of unnecessary cruelty to some categories of animals was no longer a matter of personal preference but increasingly seen as a moral obligation (Turner, 1980).

In this regard the issue for veterinarians has always been how could they or an owner recognise and understand an animal’s pain and suffering? These seemingly synonymous terms are actually distinct experiences that can, and often do, occur together. The medical appreciation of these phenomena was constructed around the description of different sensations and the attempt to constitute pain around a specific neurological apparatus and chemical and pathoanatomical changes (Rey, 1995). By the end of the nineteenth century it was understood that pain in humans and other animals was a noxious sensation indicative of tissue damage, and often ‘treatable’ with analgesic medications. In contrast suffering was thought to relate to the more emotional and psychological aspects of negative experiences and thus required some form of self-reflective sentience. Consequently to men of science and many philosophers, pain ‘behaviours’ in non-human animals have traditionally been considered to be autonomic, or at best, adaptive responses to unpleasant stimuli. Without other—objective and comprehensible—evidence of self-reflective sentience the presence of pain did not constitute evidence of an animal mind, and therefore it was asserted by fiat that animals were unable to suffer.

Of course animals, unlike humans, cannot relate their experiences verbally and are not trusted to behave ‘normally’ during clinical examinations. For this reason it was a long-standing
veterinary dogma that animals cannot have reliable subjectively formulated symptoms, but can only display objectively determined clinical signs. This taxonomy of experiences fitted neatly within the scientific persona that the profession’s opinion leaders were keen to engender. Within these parameters veterinarians could still take the animal’s history from the owner and elicit objective signs like pain on manipulation or changes in gait to assess the causes and consequences of an animal’s orthopaedic complaint, but subjective assessments of an animal’s behaviour were a priori, highly untrustworthy sources of clinical information. In Britain and North America it was drummed into veterinary students that what was wrong with an animal was “not a matter of opinion” but “a matter of fact”. (Weipers, 1973, 517) They were trained to approach animal disease from a physiological perspective and to make the most of the diagnostic instruments at their disposal.

In their interactions with animals and owners veterinarians have, however, always had difficulty in avoiding language that conveyed a subjective appreciation of animal suffering, not least because the term “suffering”—and its derivatives—have commonly been employed in veterinary texts as a referent to the bearer of a disease or complaint. Moreover, because they were unable to bridge the divide between the public display and private experiences of their animal patients, practitioners have commonly resorted to analogy by human comparison. For example in describing the “painful torpor” of a case of canine “rheumatism”, Delabere Blaine (1824, 152) noted, “He screams on being moved” a complaint “similar to the human lumbago”. Blaine had trained as a human surgeon before becoming a self-styled small animal specialist in early Victorian London. In a popular book explicating every detail of canine lore and natural history, Blaine’s apprentice William Youatt (1852, 161) claimed that the inferior animals—especially the dog—were “susceptible to the same moral qualities as ourselves. Hatred, love, fear, hope, joy, distress… and many varied passions influence and agitate them, as they do the human being”. Given the nature and era of their education, it is perhaps unsurprising that Blaine and his protégé adopted such emotive and enthusiastic tones. As a consequence of later moves towards professionalization, and various waves of scientific reform to veterinary education, most subsequent practitioners would have found Blaine and Youatt’s accounts to be sentimentally misinformed, overly melodramatic and attempted to restrict themselves to more de-personalised clinical descriptions.

Later nineteenth-century physicians, surgeons, and veterinarians who had been accorded the benefits of a scientific education generally believed animals to be towards the insensitive end of what has been called the “great chain of feeling”. (Pernick, 1985, 157) Within this taxonomy sensitivity to pain could be correlated to the individual’s species and exposure to civilisation. Accordingly, because of their comparatively opulent domestication, the pampered canine would feel a greater intensity of pain than its wild or savage cousin. Eventually this calculus was diluted and then slowly discarded in human medicine. As a rule, however, most veterinarians remained more or less openly agnostic to the possibility of animal suffering, and deliberately clinically-unaccommodating towards an animal’s pain experiences in the clinic (Rollin, 1997). Animals were lame for specific physical reasons, and not because they were anticipating further discomfort or subject to unpleasant “passions” or emotions. Consequently, because they were wedded to an objective framework that implicitly denied animal mentation,
there are scant reports in the twentieth-century veterinary literature of the possibility of patient malingering (Fox, 1962).

Despite an air of veterinary disinterest, late nineteenth-century companion animal owners in Britain and North America—intuitively at least—were not necessarily aware of or satisfied with non-anthropomorphic and objective explanations of their animal’s distressing behaviour and implicitly rejected assumptions about their non-mindedness. In human experiences, healed fractures often produced painful neuralgic sequelae, sometimes months and years after the injury (Rey, 1995). Their injured animals were similarly visibly impaired, possibly in discomfort and therefore—for moral, aesthetic and/or charitable reasons—required some form of intervention. Eventually the ‘public’ appearance of a malformed animal became increasingly unacceptable, because wider society understood prolonged functional disability to be indicative of chronic discomfort, and perhaps the cause of some form of silent self-reflective suffering (Turner, 1980). In light of evolving concerns for individual fitness, notable improvements in human orthopaedic outcomes, and increasingly publicly-visible attempts to protect animals from painful experiences it is perhaps unsurprising that veterinarians in small animal practice gradually began to pay more attention to companion animal orthopaedic complaints. In line with the norms of human interventions they began to place a greater emphasis on the ritual of setting, splinting, and casting canine fractures.

By the beginning of the twentieth century a solution to the “apparent cruelty” of canine clumsiness after catastrophic fracture mal-unions was developed and promoted by the British veterinary patriarch Fredrick Hobday. While he was not noted for being averse to any innovation that helped reduce an animal’s discomfort, it is interesting that rather than primarily promote his refined companion animal anaesthetic protocol amongst his colleagues as sparing the patient unnecessary pain, Hobday chose to emphasise its affordability and utility as a form of restraint that improved efficiency and allowed longer, better-controlled operations. With the benefit of this control, he also began to offer his clients with a ‘disabled’ companion animal the option of a limb amputation. The procedure was an alternative to euthanasia or forcing the animal and owner to ‘make-do’ with its clumsy predicament. Like their human counterparts, canine patients could then have their form and function at least partially restored by the fitting of a prosthetic limb.

Even if the dog rejected the prosthesis, Hobday (1906, 343) noted, “it is astonishing to see how soon an animal can reconcile itself to the loss of a limb and how well it soon learns to walk about on the remaining three”. Closer attention to ‘straightening’ techniques and amputation procedures for fractures offered veterinarians more therapeutic ‘success’ stories and expanded their clinical repertoire. Nonetheless a subtle dissonance between veterinary ideology and actions had begun to manifest. While practitioners relied upon the owner’s attachment and knowledge of an individual animal to attract this type of clientele, from the available evidence it seems that few amongst their number explicitly accommodated any sense of these patient’s emotions or mentation. In some sense, veterinarians such as Hobday had begun to adapt an animal’s anatomical form as a means of ameliorating the response the animal’s plight provoked in others. They were providing a service for a particular type of client who was seeking medical assistance because of the relationship they had with their animal.
Owners who availed themselves of this expertise could console themselves with the knowledge that everything possible had been done to minimise their animal's pain and discomfort. On this basis veterinary opinion leaders were able to advance the idea that one of the higher purposes of the veterinary arts was the relief of animal suffering, even though most practitioners were increasingly wary of any attempt to describe the nature of animal experiences (Jones, 2003).

The escalation in automotive forms of transport in the first few decades of the twentieth century caused more canine fractures. Displaying the hard-nosed pragmatism veterinarians were famous for, Mr F.J. Taylor of London noted: “where motor cars are ‘occasionally’ seen on the streets... they invariably have a casualty list to account for in the shape of dogs”. Accidents that brought “a little grist on the one hand to compensate for the financial loss they cause to our business on the other”. (Taylor, 1911, 356) Nonetheless as they set out to establish small animal practices, most veterinarians were dismissive of the X-ray machine’s practical and commercial value. As economic conditions improved in North America—and in inter-war Britain a few decades later—most companion animal veterinarians aspired to practice in a clinical setting that mirrored the facilities utilised by human surgeons. As the expense of radiographic apparatus fell to within the reach of most private practitioners, veterinary opinion leaders argued that the acquisition of the skills of roentgenography offered similar possibilities for professional and commercial rewards as their human medical counterparts (Kirk, 1932). To gain better appreciation of how X-ray images began to affect veterinary professional ideologies and practices it is, however, first necessary to briefly describe concomitant changes in human medicine where industrialisation, efficiency-focused management strategies, and radiographic technologies had gradually altered the context and content of the practices of orthopaedic surgeons.

**Evolving Regimes of the Self: marrying image, experience, and fitness**

Throughout the second half of the nineteenth century medical professionals, governments, industrialists and consumers in Western societies co-produced a new set of therapeutic ideals under the guidance of the notion that useful employment leads to prosperity and happiness (Pickstone, 2003). The historian Kenneth De Ville (1992, 113) has noted that as the twentieth century began, “Secularization, affluence and the nascent consumer culture continued to evolve and individuals became even more concerned about their health, comfort and appearance”. The ethos and values that informed the medical-marketplace for fracture care was changing. Under the influence of a pervading rhetoric of techno-medical efficiency, an expectation developed that efficacious and restorative fracture treatments were relatively easy to achieve. Of this the British surgeon William Arbuthnot Lane (1900, 1493) observed: “We must remember that the public imagine when we go through the ceremony of ‘setting’ a fracture that we mend their bones as skilfully and accurately as the carpenter mends the broken leg of a chair or table”. The production and widespread dissemination of X-ray images of fractures in the popular and scientific press—as curiosities—did little to dispel this notion (Kevles, 1997). Accordingly, as fracture treatments were increasingly portrayed as being relatively standardised, patients became much more conscious of individual repercussions like impairments and aesthetic deformities. Patients were more likely to have a negative view of
non-standard therapeutic outcomes that might affect their physical function, their self-image, and by implication their usefulness and social standing (Tomes, 2001).

While a few prominent orthopaedic opinion leaders pushed for fracture care reform within this wave of efficiency-mania, most surgeons were at first ambivalent, and occasionally highly resistant to the utilisation of radiographic examinations within diagnostic practices. Incorporating X-rays within clinical routines required a change in medical culture and hospital infrastructure (Howell, 1995). Nonetheless, despite the open hostility of many medical practitioners the X-ray image soon came to be a symbol and ‘true to life’ arbiter of internal states of nature (Daston et al., 1992). Because of the lack of any other trustworthy means of objective assessment, “before” and “after” pictures of the injury and the healed fracture soon became an unofficial form of “pictorial testimony” which could be interpreted at a distance from the patient (White, 1900, 429). Increasingly, to both lay patients and expert practitioner, the images in some way ‘spoke’ of the competence of the medical care (Hogan, 2003). Conversely, a patient’s claims of pain could now also be compared, correlated and/or discredited with a two-dimensional image of the adequacy, or apparent abnormality of their functional anatomy. Some of the more subjective aspects of the living and talking patient’s condition could now be objectively documented. In this way throughout the first few decades of the twentieth century the X-ray image became a highly persuasive form of medical evidence (Warwick, 2005). X-rays were independent of the vagaries and inconsistencies of subjective patient histories or a doctor’s physical examinations. With the click of a button, the difference between a well-aligned fracture and a deformed mal-union was rendered in black and white.

Accordingly in orthopaedic practices, visually appreciated norms of anatomical form were becoming standard medical norms that demanded intervention. Once the technology was integrated into clinical routines, the production of acceptable post-treatment X-rays implicitly became one of the primary goals—and indicators—of orthopaedic success. At the same time images of a patient’s interior anatomy could be used to defend or deny their otherwise subjective claims about pain and diminished function. Consequently the X-ray was an image on which both subjective and objective assessments and claims of an individual’s pain and relative function could be tested and rested. Over time, surgeons, the legal profession and their shared clientele, gradually came to adopt the normal X-ray image as being emblematic of a new standard of treatment success. Contemporary veterinarians, in contrast, were at first much more focused upon the technological and commercial advantages of radiographic diagnosis. Nonetheless as more practitioners began to take X-rays—or took their animal patients to the local human hospital to acquire this service—they soon found the images opened up new ways of appreciating, estimating and gauging the success of their procedures. The practice of roentgenography provided them with a new tool with which to explore the owner’s claims of their animal’s experience of orthopaedic ailments.

INSERT Figure 1
The Grand Awakening: X-rays and the animal patient

The uptake of radiography in small veterinary animal practice was somewhat delayed compared to human medicine but once underway soon followed a similar trajectory. By the 1930s the professional discourse that surrounded companion animal fractures began to change. To classify a fracture as being ‘of the left hind-leg’ would no longer suffice. Veterinarians began to describe fractures by their anatomical site as a ‘femoral neck fracture’, like their human orthopaedist counterparts (Schroeder, 1939). If the use of X-rays meant their terminology was now more anatomically specific, so were veterinarians’ understandings of their clinical failings. X-ray images demonstrated that much of the orthopaedic ‘success’ veterinarians achieved by confinement or with simple splints and bandages, was actually due to the compensatory changes in their patient’s posture. The animal’s adjustment of its standing joint angles often counteracted the effects of poorly-healed fractures. With these compensations animals with foreshortened limbs often still appeared to function in a relatively normally manner. Hence it was the angular anatomic-configuration of the appendages of dogs and cats, and not veterinary ministrations that allowed treatment by simple splints or ‘masterly inaction’ to usually produce otherwise adequate functional results.

The production of radiographic images also provided veterinarians and owners with an objective point of reference around which to negotiate their conceptions of the animal’s behaviour. Because they opened up a space for uncertainty and contestation of the relationship between anatomical form and a patient’s demeanour, for some veterinarians these ‘ugly’ X-rays precipitated a change in their clinical perspective. In a widely subscribed veterinary journal, Robert Self expressed his disappointment in his own therapeutic outcomes:

I made a practice of taking an X-ray photograph of every dog that came into my hospital with a fracture and I proudly showed the plates to the owners. It was my desire and hope to show them a picture when the cast was removed, but to my disappointment, in the majority of cases reduction was so poor that I was ashamed to show them to my clients… I have a large investment in X-ray equipment… but to sell it, it was necessary that I do such a type of work that I could afford to show them the plates. (Self, 1934, 120)

Veterinarians still aimed first and foremost to satisfy their clientele and restore their patient’s function. However, radiographs of healed but misshapen bones were “the grand awakening” which added impetus for the development of new, efficacious and marketable orthopaedic procedures to re-establish the previously pristine anatomical-form of canine fractures. (Ehmer, 1934, 42) This imperative was reinforced by a gradual acknowledgment in physiological circles that there was no intrinsic difference in the neurological apparatus of humankind and the higher animals. The implication was that pain experiences in the human and canine—through the agency of evolution—might actually be comparable. At the same time leading Anglo-American experimental physiologists began to explicitly explore the effects of ‘emotions’ on an animal’s physiological function (Dror, 1999). While these developments did not completely circumscribe the influence of long-established anthropomorphic distinctions and dogmas, ascribing an experience of emotion to pain in animals was no longer so scientifically untenable (Rey, 1995).

Self, like other small animal specialists, was more concerned with the practicalities of
treatment than metaphysical concerns. In the same article he declared:

I challenge any veterinarian who thinks his fracture work is good to make a picture of the animal’s leg after the cast is applied and see how many times he has failed to attain proper alignment of the broken bones... I admit on most cases the dog will walk – but how – I often wonder. (Self, 1934, 120)

Even though veterinarians were aware some deformity in quadruped species might not necessarily preclude acceptable post-treatment utility of the affected appendage, new standards were evolving. The recognised expert in small animal orthopaedics Erwin Schroeder (1936, 529-30) advised his veterinary colleagues “perfect result implies perfect anatomical reduction... perfect apposition and alignment and perfect function”. With these ideals gradually gaining wider circulation, post-treatment distortions evident on an X-ray image became symbols of inefficient treatment and sub-optimal function. While veterinary ideology maintained that pain could only be appreciated as a clinical sign, implicitly at least, an animal left with an obvious limp was now open to interpretation as an animal that was in some form of chronic emotional distress. For some practitioners and many of their clients, when they were in the company of an animal struggling with a disability, the distinction between pain and suffering began to collapse.

The Image of Complications

It is arguable that veterinarians and their clients only became truly interested in improving fracture care practices for companion animals once they could see otherwise hidden anatomical malformations on X-ray. The animal may or may not have limped after previous, less technologically sophisticated treatment techniques had been applied, but few veterinarians would have agreed that this constituted grounds for concern as to whether these animals were suffering. However once X-ray images were consulted, it was apparent that more could be done to restore animals to their previous level of function. Pictorial norms of optimal treatment were soon established. Within this “grand awakening” veterinarians understood—or in some way tacitly agreed—that ‘good’ form implied the therapeutic ideal of pain-free function. Hence, employing X-rays required veterinarians to improve the internal ‘look’ of the animal to ensure owner and patient comfort. If human experiences were any guide then more accurate anatomical restoration constituted a better orthopaedic outcome. In this way, despite the disagreeability and unscientific character of their ongoing reliance upon owner accounts during consultations, interventions and assessments could still be constructed around a form of evidence that was independent of the subjectivities and selves of their animal patients.

For owners, in comparison, a properly restored animal companion was able to keep up with others in the park during play while not displaying a clumsy limp or a disturbing anxious expression. Their pet’s function and demeanour remained the ultimate arbiter of its wellbeing. Most of the orthopaedic treatments subsequently developed under the guidance of X-rays seemed to satisfy both veterinary and owner perspectives and comfortably convey—through the animal’s external appearance and its radiographic form—the impression that optimal function had been restored. On this basis it could be assumed that the animal was free from lasting pain and therefore—even if it was aware of its predicament—it could not be described as suffering. Unfortunately some canine orthopaedic injuries—especially femoral fractures—
refused to heal as expected. Consequently these animals remained or soon became painfully lame, even after the acme of veterinary ministrations. Because animal owners had reason to believe that chronic pain and changes in their animal’s demeanour were evidence of some form of awareness and suffering, often the only acceptable and humane alternative was for the veterinarian to palliate the animal’s condition with a limb amputation or perform euthanasia.

Consequently, the introduction of X-rays also meant that animal-health care experts had to become more cautious in their therapeutic claims. The American veterinarian E.A. Ehmer went so far as to suggest that owners and veterinarians would just have to accept images of bent bones, limb shortening and even an obvious limp in some types of fractures in some types of veterinary patients. He reasoned,

> Aside from a few fanatics, who are satisfied at nothing, the average citizen who owns a dog with a broken leg is interested in three things. First: Can his life be saved? Second: Can he be returned to a fairly normal state in which he can play around without pain? Third: What will be the cost? ... people know, by years of experience, that broken bones do not always mend perfectly... invalids following pelvic injuries are common; many people are on crutches for life following joint injuries;... it is not always possible to secure perfection, and all this is common knowledge to the layman. (Ehmer, 1934, 41)

Nonetheless, to avoid unnecessary and potentially vexatious disappointment in their clients, veterinarians had little option but to dampen expectations while they sought to improve the functional outcomes. Accordingly, the anatomical aesthetics of X-rays became subsumed by concerns about how these images could be used to judge the efficacy of veterinary interventions. To control how this uncertainty was manifested, veterinarians realised they needed to put more effort into controlling how X-ray evidence was introduced to their consultations and framed within owner assessments of therapeutic outcomes.

At a meeting of the Central Veterinary Society of London in 1937, James McCunn went to the heart of the issue for practitioners. The minutes recorded his views: “The time when it was considered correct treatment to place bits of wood and insulating tape around the dog’s leg had gone...” and yet, “Fractures near joints were invariably dangerous and often the prognosis was bad”. Consequently, “Owners must be given a choice of accepting or refusing an X-ray, preventing subsequent recriminations”. (Wright, 1937, 11) Radiographs could be used to promote a variety of different and not necessarily complimentary interpretations of the chain of clinical events. Like their colleagues in human medicine, veterinarians had to learn to utilise X-ray images to practice defensively. Rather than just blithely promising a good functional result and raise unrealistic expectations, veterinarians in general practice were advised by their specialist colleagues only to promise to do their best in trying circumstances.

**INSERT: Figure 2**

Despite the common sense appeal of Dr Ehmer’s ‘non-fanatical’ pragmatism, small animal practice was of increasing financial and professional value to veterinarians. In 1948 an
anonymous contributor to the Veterinary Record reminded his colleagues of a ‘truth’ which many of them were slowly realising. Of small animal work he contended:

It is a branch of our profession which is of the greatest importance, and the degree of our devotion to it often serves as the criterion by which we are judged. (Importance of Small Animals to the Profession, 1948, 49)

To ensure that there were minimal misunderstandings veterinary practitioners were soon told in no uncertain terms, “Successful orthopaedic work without x-ray is impossible”. (Hoskins et al., 1949, 455) A standard of routinely attaining good anatomical form in their patients while simultaneously addressing their client’s concerns and expectations could only be ensured by utilising visualising technologies. Without an X-ray the patient’s condition remained a subjective estimation, and therefore open to veterinary or owner misinterpretation. Despite their different perspectives, the radiographs produced formed an articulation between the veterinarian and owner’s view of the animal’s ailment. In this way —like other medical technologies in other circumstances —the use X-rays in veterinary practice and the social context and meaning of the images produced developed simultaneously (Timmermans et al., 2003).

The results of veterinary orthopaedic interventions continued to improve under the guidance of the radiographic view of the patient. However it was not long before the horizon of satisfactory standards of patient wellbeing began once again to shift. The integration of X-ray into veterinary orthopaedic routines also began to reveal post-treatment complications. Radiographic images of the finer details of animal joints began to be associated with analogous human conditions that were known to cause lasting pain and terrible suffering. By attaining some limited success with difficult injuries and fractures veterinarians had actually created new, as yet untreatable painful and debilitating osteoarthritic complications. Novel potential- and visible-causes for subtle or hidden animal pain were emerging. Rather than being able to ignore a non-specific complaint in their patient’s hip joint or knee and ascribe it to mild ‘joint-ill’ or a poorly-differentiated muscular strain, radiographic images now gave pictorial testimony of progressively debilitating synovial disintegration. To contextualise the veterinary response to these developments it is necessary once again to provide a brief overview of concomitant changes in the theories and practices of human medicine, where orthopaedic surgeons were slowly realising the indeterminacy of the relationship between reports of patient pain and the radiological evidence of osteoarthritic changes.

**X-rays, Traumatic Arthritis and Communicable Suffering**

Up until the early twentieth century, the ‘hypertrophic’ variety of arthritis in humans and animals was understood to be a normal consequence of the senescence of an aging body. Arthritis in old age was an accepted fact of life. However, with the introduction of Röntgen rays to experimental medicine, radiographic examinations soon suggested that the ‘dry’ form of degenerative arthritis was different from other varieties of joint-ill. While surgeons struggled to specify and remove the source of the ongoing synovial insult that precipitated joint degeneration, they now also had the pictorial means to anatomically appreciate the pain and chronic suffering their patients were describing. Patient entreaties, severe limitations in
function and externally-palpable distortions of the joint were no longer the only triggers for a surgical response. With the facility of modern technologies, the surgeons and their patients could chart the progress of a joint’s degeneration on serial X-rays. The radiographic appearance of severe arthritic changes to a joint’s internal form became acceptable evidence to support subjective claims of its painful function (Ghormley et al., 1942). Pictorial demonstration of osteoarthritis ensured that any associated discomfort and claims of suffering could not so easily be ignored or conversationally palliated. Of course, being trained surgeons, the current fad in operative solutions was generally the most subscribed therapeutic option.

It was not until the 1950s that orthopaedists began to try to systematically correlate their patient’s descriptions and experiences of arthritis with the evidence of anatomic degeneration and malformation present on X-rays. By comparing these images, physical examinations and the patients account of their discomfort, human clinicians found that some individuals would report pain well before there was any radiographic evidence of degeneration. Similarly there was often no correlation between histo-pathological features of an arthritic joint and the clinical findings of a physical examination. Unaccountably some patient’s experience indicated that even when there was an image of spectacular joint degeneration, the articulation could actually hurt much less than other, apparently less damaged joints in other patients (Kellergen et al., 1957). The experience of arthritis, in humans at least, was often overwhelming for some individuals but at the same time also highly subjective. Much to the surprise of surgeons, there was no objective marker with which to estimate the pain and dysfunction in an individual patient from an X-ray image of the afflicted articulation (Cobb et al., 1957).

In these circumstances human surgeons had to form a clinical judgement by balancing patient testimony against, physical assessments and X-rays. Consequently osteoarthritis was recognised as having three distinct types of presentation: the subjective, the physical (which might include laboratory tests like joint fluid analysis) and the radiographic. These three, often conflicting, sets of findings needed to be integrated and then interpreted. Because pharmacological measures such as Aspirin and the newly synthesised corticosteroids often relieved the discomfort to allow near normal or even pain-free function, in the second half of the twentieth century the decision on how to treat arthritic joints in human patients eventually became as much framed by their rendition of painful experiences, as it was by more objective measures like mobility tests and X-rays. Increasingly, as other therapeutic modalities provided some relief, patients who were still in pain often had to convince their surgeons to attempt experimental types of operation like total hip replacement (Anderson et al., 2007).

The reticence of some surgeons to operate where there was little complementary radiographic evidence of dysfunction was perhaps because “to hear that another person has pain is to have doubt”. (Scarry, 1985, 3) Our culture is suspicious of pain that is not visibly apparent, even though the phenomenon has long been resistant to the analytic frameworks of medicine. Nonetheless it seems that once recognised, the presence of pain always demands interpretation (Morris, 1991). Because of the remnants of a pervasive ideology that habitually discounted the clinical value of subjective accounts, these doubts were often magnified when the other in pain demanding some form of explanation was an animal.
Testing Veterinary Devotion: Canine Complications

In the second half of the twentieth century the objective-exclusion of veterinarians and owners from an appreciation of a disabled or osteoarthritic canine patient’s level of discomfort had varying effects upon the position adopted by animal health professionals. Because of the seemingly irresolvable uncertainty that surrounded the validity of a concept of animal suffering and the high risk of debilitating complications, some veterinarians adopted a position of zero tolerance. In a survey of North American practitioners conducted in the early 1950s, a significant proportion of them claimed to still advise euthanasia over any other form of intervention—including amputation—for difficult or seemingly irredeemable canine fractures (Greene et al., 1953). These practitioners were a minority, but they reflect a sentiment still found amongst more contemporary animal owners. Some veterinary clients were concerned — given the experiences reported by human amputees — at the lasting physical and psychological effects of limb amputation on their animals and questioned whether this was truly an ethical option (Withrow et al., 1979). With obvious and debilitating orthopaedic pathologies, it is still not uncommon for owners to ask for euthanasia unless complete and pain-free functional restoration is the most likely therapeutic outcome (Kirpensteijn et al., 1999).

Rather than accepting their current limitations, many veterinarians encouraged animal owners to seek and purchase the highest possible standards of orthopaedic intervention for their animals. Given the delicacy of negotiating increasingly fraught decisions, in which the patient’s life was saved but function was potentially irredeemably encumbered, it was also clear to some professional opinion leaders that small animal veterinarians now needed more than technical expertise in demonstrating their devotion to companion animal health. In an edition of the text Canine Surgery, Joseph DeVita alerted his colleagues to their greater responsibilities. Not only did they have to limit the apparent and potential “suffering of animals”, but also they needed to be far more attuned “to the resulting emotional distress of the owner”. For this more subjective realm of practice, “something more than scholastic standing is required”. (DeVita, 1957, v) Producing X-ray depicting successful anatomic restoration was one thing, negotiating the meaning of subtle non-specific variations in their patient’s demeanour and physical function was entirely another. Professor DeVita’s comments could be considered to be an appeal for veterinarians to change their clinical outlook. He had identified that practitioners ought to match their client’s concerns by accommodating a more socio-culturally compatible conception of the physical and emotional effects of their animal’s afflictions.

Most veterinarians conceded they needed to gain the ability to satisfactorily mediate their client’s understanding of their animal’s experiences and behaviours and offer impartial and sympathetic guidance where suffering might be present. The importance owner’s placed on subjective evidence needed to be acknowledged and addressed both during and after intervention. Simultaneously a space needed to be maintained for the possibility of blameless treatment failure and euthanasia. And yet because of the inherent difficulties in interpreting ‘signs’ of animal pain, the hard evidence that supplemented and/or confirmed the owner’s impressions of their animal’s demeanour, and the veterinarians estimation of its physical function, were still supplied by images on X-rays. Unable to access their patient’s account of their problem, for veterinarians radiographic examinations remained the most trusted medium.
for assessing whether an orthopaedic compliant was affecting the animal’s interior state or emotions by providing an objectively-framed explanation for any apparent social withdrawal or changes in physical function. In the absence of other clinical findings, visualising technologies remained the preferred means to assess whether an owner had cause to doubt their animal’s comfort.

**Showing what cannot be spoken**

In assessing the significance and impact of radiographically-evident osteoarthritic changes on their patient’s wellbeing, veterinarians had far less information to work with than their colleagues in human medicine. Complicating the immediate adoption of a more sympathetic posture, it has been noted that most veterinarians remained “ill-prepared by education and ideology to manage animal pain”. (Rollin, 2000, 31) Consequently, at first, the orthopaedic discourse of veterinary clinicians who sought to improve treatment outcomes tended to remain agnostic to the potential for animal suffering. Pain was a sign that helped to localise the problem, and not an emotionally damaging experience for the animal. In the orthopaedic mindset, the X-ray image accurately depicted anatomical-form, which gave a strong indication of function. Whenever it was necessary to quantify the degree of discomfort an animal was experiencing, another related sign like lameness could be employed alongside adjectives like ‘improvement’, ‘better’ or ‘worse’. While objective descriptions of the limb as being “quite atrophic from disuse” would also indicate that it was also likely to be chronically painful, the broader implications of these clinical findings almost always remained un-stated (Knowles et al., 1953, 512).

Obvious treatment failures were generally described as not being “satisfactory” and occasionally even, “left much to be desired in terms of being pain-free and having a full range of motion”. (Stader, 1956, 303) In most veterinary publications negative estimations of post-treatment function and the animal’s level of comfort was a matter of veterinary expertise and rarely supplied by the owner. Notably, X-ray images were often used to show-off the implanted hardware in freshly treated cases. In this way, in the professional discourse at least, the radiographic image still became the ‘patient’. Subsequent X-rays, which revealed complications, were commented upon as evidence of a poor result, but rarely published; the pictorial proof of deterioration in the patient’s joint judged as being less than instructive. The X-ray remained the preferred method of documenting sub-optimal function. It was the easiest means to transform the subjectivity of a patient’s non-specific problem into either a solved or insolvable problem.

In contrast animal owners were sometimes trusted to describe veterinary success stories. Early case reports occasionally ended with statements like “he chases rabbits without showing much inconvenience, but sometimes carries the leg when walking”. (Taylor, 1932, 669) As any sign of post exercise lameness gradually became judged to be an indication of less than perfect treatment, owner judgements of success were restricted to testimonials like: “the dog’s disposition and willingness to hunt were the best they had been since the dog was young”. (Hoefle, 1974, 276) These reports were intended to embellish clinical accounts by relaying an impression of the animal’s experience of its function. Yet within this evolving discourse suggestions and findings of the susceptibility of joints to complications were commonly framed
against the need to reduce the rate of treatment failure. A far less visible value was placed on improving the comfort of the patient. In these circumstances veterinarians—like their counterparts treating human patients—increasingly offered arthroplastic surgery, hip replacements, or employed corticosteroids and other anti-inflammatory drugs to provide pain relief and promote normal function rather than offer the traditional palliative dyad of amputation or euthanasia (Spreull, 1961). The extension of pharmacological innovations to companion animal patients was greatly appreciated by practitioners trying to clinically address owner concerns about subtle differences in their animal’s demeanour or physical function. Synthetic steroids like Prednisone and a new generation of non-steroidal anti-inflammatory drugs provided veterinarians with non-specific solutions for untreatable osteoarthritis and unarticulated non-specific problems.

After accumulating some experience in managing osteoarthritic complications, veterinarians gradually realised that many canines—like some humans—seemed to cope with relatively severe radiographic changes without too much discomfort. Of canine osteoarthritis orthopaedists began to note that: “Severe pain on joint palpation and manipulation is unusual in the dog”, hence in order to ascertain its condition before treatment it was essential that, “Careful questioning of the owner should accompany the actual examination of the patient”. (Newton et al., 1985, 1036) It was recommended that clinicians ask when the animal became reluctant to climb the stairs, did the lameness get worse during the day or did the dog ‘warm up’ with exercise to function relatively normally. Whereas a common-sense approach to the potential for interventions and diseases to cause pain had prevailed for many decades, some veterinarians saw the need to actively promote greater concern for effective analgesia within the profession. Rather than rely upon the apparent clinical signs, veterinarians were also urged to reflect on the likelihood that their patients were experiencing physical pain by submitting the animal’s condition to a direct human analogy (Rollin, 1997). As well as addressing an apparent professional failure, these veterinarians recognised that increasingly owners not only wanted their animals to function well, but also wanted them to feel well. At the same time developments in human medicine had begun to destabilise long-held orthopaedic assumptions about the relationship between form, function and sensation. These types of findings—and a move towards a closer focus on the illness experiences of human patients—filtered through to a new type of ‘informed’ animal owner who was no longer so deferential to veterinary authority in matters related to the welfare of their animals (Sanders, 1994).

To try and match these owner’s concerns, clinicians began to routinely ask them was the animal happy to see them when they got home, was it eating well and how did their pet relate to other animals. Gradually this type of subjective evidence, like the animal’s posture during sitting, and its response to analgesic treatments became perceived as being slightly more clinically-trustworthy and indicative of the animal’s experiences of subtle and presumably lasting aches and pains that were not always evident from a physical or radiographic examination. Using questionnaires and observations studies, standardised qualitative tools were developed—like visual analogue scales—to assess pain in animals. In this way an everyday assessment of the animal’s subjective experience began to be accommodated and then co-produced, from different types of evidence, by the veterinarian and the animal owner to make
decisions about the patient’s welfare. Once educated in what to look for, it was argued that owners should be trusted to gauge the discomfort of their animals (Holton et al., 1998). Nonetheless the perception remains that veterinarians still need to learn to trust that owners ‘know’ their animals well enough to ‘speak’ authoritatively of its subjective experiences (Sanders, 2003; Shaw et al., 2006).

As Western society has developed a greater intolerance for discomfort, veterinarians have been forced to become more sympathetic to the possibility of animal suffering. Many now treat unspecified patient pain—almost on suspicion—with anti-inflammatory drugs specifically developed for the veterinary market. Through recent developments, such as the use of quantitative measurement techniques like force plate analysis, veterinarians in practice are increasingly aware that a ‘clean’ X-ray and good form and function did not necessarily exclude the possibility of pain, and vice versa (Gordon et al., 2003). As well as surgical innovations and increasing sensitivities to the presence of pain in sentient creatures, changes in the norms of veterinary orthopaedics can be correlated to the gradual recognition and/or socio-cultural construction of companion animals as ‘selves’. In response veterinarians are being urged to abandon their somatic focus and follow developments in the cognitive sciences to reconnect their patient’s minds with their bodies and ensure that the profession maintains its public position as the protectors of animal welfare (McMillan et al., 2001). Nonetheless in the clinic the divide between an animal’s physicality and interiority cannot always be circumvented. When face-to-face with a patient claimed to be suffering from a non-specific malaise, veterinarians have little choice but to use clinical tools like X-rays—and their experience of similar cases—to inform their subjective assessments and interpret the animal’s behaviour for the owner. It has been suggested that until veterinarians improve their communication skills and stop relying upon a “disease-based approach in theory and practice” this gap in understanding may result in a continual failure to meet their client’s expectations. (Adams et al., 2007, 3)

Conclusion

This article is an account of how the norms of veterinary orthopaedic interventions have been shaped by analogies to the conditions and experiences of human patients, visualising technologies, and recognition of some form of animal ‘self’. At the beginning of the twentieth century most veterinarians were agnostic to the possibility that the results of their non-interventionist techniques for companion animal fractures might bring about some form of lasting but unrecognised discomfort. Most considered pain in animals to be a physical sign and not an experience it was suffering. And yet throughout this time there was a dissonance between clinical actions and professional ideology as increasing public sensitivities about the possibility of animal suffering often compelled veterinary surgeons to make decisions about treatment and euthanasia. Because of client demands and professional ambition, fractures in valued pets and companion animals were progressively reframed from non-life threatening, but occasionally debilitating canine catastrophes to become the type of traumatic injury for which the animal required optimal restorative therapies or humane and effective palliation.

Once veterinarians began to look beyond the exterior signs and X-ray their patients, the
animal’s function was no longer the sole criteria by which their interventions could be evaluated. A ‘true to life’ image of the anatomical form of the bone and the relative health of its associated synovial structures introduced new parameters for assessing prognostic success, therapeutic failure and provided specific evidence for owner reports of diminishing patient comfort. Veterinarians realised that if an animal was not going to die from a fracture but was going to be, from all appearances, in constant pain with sub-optimal function, what other effective expertise beyond amputation or euthanasia did they have to offer? Subsequent diagnostic, therapeutic and palliative activities became enmeshed with the evidence produced by X-rays. The success of an animal’s anatomical restoration could be assessed by images, which were then used to enhance the profession’s scientific and cognitive legitimacy by providing the ideal of effective intervention and by implication, assurances of pain-free function. And yet conversely once veterinarians could see a specific cause for pain on X-rays, the difference between pain in humans and animal became less easy to rationalise under the authority of long-standing professional dogmas or scientific arguments.

While the exterior ‘look’, interior ‘form’ and general aesthetics of veterinary fracture treatments increasingly became important to veterinarians with an interest in orthopaedics—and it seems their clients—the patient’s demeanour and their apparent function remained the ultimate social and commercial arbiter. As noted by Dr Ehmer (1934, 41), most clients are satisfied if their animal appeared to “play around without pain?” Yet nuances emerged, both in patient function and human-animal relationships. When function was diminished and behaviour changed—often despite veterinary orthopaedic interventions—some owners sought further explanations. In attempting to address these concerns veterinarians found themselves entangled within the same Gordian knot that has troubled philosophers and scientists since the Enlightenment (Arikha, 2006). Stuck between a metaphysical concern and scientific empiricism, they have been forced to posit what could not be directly known within a progressively reductive and increasingly ill-defined relationship between anatomic form and physical function. The X-ray image was used to assess the animal’s form against subjectively-framed claims of a need for effective intervention.

These attempts to employ radiographs to negotiate the divide between their patient’s form, function and selves could be considered to be part of a broader trend. Since the beginning of the twentieth century Western society has become engulfed in images and comfortable interpreting the subjective experiences portrayed within them. Consequently pictorial mediums are now commonly employed as evidence to convince the viewer—at a distance—of the pain of others (Sontag, 2004). However once it became clear that ambiguities about the presence or absence of pain were no longer successfully addressed by the animal’s appearance on X-ray. What could not be spoken could no longer be so easily correlated with signs that could be objectively and visually appreciated. The inescapable discontinuity between an animal’s physical and interior experience of an orthopaedic ailment could not be successfully clinically-addressed and socially-negotiated without some reliance upon other types of non-objective evidence. The re-interpretation of analogies formed between human and animal patients and their X-rays, was however, essential to a gradual acceptance amongst veterinary orthopaedists of owner’s accounts of the relative welfare of the interior selves of their animal
patients.

With the benefits of biomedical research and an ever-expanding market for companion animal healthcare, pets now live longer. For better or worse many of these patients are subjected to more elaborate and yet not necessarily completely restorative orthopaedic procedures like total hip replacement. Perhaps as Elaine Scarry claims, “the failure to express pain will always work to allow its appropriation and conflation with debased forms of power”. (Scarry, 1985, 14) It is important to note that this power does not necessarily lie in veterinary hands. Melanie Rock and Patricia Babinec (2008, 343) have claimed that extending human standards of medical treatments to these animals has “stabilized a distinct framework through which the attribution of human-like interiority is not only legitimate but an urgent moral preoccupation”. In response veterinary orthopaedists have had to become more attentive to owner concerns and changes in their understanding of pain in animals. They have promoted increasingly sophisticated methods of anatomical-restoration to address the potential for these injuries to cause lasting physical discomfort and its non-somatic implications. Yet to cope with nuances in their patient’s demeanour and behaviour that cannot be accounted for by objective evidence, veterinarians will have to somehow try to put an analytic and moral focus upon the human-animal relationship at the centre of their practices.

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Figure 1:

Figure 2:
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Endnotes

1 Past experience with joint surgery had taught surgeons that their options were limited. At various times since the seventeenth century they had attempted to ‘reshape’ affected joints, but these efforts seemed to do little but promote further arthritic changes. Unable to affect a cure, surgeons were often forced to perform joint ablations and revision procedures such as arthroplasty or arthrodesis to alleviate the pain.

2 Force plate analysis—which measures the distribution of downward force on each limb as the patient trots across pressure sensitive plates—can detect whether an animal is subtly favouring one limb over the others. Veterinary researchers are now using the technique to make comparative objective-assessments of the relative efficacy of different surgical and pharmacological orthopaedic interventions. Rather than employing a principle of analogy or teleological assumptions about anatomical form, this technique compares the function of the affected limb against its contra-lateral appendage.