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Roadkill: Between Humans, Nonhuman Animals, and Technologies

ABSTRACT

This paper has two broad objectives. First, the paper aims to treat roadkill as a topic of serious social scientific inquiry by addressing it as a cultural artifact through which various identities are played out. Thus, the paper shows how the idea of roadkill-as-food mediates contradictions and ironies in American identities concerned with hunting, technology, and relationships to nature. At a second, more abstract, level, the paper deploys the example of roadkill to suggest a particular approach to theorizing broader relationships between humans, nonhuman animals, and technology. This paper draws on recent developments in science and technology studies, in particular, the work of Latour (1993) and Serres (1982, 1985), to derive a number of prepositional metaphors. The paper puts these forward tentatively as useful tools for exploring and unpicking some of the complex connections and heterogeneous relationalities between humans, animals, and the technology from which roadkill emerges.

This paper has two broad objectives. At the most substantive level, the paper aims to place the topic of roadkill on the social scientific intellectual map. As such, it traces some of the ways in which roadkill is constructed culturally. At another, more abstract, level, the paper deploys the example of roadkill to suggest one approach to theorizing broader relations

between humans, nonhuman animals, and technology. In both cases, the paper is exploratory. Regarding the former aim, no claim is made to a comprehensive survey of the cultural role of roadkill; rather, some examples of the role of roadkill in mediating particular social identities, not least in how humans relate to nature, are examined. Regarding the latter, drawing on certain developments in science and technology studies, a number of metaphors are tentatively introduced as a preliminary means to unraveling some of the complex connections and relations between humans and animals as they are mediated by technology.

Cutting across these core aims, the paper focuses, on the one hand, on how animals and their corpses come to be represented, produced, encountered, used, and avoided in the context of car travel. On the other, the paper focuses on how animals come to use particular technologies (primarily, roads and their verges) as parts of their habitats and in the process come to be constituted in various ways through those technologies. This mapping of what has been called “automobility” (Sheller & Urry, 2000) onto what I will call “animobility,” produces junctures in which the cultural and natural and the material and the semiotic combine, in ways we Western moderns still find difficult to articulate (Latour, 1993).

In this respect, to reiterate, my broader purpose is to examine roadkill as a means of reflecting upon the relationalities² between human and nonhuman animals and technologies. I wish to explore how humans, animals, and technologies emerge out of their relationalities with one another. On this score, I draw on the work of the philosopher Serres (1982, 1985), in particular on his call for new prepositions through which to grasp these complex relationalities.

There are innumerable other configurations of humans, animals, and technologies that one could draw upon—companion animals, animals in the laboratory, domesticated animals on the farm, protected animals in the wild—all, in one way or another, are “technologized” and “culturalized.” These are increasingly subject to social scientific analysis. Roadkill, by comparison, is a rather neglected and, on the face of it, minor category of animal. Yet, in some ways this is what makes roadkill interesting.

For such theorists as Benjamin and Simmel, it is in the everyday, the taken-for-granted, and the neglected that we find an epoch encapsulated (Highmore,

2002). Roadkill—potentially at least—can illuminate in important ways the relationalities of humans, animals, and technologies in their peculiar specificities. These specificities encompass national and subcultural identity, educational strategy and technological innovation, environmental degradation, reconceptualizations of habitat, and new prepositions through which to think about all of them.

In what follows, I begin with a brief anecdote about encountering roadkill as a way of introducing some of the literature that pertains to roadkill—that on automobility and that on the spatiality of animals, or animobility. I then set out my conceptual stall: Drawing on the work of Latour (1993), I suggest that the ways in which roadkill is represented can be said to reflect what he calls the “Modern Constitution”—our Western predilection for culturally keeping separate, or purifying, the human and nonhuman. I elaborate on his perspective by taking up the call of the philosopher Serres (1982, 1985) to develop new prepositions through which to grasp the complex interactions between the human and nonhuman.

In the next two sections, I consider examples of how roadkill is represented culturally. In the guise of “roadkill-as-food,” I show how roadkill serves particular cultural functions, not least around social identity, while performing the sort of “purification” of human and nonhuman that Latour (1993) argues is common in Western cultures. I suggest that this version of roadkill might usefully be grasped through prepositions that focus on the “perpendicularity” of the interactions between humans, animals, and technologies. In the form of “roadkill-as-casualty,” I suggest that again this purification is enacted, though this time the interactions between humans, animals and technologies can be captured also by prepositions that point to “parallel” relationalities.

Finally, I suggest that when we turn to how ecologists study the movement of animals in relation to roads, there are hints of more entangled interactions between humans and animals. I suggest tentatively a third prepositional metaphor with which to encapsulate this interweaving of automobilities and animobilities. I end with some very brief thoughts on the broader implications of the present analysis for the study of animal-human relations.

On Seeing a Dead Badger: Automobility and Animobility

In the spring of 2002, I was on an academic management training week at Wye College in Kent in the United Kingdom. Between sessions, we were released into the wilds of Kent to roam the Wye Downs nearby. To get to the hills, we had to walk along a narrow road that led out of the village and into the countryside. It was on this road that I saw the corpse of a dead animal. Obviously, I've seen roadkill before—cats, hedgehogs, and dogs in the suburbs; crows, foxes, and rabbits in the countryside. On this occasion, I could not immediately identify the corpse. It seemed like a dog but was the wrong shape—too rounded, too solidly-built. On closer inspection, it turned out to be a badger. It was my first encounter with a badger in the wild. There was a mixture of excitement and disgust and sadness. What does this anecdote³ about an encounter with roadkill signify? Let me begin with the following three observations:

1. I encounter the dead badger on foot. Walking along the road, roadkill generally has greater visibility (especially for city dwellers—those drivers who live in the countryside might have greater sensitivity to the dead animals for reasons that will become apparent). This raises the issue of the way that the car mediates the production and apprehension of the (dead or alive) animal “other.”
2. I assume the dead badger has been run over rather than has died from old age or natural cause—to the extent that these exist nowadays. Moreover, I see the badger as something “rare.” (although as we shall see, being run over is not especially rare for badgers). This raises the issue of what species can count as roadkill.
3. Together, the role of car and animal in the anecdote alerts us to the broader meanings of roadkill. As a product of the encounter between two movements or trajectories—that of animals and automobiles—we can explore the meaning of a particular technocultural entity and its signification as roadkill. In particular, we can examine the peculiar relationalities entailed in roadkill.

This third concern points to the respective movements of cars and animals. Before we can pursue this in relation to roadkill in detail, it will be necessary to consider briefly the literature on such movements.

As noted, the badger is encountered on foot, yet it is presumed that the badger was killed by a car. So let me make a few observations about cars or, rather, automobility. There has been a recent realization that the social sciences have paid scant attention to transport in general and cars in particular. Into this vacuum have flooded a range of case studies, perspectives, and research agendas that collectively make up what is being called automobility. Within these fields, we have studies that range from analyses of the phenomenology of driving (Sachs, 1984; Marsh & Collett, 1986; Michael, 2000) through explorations of the subcultural appropriation of different aspects of the car (Rosengren, 1994; Lamvik, 1996; Miller, 2001; O'Connell, 1998) to the- orizations of the figure of the car in the mediation of late modernity with its characteristically massive flows of bodies and machines (Millar & Schwarz, 1998; Urry, 2000). In all this, however, the technocultural relation between cars and animals has been very much less in evidence. How cars encounter animals, and what this says about the relationality of humans and nonhumans, is something very much to be explored.

In the anecdote, I experience a range of emotions when I identify the dead badger. What do these emotions convey? More formally, what are the conventions that might attach to the situation to make such emotions warrantable? This turns to the issue of who an animal is, what an animal signifies in the contemporary West. Clearly, the social, economic, and cultural role of animals in the West is enormous. As object, as subject, as beast, as friend, as exemplar of species, and as idiosyncratic individual, the animal pervades Western culture. The animal's cultural role has been studied keenly in recent times (Baker, 1993; Arluke & Sanders, 1996; Ritvo, 1987; Franklin, 1999).

Over and above this, and particularly relevant for the present analysis, the geography and mobility of animals also increasingly is being addressed. Thus, recent concerns with "animal geographies" have pointed to the ways in which animals are distributed in relation to human societies. As pets, or as laboratory, wild or feral, and as farm animals, they culturally and physically are situated in particular ways: There are, in other words, some quite standardized views about what sort of animal belongs in what sort of space. As Philo and Wilbert (2000, p. 11) put it:

... zones of human settlement ("the city") are envisaged as the province of pets or "companion animals" (such as cats and dogs), zones of agricultural

activity (“the countryside”) are envisaged as the province of livestock animals (such as sheep and cows), and zones of unoccupied lands beyond the margins of settlement and agriculture (“the wilderness”) are envisaged as the province of wild animals (such as wolves and lions).

Animals move across these spaces in a number of ways. Obviously, they make their own ways across these (and other) spaces creating what Wolch and Emel (1998) call “borderlands”—where “humans and animals share space, however uneasily” (p. xvi). Expanding urbanization has led to more frequent encounters between people and large predators such as cougars (Gullo, Lassiter, & Wolch, 1998).⁴ Here, I would like to address directly this animal movement—this animobility—in which animals move along trajectories that encounter human trajectories and out of which emerge, among other things, roadkill.

So, within this broad context of automobility and animobility, I want to consider the sorts of processes by which roadkill is constituted—the kinds of animals that can, and cannot, fall within this category, the kinds of cultural-material activities that produce roadkill. So, unsurprisingly, I explore a number of ways in which roadkill has been culturally constructed and its uses in composing collective identities. Here, we will see varying configurations of the relations between society, technology, and nature.

But further, I also want to examine the ways in which roadkill signals the proximity of, and interaction between, human and animal trajectories. That is, viewed with the aid of Serres’s (1982, 1995) call for a philosophy of prepositions, I want to explore a particular technocultural entity and its signification as roadkill in terms of a peculiar relationality between certain automobilities and animobilities.

Purifications and Prepositions

According to Latour (1993), we moderns have kept separate society and nature: In contrast to premodern cultures, modernity fundamentally has been concerned with purifying what he sees as the constitutive hybridity of the social. Thus, we moderns routinely have indulged in dualism: We have represented nature as transcendent, while society is seen to be our free construction. Yet, multitudes of hybrids lie beneath all this activity of purification.

As Law (1994) notes, take away from managers the technologies—telephone, fax machine, computer, and also desk, chair, light—and they can no longer function in that role. Thus, to be human is to be hybrid. So, according to Latour, hybrids are everywhere. Indeed, imbroglios of humans and nonhumans are becoming increasingly part of our everyday life.

Yet, while we live more or less happily with these mixtures, we are told constantly that the old divisions remain in place: Newspapers retain pure headings: science, politics, and economy. In addition, the spokespersons of these disciplines reassure us that there is nothing different going on—our modernist dualistic categories are perfectly able to describe the world.

Latour (1993) tells us that—despite our best modernist efforts at denying the mixing of humans and nonhumans—we are becoming aware of this hybridity by virtue of the empirical proliferation of strange hybrids (frozen embryos, sensory-equipped robots, and gene synthesizers). Through the hybridity, we see nature as the product of human, technoscientific endeavor. Increasingly, we see society in terms of nature—evolutionary psychology—(Rabinow, 1996). Be that as it may, to the extent that the complex and mutually constitutive interactions of humans and nonhumans have become a matter of concern to us, not least through the work of sociologists of science such as Latour (1993) and, especially, Haraway (1991, 1997), we might inquire into the character of these interactions. This is not an easy task, not least insofar as these interactions entail both semiotic and material exchanges.

In the context of Western thought that has kept these separate (seemingly “natural” separation of the arts and sciences), many concepts are being developed to address these “heterogeneous” interactions that include both material and semiotic and physical and social dimensions. For present purposes, I will draw on the work of Serres (1982, 1995) who has been deeply concerned with these issues and has been a great influence on Latour (1993).

To explicate briefly: Serres (1982, 1995) and Serres and Latour (1995) are interested fundamentally in heterogeneous relations—between science and art, subject and object, and the material and the semiotic. Serres is interested in how such connections take place to render order and disorder. He is interested in what might mediate exchanges between humans and nonhumans and has developed various names for these mediators that must, at once, convey signs and matter: parasites, angels, Hermes. In all this, he is pursuing

a philosophy of prepositions—a vocabulary that captures these heterogeneous relations and exchanges.

With regard to the relationship between automobilities and animobilities, we have two trajectories—humans-in-their-cars and animals-in-their-ecosystems—that interact to generate roadkill. However, roadkill is a highly complex entity. As we shall see, roadkill sometimes is purified as a material thing, that is, food or meat; at other times, it is purified as a hapless natural victim. And yet, roadkill is richly symbolic, and how it is produced entails not only physical processes of killing but also semiotic processes of meaning-making. In all this, animal bodies are at once material, symbolic, physical, technological, and cultural—in a word, hybrid. Thinking through Serres's (1982, 1995) advocacy for a philosophy of prepositions suggests novel ways of grasping this complex production of roadkill. However, animals also are purposive creatures who use, and are enabled by, roads: They have a part to play in the production of roadkill that is not simply that of accidental victims. Again following Serres (1982, 1995), we can try to illuminate this complexity through new prepositional metaphors.

The Making of Roadkill—Version I

On the prog-rock band album (Genesis. 1974), we find in the lyric the agonized line: "And I'm hovering like a fly, waiting for the windshield on the freeway." The squashed bug is not roadkill: It is an inconvenient smudge on the glass. Smashed microfauna like flies and a myriad other flying and floating insects and spiders and beetles are barely worthy of naming. It is this insignificance that, perhaps above all, affords the Genesis line its adolescent poignancy. The cow and the rhino likewise are unlikely ever to be roadkill—they are too big. They are, if they are killed by cars, victims.

What can, very likely, never be roadkill are the charismatic megafauna who are iconic to late modernity's (or risk society's) environmentalist sensibilities. Here, I have in mind such species as chimpanzee, tiger, gorilla, and lion. Arguably, the most charismatic of all megafauna is the human being: This is a victim, and this victim's death on the road is a tragedy. Indeed, a film thriller entitled *Roadkill* can be mildly unsettling, because the title conveys the de-charmatization and dehumanization of the persons who die "on the road."

Between the insignificance of the squashed bug and the tragedy of slain megafauna lies the sometime comedy of roadkill. This is a beast who, generally speaking, is resolutely uncharismatic—a small mammal (possum, squirrel, hedgehog) or a largish bird (crow, rook, grouse). These are what we might call, uncharismatic mesofauna. I say sometime comedy because as one follows the figure of roadkill, one repeatedly encounters a particular graphic, especially common in the United States, usually entailing the comically squashed animal corpse stuck to the radiator grill or fender of a car or truck or the comically squashed animal body inscribed with a tire mark.

This motif is found again and again on websites devoted to, or on the covers of books that address, aspects of roadkill (see below). Limbs splayed, the size of the animal is a perfect fit for the front of the vehicle or for the car tire. More tellingly, the comedy of this graphic can be read in terms of the irony entailed in the perfect fit between human technology and animal body: Here is a technology unintentionally designed to kill with precision these mesofauna. Moreover, these animals are represented as clueless and stupid. On the one hand, comic surprise is often registered on the face of the splattered animal. On the other, these animals are designed to portray a stereotypical stupidity signified by cross-eyes, buck-teeth, and sticky-out tongue.

However ironically, these traits give the impression that the roadkill is still alive. By virtue of being cartoonified, the corporeally traumatized animal can be portrayed as continuing to enact surprise and display stupidity. That is to say, this cartoonification at once warrants these deaths and serves in their partial denial. This representation can be found in a number of settings: on the website of Road-Kill-R-Us corporation—a virtual corporation parodying actual corporate structures (lists of job openings such as roadkill removal technicians and technologists and roadkill area supervisor); on Road Kill Critter T-Shirts; on the logo of Roadkill Café Menu with its catch phrase “You Kill It, We Grill It.” and on the covers of Peterson’s cookbooks (1985, 1993, 2000).

Now I want to focus, in particular, upon the largely U. S. sub-cultural phenomenon—the explicit and celebratory appropriation of roadkill as food.⁵ That there is a loosely bound subculture that coheres around roadkill-as-food is evidenced in a number of ways. The website of the Roadkill Café has more than 8000 hits. Peterson (1985, 1993, 2000) suggests that there is a market for

this literature large enough to sustain sequels. The actual status of roadkill-as-food is highly ambiguous. On the one hand, it is represented as an amusement: Witness the jokey titles of the dishes served at the Roadkill Café: Bowl of mole, Rack of raccoon; Chunk of skunk (<http://www.road-kill-café/road-kill.html>—2 February 2002). On the other hand, there are actual recipes available such as Ted's Original Texas Road-Kill Chili (<http://www.flash.net/~rockware/chili.html>—2 February 2002).

More important, there is a rationale to roadkill-as-food, eloquently stated in Peterson (1985). Roadkill here is regarded as part of “nature’s bounty”—a part that has by and large been the preserve of functionaries of the state (game wardens and patrol officers). Peterson (1985) was written as a way of reclaiming this bounty. As Peterson puts it: “*The original road kill cookbook* is for the roadside shopper, that free-spirited American who wants to participate in Mother Nature’s bounty” (p. 1).

This, of course, is but one version of roadkill. It is a version that describes a particular ironic and deeply ambivalent take on American culture.⁶ On the one hand, roadkill food has many of the trappings of meat derived from the hunt. The animal from whom the meat comes is wild as opposed to domesticated, closer to nature than to culture. The animal’s death is dealt outside, not in a place designed for dispatch such as an abattoir. Further, the hunt is natural insofar as it signifies an earlier, more authentic, self-sufficient, and pioneering epoch when hunting was a matter of necessity, when survival depended upon the successful hunt. The hunted food (if not the means of hunting) lies outside “the cash nexus of commercial society,” as Slotkin (1992, p. 34) puts it in describing the American myth of the pioneer as hunter.⁷

Roadkill-as-food likewise tends to fall outside this cash nexus of commercial society. Indeed, hunting in the United States also is associated with notions of wilderness and knowledgeability about nature (Leopold, 1970). Yet, roadkill clearly does not fall unproblematically into the category of the hunt. Animals are, by and large, killed accidentally and skilllessly; roadkill often is comprised of found objects, not always characterized by the freshness associated with hunted meat. Roadkill is the result of one of the most culturally invested human activities—driving.

The irony of this dual meaning of roadkill can be seen to be structured in the following way: Although on the surface it would seem that roadkill-as-food

signifies the natural (nature's bounty), beneath this, we see that it is profoundly artificial—animals are rendered as “bounty” through a deeply cultural activity, namely, automobile driving.⁸

Yet, there is another dimension to this irony. It is not that hunted meat remains natural: It becomes culturalized when it is cooked (Levi-Strauss, 1970; Fiddes, 1991). In contrast, the artificiality of roadkill suddenly is reversed when it becomes used for food. It is re-naturalized insofar as it moves from accidental victim to carrion. The roadkill menu and the cookbooks enact this apparent culturalization of roadkill, while behind this surface performance is its naturalization. On one level, there is a move from nature (hunted meat) to culture (cooked meat). On the other, ironic level, there is a move from culture (sociotechnical accident) to nature (carrion).⁹

In sum, at one level there seems to be a Latourian “purification” of humans and animal, culture and nature where roadkill-as-food is simply nature's bounty. At another level, roadkill-as-food serves as a way of playing out the contradictions that arise in relation to cars and countryside, nature and culture, animal and human. This irony also signals a particular relationality. Humans and animals encounter one another more or less perpendicularly: The preposition that comes to mind is, “across.” The trajectories of human hunters purposefully must cross those of quarry to produce meat; the trajectories of animals accidentally must cross cars to produce roadkill. The entities that are doing the crossing are complex figures: The automobility of the humans incorporates aspects of the hunter and the scavenger; the animobility of animals incorporates aspects of prey and carrion. Where they meet is a point or juncture in which signs and objects get mixed up, hybridized to produce this complex material-semiotic thing called, roadkill.

However, something is missing from this analysis. It does not incorporate the fact that the animals are on the roads in the first place. It might be the case that roads are not simply barriers to be crossed but routes to be purposefully followed. In other words, animobility is itself in part technologized. If that is the case, perhaps the metaphor of perpendicularity is inappropriate, perhaps we need to call for a preposition different from “across.”

The Making of Roadkill—Version II

Here is another perpendicular relationality between automobility and animobility. Sir Robert Hitcham's Primary School, Framlingham, Suffolk, UK, (<http://www.hitchams.suffolk.sch.uk/roadkill>, 9 March 2002, Years 3 & 4), as part of a local Agenda 21 project, looked at how many animals were being killed on the road. Their website provides an account of a number of facets of roadkill. We discover that 50,000 badgers, 10 million birds, and 100,000 foxes are killed on UK roads every year. We are given figures concerning the proportions of respondents who think about road killed animals; and we are informed of the role of car speed in killing animals. We are told of the school childrens' attempts to contribute to remedying the crisis and presented with examples of their anti-roadkill car stickers that, more often than not, entail a graphic of an animal (squirrel or fox or bird) with a slogan such as "Watch Out Animals About"! or "Drive Slow! Birds on the Road"!

If in the preceding section we saw in roadkill-as-food animals crossing perpendicularly the trajectories of cars, we can detect in the roadkill project at Sir Robert Hitcham's Primary School, a view of cars as crossing perpendicularly the trajectories of animals. If the discourses and practices around roadkill-as-food celebrate roadkill and a particular way of American living, underpinning the school project is a more condemnatory set of discourses and practices that see roadkill as tragedy for animals. From the school website, there is a link to the Mammal Society (<http://www.abdn.ac.uk/mammal/roadkills.htm> 9 March 2002) from which the figures presented above were taken. Here, roadkill animals are not food but casualties.

The webpage sets out the rationale for a National Survey of Wildlife Road Casualties and asks volunteers to "record wildlife road casualties observed during everyday journeys." Other data that should be recorded for each casualty include "basic site information . . . (as) . . . species, road cross-section, adjacent wildlife corridors (e.g. treelines, water courses, headlands, etc.), blind bends, road verge habitat, adjacent land use, highway boundary feature (e.g. hedge, fence, ditch) and road category."

The aim of the research, which ran from June 2000 to May 2001, and was conducted by the Mammal Research Unit of the University of Bristol, was "to identify factors which cause wildlife to fall victim to vehicles in high numbers along certain sections of road . . . (in order to enable the) . . . design of

road verge management prescriptions aimed at reducing wildlife road casualties.”¹⁰ This latter concern—not least with wildlife corridors and road verge habitat—reflects the view that it is cars that impinge upon the movements, flows, and trajectories of animals, that is, on what we have termed animobilities.

In this case, cars, as agents of injury and death become the opportunity for a set of discourses and practices around mitigation.¹¹ They are instrumental in the materialization of a number of mitigating technologies that signify (or fail to signify) to both humans and animals. Thus, for humans there are the many variations of signs warning of animals ahead on the road (ranging from large domestic animals to small wild animals—from ungulates to ducks). For animals, there are the various technologies that attempt to guide or direct them away from, or under, roads. These include equipment attached to the front of cars that is designed to emit a high-pitched sound that scares hedgehogs from roads or red light reflectors that in reflecting headlamp light into the undergrowth frighten off animals such as otters.

In addition, there are constructions such as tunnels of various sorts that are meant to help animals avoid road surfaces.¹² However, such technological interventions into the landscape by no means guarantee animals’ safety:

The trouble is that they (badgers) are so stuck in their ways. Once they have got a traditional route they like to stick to it. They will sometimes avoid badger tunnels and use their great strength to rip up fencing. Then they will continue on their old route, even if it goes over a motorway. (<http://www.nfucountryside.org.uk/news/june00/june3.htm>—4 February 2002)

These examples support the view that cars-on-roads comprise, so to speak, a perpendicular incursion into habitats or, specifically, animobilities. The mitigating measures that have been mentioned are about finding a way around that point of intersection—rather than the preposition of “across,” there are “under” and “away.”

Let me summarize these discussions. I have noted that both roadkill-as-food and roadkill-as-casualty are structured by a particular relationality: the cross-juncture or intersection. In terms of Serres’s (1982, 1995) call for a philosophy of prepositions, we have in the cross-juncture or intersection a traditional

preposition—a relation of perpendicularity. The movement of one set of entities cuts across the movement of another set of entities; the trajectory of cars is perpendicular to the trajectory of animals, and where they cross there are both disordering and reordering. At these junctures, cars and animals are, in Serres's terms, both parasites and angels—there is both destruction and production. Animals become roadkill—an inconvenience that is reappropriated both materially as food and semiotically as an ambivalent ironization of the American pioneering spirit.

Conversely, drivers-cars-roads comprise a nexus of potential slaughter that cuts across the trajectories of animals. Each component of this nexus can, to be sure, be modified: Drivers can be made aware of their role in killing animals (the stickers of Sir Robert Hitcham's Primary School), cars can have technological additions to scare off potential animal casualties, roads can have tunnels dug beneath them.

In all this, Latour's (1993) "Modern Constitution," in which humans and non-humans are purified, is re-asserted. On the one side, we have humans (ironicists, consumers, environmentalists, pedagogues). On the other side, we have nonhuman animals (meat, animal species with their peculiar mobilities). The practices and discourses that I have explored above are directed at the continued separation of these: Animals enter human mobilities as "others" to be consumed or protected; humans enter into animal mobilities as hunters-gatherers or eco-protectors.

Conclusion: From the Perpendicular to the Parallel, and Beyond

But that is not quite right. These relationships of perpendicularity are, for want of a better term, "pathological." However, when we take note of the fact that roads are part of habitats (or provide one possible means of movement between habitats), then we can supplement this motif of perpendicularity. There is a more complex set of relationalities that we can begin to think about where roads are not scars on the landscape, unnatural barriers that animals must negotiate, but more or less integral parts of their animobilities.

Most of us know that crows and rooks routinely scavenge for carrion on motorways. In the United Kingdom, it is a common sight to see a kestrel hovering over roadside verges hunting for small mammals. The obvious point

is that roads play a number of important roles in the habitual movements of animals. This throws a different light on the relations between automobility and animobility.

Let me pose the following questions: Why do wild animals move? Where do they move to? Reptiles and non-flying mammals occasionally must make their way from their home habitat areas for a number of reasons. Because of population pressures or because of shrinkage of their original habitat, they are obliged to seek out new areas if they are to survive. Such animobilities are a fraught business. In being adapted to particular sorts of environments, undertaking such journeys exposes animals to all manner of dangers, and their preference is to keep to terrain that most resembles their usual habitats.

Ecologists have explored how animals make their ways from habitat island to habitat island. There are a number of, albeit, contentious theories (English Nature, 1994) about the nature of this movement. Animals might travel through wildlife corridors that extend from core habitat islands to join up with other similar habitat areas. These corridors can vary in width and similarity to home habitats from island to island (stepping stones) animals hop until they find a more suitable area. Although these modes of mobility conceivably might serve in allowing populations to survive in the context of the fragmented UK landscape, even in light of habitat loss brought about by climate change (*English Nature*, n.d.), these routes also might comprise linear habitats in their own right. Roads and road verges provide one such linear habitat. In a review of the literature on linear habitats and wildlife corridors, *English Nature* (1993) noted the following:

1. How motorway embankments “can be particularly important travel corridors as they tend to have fewer breaks and discontinuities (eg junctions, passages through towns) per unit length than normal roads do” (p. 14).
2. A study in Australia showed how for a number of different small terrestrial mammal species road verge corridors “were found to facilitate continuity between otherwise isolated populations . . . by providing a pathway for the dispersal of single animals between patches and, secondly, by enabling gene flow through populations resident within corridors” (p. 20).
3. A study in the United Kingdom found that grey squirrels could use the cover of trees along the edges of road verges to move between woods.

What these conceptions of animal movements suggest is that the relationships between humans-cars' trajectories (automobilities) and animals' trajectories (animobilities) are not simply perpendicular. Rather, these mobilities also are parallel. On one level, it would seem that these two mobilities co-exist side-by-side in sort of a-mutual parallelism, punctured only when animals drift onto the road to become roadkill and, thus, to prompt the sorts of material-semiotic productions documented in this paper. Indeed, the sorts of mitigating measures documented above are about maintaining or re-instigating this parallel relation of no interaction.

Yet, these animobilities and automobilities are inter-mixing in a more structural way. Verges have to be created by humans—they are linear features that (like hedgerows and ditches) have an impact on animobilities. As such, these animals are not distinct from humans—their habitats and their mobilities are enabled partly by human technological-cultural practices. We might say that, brought to light through the figure of roadkill, we are glimpsing relationalities characterized by mobility and intermixing. Within the local manifestations of automobility (particular cars on particular roads) and animobility (particular species on particular verges) we have relationalities that are at once parallel, a-mutual, and separated, perpendicularly and tangentially interlinked.

In trying to capture these disparate and dynamic partial connections (Strathern, 1991) and disconnections, these transfers of matter and signs back and forth between automobility and animobility trajectories, one prepositional metaphor that suggests itself is “frottage,” the artistic practice perfected by the surrealist Max Ernst. The process of rubbing and the transfer of matter (particles of the thing that is rubbed or does the rubbing—wood or paper or crayon) and form (indentation in the paper, erosion of brass plates, blunting of the crayon) across the two surfaces suggest both the movement of material stuff (animal bodies, appropriate plants on verges) and signs (notions of species and corridor, signals of danger, and care). Roadkill lies at the hub of this, or rather is the “moment” at which the surfaces of animobility and automobility frottage. Needless to say, I present the idea of frottage with some considerable caution. I certainly cannot claim that it wholly encompasses these complex relationalities. At this point, it would be enough if such a concept simply hints at the sort of dynamic prepositions we will need to grasp the

relationalities entailed in the “moving fuzzy borderlands” inhabited by admixtures of humans, animals and technologies.

The main aims in this paper have been to shed light on roadkill as a cultural production and to examine it as a theoretically interesting phenomenon that entangles human, animal, and technological entities. However, roadkill also can serve as a figure through which to explore ways of unraveling the way different relationalities between humans and animals as they are mediated by technology. At the very least, I hope that the present discussion of roadkill underscores the importance of the role of technology in the mediation of human-animal relations. At the very most, I hope that the approach adopted and developed here can be extended to the study of the complex, heterogeneous relations between animals, humans, and technologies out of which emerge such entities: laboratory animals, companion animals, domesticated farm animals, protected wild animals, and zoo animals.

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Notes

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- ² I use the term “relationalities” in preference to relations in order to connote the fact that such associations or connections have to be on-goingly enacted.
- ³ The aim of the present methodology is to seek a sense of the epoch in the everyday. As Highmore (2002) suggests, exploring the everyday often has involved a hybrid mode of representation incorporating both theory and fiction, philosophy and empirical observation. The use of an anecdote here combines this admixture insofar as it is at once literary (obviously a constructed story) and exceeds this literary status (obviously it is supposed to report or document real events—(Michael, 2000)).
- ⁴ Equally obviously, animals are subject to, more or less, enforced transportation. As Emel and Wolch (1998) document, the transportation of animals is of huge economic and social (as well as animal) consequence. In the United Kingdom, the conditions

under which livestock animals (but also “exotics”) are transported have been the subject of intense political activity, from direct action protest to policy development and implementation. The obvious example here is the “Battle of Brightlingsea” in 1995 (<http://deamestudio.ic24.net.bale.htm>—28 February 2002) and the new guidelines on animal transport that followed in its wake (UK Government’s The Welfare of Animals (Transport) Order 1997 (WATO) (<http://www.defra.gov.uk/inf/newsrel/1998/980310b.htm>); also see Benton and Redfearn, 1996). In addition to animals moving around people, people move around animals. Within the broad animal geographic imaginary distilled by Philo and Wilbert, there are certain hybrid spaces. There are our typical spaces—zoos—where animals of the “wilderness” are kept and subjected to what Franklin (1999) has called, following Urry’s (1990) *The tourist gaze*, the zoological gaze. Latterly, safari parks also have become a popular place to gaze on exotic species. Indeed, in the figure of the safari park we have a particularly evocative example of the combination of automobility and the zoological gaze: The public drives to the park, but then must also drive through it in order to look at the animals. Ironically, at least in the context of a discussion about roadkill, the vehicle affords safety not only to the humans but also to the animals. However, as with the tourist gaze, so with the zoological—it has become generalized. The impact of a whole array of factors, (most obviously the seemingly ever-increasing exposure to wildlife and nature programs on television), has meant that Western moderns appear to be much more predisposed to exercising the zoological gaze. However, as we shall see, not least in the case of roadkill, this gaze is multiple and contradictory.

- ⁵ This is not to say that roadkill-as-food doesn’t occur elsewhere. However, in the United Kingdom at least, this is, as far as I am aware, less openly and humorously articulated.
- ⁶ It is of course possible to regard this jokiness as a way of dealing or coping with the loss of life, as one concerned collector of roadkill has argued (http://freep.com/news/mich/kill4_20020704.htm—18 January 2002). Rather than individualize this jokiness in terms of some pneumatic psychoanalytic model of repression, I want to place this representation of roadkill in a broader, cultural context.
- ⁷ Of course the hunt, particularly in the form of the big game hunt in Africa and India, also has signified imperialist conquest and domination—Ritvo (1987).
- ⁸ On the formal structure of irony, see Muecke, 1969; Boothe, 1974. This also can be interpreted in terms of a joke as analyzed by Mulkay (1988); Michael (1997). Accordingly, a joke works on the basis of what Mulkay calls “bisociation”—the use of two distinct but incompatible frames of reference. In the standardized joke, one frame of reference initially is deployed (nature, hunting); the punchline intro

duces a separate unexpected frame that must be understandable in terms of the initial frame (artificiality, accident). In other words, the second frame of reference must be implicit in the main body of the joke but exposed only in the punchline. Crucially, this drawing out must not be explicit. If it were, it would cease to be a joke. Cultural artifacts such as roadkill menus perform this tacit revelation.

⁹ Perhaps the most obvious analytic frame to apply to roadkill is that of Douglas's (1966) analysis of the relationship of purity to danger, with her notion of "matter out of place." Roadkill in the kitchen is matter out of place, but here, instead of signaling danger, it is humorously celebrated in a way that ambivalently ironizes aspects of the "pure"—that is historically established—inter-relation between humans, natures, and technologies as embodied in the hunt.

¹⁰ Similar sentiments (and identical figures for roadkills in the United Kingdom) can be found also on <http://www.nfucountryside.org.uk/news/june00/june3.htm> (4 February 2002) and <http://www.careforthewild.org/appeals/britishsanctuaries.asp> (4 February 2002). The surveying of dead animals on the road also has been used to estimate the rate of loss of turtle populations in the United States. (wysiwyg://174/http://abcnews.go.com/se...s/scitech/DailyNews/turtles010809.html—18 January 2002) and the prevalence of TB in badgers in the United Kingdom (<http://www.defra.gov.uk/animalh/tb/isg/reprt/isg6/shtml>—25 February 2002).

¹¹ Thus far, I have focused primarily on moments of mitigation and roadkill as food, but there is another way in which roadkill is turned to "advantage." Roadkill serves as a means to ecological education. Thus, in relation to the roadkill-as-food motif, it is possible to contrast the roadkill-as-species-exemplar. Volumes such as *That gunk on your car: A unique guide to insects of North America* and *Flattened fauna: A field guide to common animals of roads, Streets and highways* are written to encourage people not only to be more aware of their environment but also to take an active interest in its species composition. As such, these books provide information on the various habits of different species of mammal, bird, reptile, and amphibian commonly found as roadkill.

¹² "Jeffrey Lang, a biologist at the University of North Dakota in Grand Forks is researching what size culverts turtles and tortoises are likely to pass through rather than lumbering across treacherous paved highways. His work so far suggests 3-to-4 foot wide underground passageways might appeal to most of the shell-covered reptiles" (wysiwyg://174/http://abcnews.go.com/se...s/scitech/DailyNews/turtles010809.html—18 January 2002).

References

- Arluke, A., & Sanders, C. R. (1996). *Regarding animals*. Philadelphia: Temple University Press.
- Benton, T., & Redfearn, S. (1996). The politics of animal rights—Where is the left? *New Left Review*, 215, 43-58.
- Boothe, W. C. (1974). *The rhetoric of irony*. Chicago: Chicago University Press.
- Douglas, M. (1966). *Purity and danger*. London: ARK.
- Emel, J., & Wolch, J. (1998). Witnessing the animal moment. In J. Wolch & J. Emel (Eds.), *Animal geographies: Place, politics and identity in the nature-culture borderlands* (pp. 1-24). London: Verso.
- English Nature (1993). Linear feature: Linear habitats and wildlife corridors. Stepping stones and islands for species conservation in a changing climate. No. 60, *English nature research reports*. Peterborough: English Nature.
- (n.d.). The role of corridors, stepping stones and islands for species conservation in a changing climate. No. 75. *English nature research reports*. Peterborough: English Nature.
- (1994). A habitat corridors conduits for animals and plants in a fragmented landscape? A review of the scientific evidence. No. 94. *English nature research reports*. Peterborough: English Nature.
- Fiddes, N. (1992). *Meat: A natural symbol*. London: Routledge.
- Franklin, A. (1999). *Animals and modern cultures: A sociology of human-animal relations in modernity*. London: Sage.
- Genesis (1974). Fly on a windshield. (Lyric in Prog-rock band album.) *The lamb lies down on Broadway*.
- Gullo, A., Lassiter, U., & Wolch, J. (1998). The cougar's tale. In J. Wolch & J. Emel (Eds.), *Animal geographies: Place, politics and identity in the nature-culture borderlands* (pp. 139-9-161). London: Verso.
- Haraway, D. (1991). *Simians, cyborgs and nature*. London: Free Association Books.
- (1997). *Modest_witness@second_millennium:Femaleman meets oncomouse feminism and technoscience*. London: Routledge.
- Highmore, B. (2002). *Everyday life and cultural theory*. London: Routledge.
- Latour, B. (1993). *We have never been modern*. Hemel Hempstead: Harvester Wheatsheaf.

- Law, J. (1994). *Organizing modernity*. Oxford: Blackwell.
- Leopold, A. (1970/1949). *A sand county almanac*. New York: Ballantine.
- Levi-Strauss, C. (1970). *The raw and the cooked*. London: Cape.
- Marsh, P., & Collett, P. (1986). *Driving passion: The psychology of the car*. London: Jonathan Cape.
- Michael, M. (1997). Inoculating gadgets against ridicule. *Science as Culture*, 6 (2), 167-193.
- (2000). *Reconnecting culture, technology and nature: From society to heterogeneity*. London: Routledge.
- Millar, J., & Schwarz, M. (1998). Introduction—Speed is a vehicle. In J. Millar & M. Schwarz (Eds.), *Speed—Visions of an accelerated age* (pp. 16-21). London: The Photographers' Gallery and the Trustees of the Whitechapel Art Gallery.
- Miller, D. (Ed.), (2001). *Car cultures*. Oxford: Berg.
- Muecke, D. C. (1969). *The compass of irony*. London: Methuen.
- Mulkay, M. (1988). *On humour*. Cambridge: Polity Press.
- O'Connell, S. (1998). *The car in British society: Class, gender and motoring 1896-1939*. Manchester: Manchester University Press.
- Peterson, B. P. (1985). *The original road kill cookbook*. Berkeley, CA: Ten Speed Press.
- (1993). *Endangered species cookbook*. Berkeley, CA: Ten Speed Press.
- (2000). *The totaled roadkill cookbook*. Berkeley, CA: Celestial Arts.
- Philo, C., & Wilbert, C. (2000). Animal spaces, beastly places: An introduction. In C. Philo & C. Wilbert (Eds.), *Animal spaces, beastly places: New geographies of human—animal relations* (pp. 1-34). London: Routledge
- Rabinow, P. (1996). *Essays on the anthropology of reason*. Princeton: Princeton University Press.
- Ritvo, H. (1987). *The animal estate: The English and other creatures in the Victorian age*. Cambridge: Harvard University Press.
- Rosengren, A. (1994). Some notes on the male motoring world in a Swedish community. In K. H. Sorensen (Ed.), *The car and its environments* (pp. 115-136). Brussels: ECSC-EEC-EAEC.
- Sachs, W. (1984). *For love of the automobile*. Berkeley: University of California Press.

- Serres, M. (1982). *The parasite*. Baltimore: Johns Hopkins University Press.
- (1995). *Angels: A modern myth*. Paris: Flammarion.
- Serres, M., & Latour, B. (1995). *Conversations on science, culture and time*. Ann Arbor: Michigan University Press.
- Sheller, M., & Urry, J. (2000). The city and the car. *International Journal of Urban and Regional Research*, 24, 737-757.
- Slotkin, R. (1992). *Gunfighter nation: The myth of the frontier in twentieth-century America*. Norman: University of Oklahoma Press.
- Urry, J. (1990). *The tourist gaze*. London: Sage.
- (2000). *Sociology beyond societies*. London: Routledge.
- Wolch, J., & Emel, J. (1998). Preface. In J. Wolch & J. Emel (Eds.), *Animal geographies: Place, politics and identity in the nature-culture borderlands* (pp. xi-xx). London: Verso.