

**Biosecurity and insecurity:**

**The interaction between policy and ritual during the foot and mouth crisis**

Brigitte Nerlich and Nick Wright

**Address correspondence:**

Dr. Brigitte Nerlich

Institute for the Study of Genetics, Biorisks and Society

Law and Social Sciences Building, West Wing

University Park

University of Nottingham

Nottingham NG7 2RD

UK

phone: 44-0-0115-8467065; fax: 44-0-0115-846-634

e-mail: [Brigitte.Nerlich@nottingham.ac.uk](mailto:Brigitte.Nerlich@nottingham.ac.uk)

**Acknowledgements**

This study was funded by an ESRC Science in Society Programme grant, nr L144 250050. The research was carried out at the Institute for the Study of Genetics, Biorisks and Society (University of Nottingham), which is supported by a grant from the Leverhulme Trust. We would like to thank Anne Murcott, John Law, Sam Hillyard and Sue Wrennall for helpful comments on earlier drafts of this paper. We would also like to thank the participants at the Taking Stock of Risk conference (especially Frank Furedi) for their stimulating comments on an earlier version of this paper (conference organised by the BSA Risk & Society Study Group, 6-7 September, 2004, IGBiS Nottingham). And finally, we want to express our thanks to Maggie Mort whose comments helped us enormously to fine-tune our arguments.

***Biosecurity and insecurity:***

***The interaction between policy and ritual during the foot and mouth crisis***

**Abstract:**

In 2001 a highly infectious animal disease, foot and mouth disease, broke out in the UK and spread rapidly. In May, when the spread seemed to be slowing down, new disease hotspots appeared in previously little affected regions, such as North Yorkshire. New biosecurity rules were imposed. Based on a series of semi-structured interviews with stakeholders, this article shows that the biosecurity measures farmers implemented during the epidemic meant more than just reducing the risk of spreading FMD. For many, cleansing and disinfecting *became* Foot and Mouth. Biosecurity actions became invested with symbolic values and, in particular, were ritualised as part of the symbolic spatial construction of an otherwise 'invisible' enemy.

**Key words:**

biosecurity, policy, risk, ritual, narrative, framing

Our fire may be out, but when I looked out of the window first thing this morning I could see the smoke from three fires drifting down the valley. It's like the whole world is sick. And Dad is trying to wash it away. He's out there from dawn to dusk working like a madman. Ever since the ministry told him that every building on the farm has to be cleared out and disinfected, he hasn't stopped. He's out there now – and it's nearly nine o'clock at night – cleaning off the rafters in the lambing shed. He's been at it all day. Mum has tried to stop him, to slow him down. But he won't listen. (Morpurgo 2001: 88-89)

## **Introduction**

In 2001 Great Britain experienced an outbreak of foot and mouth disease (FMD) of unexpected magnitude. The first case was confirmed in pigs in an abattoir in Essex on 20 February 2001.<sup>1</sup> The possible source of the infection was traced to a small pig unit in Northumberland, Burnside Farm, where it is thought that the disease had been introduced at the beginning of February through the use of waste meat products, probably illegally imported airline food, mixed into pigswill. From then onwards the disease spread quickly throughout the UK and affected sheep and cattle in particular. The Ministry of Agriculture, Fisheries and Food (MAFF) (now Department for Environment, Food and Rural Affairs, DEFRA) made efforts to trace the spread of the disease and eliminate it, applying the traditional methods of slaughter and livestock movement restrictions (see Woods 2004). However the epidemic spread quickly, but unevenly, as summarised in this paragraph from an

article written by one of the teams that tried to create mathematical models of the spread of the disease:

The F.M.D. epidemic [...] peaked in early April 2001 after two months of rapid spread throughout Great Britain [...] in early February. The subsequent decay of the epidemic was initially rapid, but then slowed because of significant new outbreaks in previously little-affected regions (notably North Yorkshire and Lancashire) outside the three major foci in the north (Cumbria, Dumfries and Galloway, and Northumberland), the southwest (Devon and Somerset) and Welsh borders (Hertfordshire, Worcestershire and Powys). (Ferguson et al. 2001)

By the end of September the epidemic had abated and in January 2002 the UK regained disease-free status. Millions of animals were slaughtered in the process of eradicating FMD from Great Britain.

During the outbreak the term biosecurity entered the farming vocabulary and became a watchword for farmers, a mechanism of control and surveillance and a political catchphrase. As one Devon farmer recounted in a diary she kept and published during the outbreak:

New words crept into our language and became part of our everyday life. Words such as 'biosecurity', 'contiguous cull', 'slaughter on suspicion', 'FMD' and 'C and D' [cleansing and disinfection]. (Leaney 2001)

Although farmers soon knew what this new term, biosecurity, meant, for those not affected by FMD, the scientific meaning or rationale underpinning the use of biosecurity measures remained obscure. One young man, involved in a focus group study commissioned by DEFRA said:

'Biosecurity' – is that where they're saying that's a farm that has been disinfected and cleaned? Being sterile and whatever, possibly. Would the 'bio' be to do with the weather or herds?" (C2DE Males, Young family, Disease Free area, Brighton) (DEFRA 2001)

During the 2001 outbreak of FMD in the UK, biosecurity principally referred "to a set of simple procedures intended to prevent the coincidental spread of disease through normal activities: actions such as washing hands and disinfecting clothes and vehicles can contribute to biosecurity. Although it is an internationally recognised term, prior to the 2001 FMD epidemic biosecurity was largely unheard of in the United Kingdom" (Donaldson and Wood 2004: 373).

Since the terrorist attacks of September 2001 and the increased threats of bioterrorism in general and agri-bioterrorism in particular, the term has become better established in the wider political and media discourse. Inside biological risk management procedures concepts like 'biosecurity' and 'biosafety' are used in conjunction with their equally technical counterpart 'biorisks'. In agriculture, 'biosecurity' is generally defined a set of management practices which, when followed collectively, reduce the potential for the introduction or spread of animal disease causing organisms onto and between farms (on the various emerging meanings of 'biosecurity' see Biosecurity n.d.; on biosecurity advice given by DEFRA, see DEFRA 2003).

In their article "Surveilling strange materialities", Donaldson and Wood describe how the concept of 'biosecurity' was popularised in 2001 in the UK:

An information sheet explaining biosecurity and offering advice on this practice was posted to livestock farmers by the Ministry of Agriculture Fisheries and Food (MAFF) on 4 March: the information was also available from the MAFF website. Further information was distributed in April and May. A video was distributed on 6 July [...] (2004: 383; see also Anderson 2002: 156)

The advice on biosecurity given by MAFF and later DEFRA was however changing all the time during the outbreak, as those managing it were themselves on a steep learning curve. For example, the initial precautionary closure of all footpaths was later revoked, and the number of hours between visiting an infected premise and another farm for vets was cut from 5 days to 24 hours. The inadequacies of contingency planning meant that many of those involved, including those drafted into staff helplines, had to learn about the disease and about biosecurity on the job<sup>2</sup>. This created a lot of confusion and uncertainty, as this extract from a House of Commons debate demonstrates:

His farming constituents, like mine, no doubt suffered during the foot and mouth crisis from MAFF's continual changes of instructions on biosecurity measures. In those circumstances, how is a farmer expected to know what the correct biosecurity measures are? (see Hansard 2001)

In this context, some farmers regarded the release of a biosecurity video in July, four months into the outbreak, as rather ironic. One farmer, involved in the interviews in North Yorkshire on which this study is based, said for example:

[...] when foot and mouth was nearly finished they brought out a video "Here this is how to disinfect." "Oh, a video." We'd nearly finished by then, why didn't they do it the first week it came out, it didn't take a brain surgeon [laughs]. It was a good video, if they'd had that and issued that to farmers "here this is what you should be doing," it was good information you know you sit down, you watch it and that's it, it's the best, everybody has a mobile phone, the email, the blooming' video recorder, anything in their house and they didn't use it. No that was, it was a bit useless really. (Peter)

Based on a series of semi-structured interviews with farmers such as this one in North Yorkshire, this article aims to show that the biosecurity measures farmers implemented during the epidemic came to mean more than just reducing the risk of spreading FMD.

We argue that in 2001 the term 'biosecurity' functioned in two quite different social contexts at the interface between scientifically informed policy and risk management on the one hand and social and individual practices on the other. Donaldson and Wood (2004) have studied how this jargon term functioned in its political context as a means of political surveillance and intimidation. They claim that biosecurity "was touted as a banner of good practice for farmers and consequently seen by the farming community as a way of shifting the blame for the government's failings in disease management onto farmers" (2004: 373). **Whereas, in some instances, biosecurity seems to have been a political tool used to apportion blame, farmers, interviewed for this study, were keen to emphasise that their implementation of biosecurity measures did not represent tacit acceptance of governmental policy.** The politicisation of biosecurity in this way has lasting consequences and should be of interest to those involved in improving animal health.

In this article we want to look beyond political use of biosecurity measures, to investigate the multiple practices farmers engaged with that are covered by the umbrella term 'biosecurity', such as the restriction of the movement of animals, vehicles and people, washing hands, disinfecting boots and vehicles and avoiding contact with animals. As Donaldson and Wood have studied the symbolic values that the concept biosecurity assumed in the political sphere, we, by contrast, want to explore some of the symbolic values that biosecurity actions were invested with by those on the ground. It should, however, be stressed that this distinction between the symbolic, political and scientific meanings and uses of biosecurity is an idealisation, as all three intermingled in the spheres of science, policy and practice, as the following example shows. In April 2001 the then Minister for Agriculture Nick Brown was asked "why disinfectant matting cannot be laid on the bridge to provide

at least some protection for the farms in south-east Cornwall” and replied: “I am advised that the issue of disinfected mats is rather more symbolic than real”; BBC News 2001b).

### **Study design**

This article is based upon a series of in-depth interviews with six farmers, a vet and a farmer *cum* dairy inspector (who also manned helplines) affected by FMD in North Yorkshire. Additionally, we used an interview about biosecurity with a DEFRA scientist. The interviews were conducted in private homes. Informed consent was obtained prior to each interview. All participants agreed to be recorded on audiotape. The average length of interviews was an hour and a half. The tapes were transcribed verbatim by a trained transcriber. The interviews were carried out in April 2004, that is, three years after the crisis. However, we found that memories of the events were still very vivid for all participants. For some, time had just blunted pervasive feelings of horror and sadness enough to actually be able to talk about events with people outside the farming community. The following diagram provides an overview of the various situations in which the farming participants<sup>1</sup> found themselves during the outbreak:

---

<sup>1</sup> The selection of participants was not systematically designed to cover both male and female participants; it was rather accomplished by ‘word of mouth’.

<i>Interviewers name</i>	<i>Interviewee's name (pseudonym)</i>	<i>Gender</i>	<i>Occupation</i>	<i>Place of interview</i>	<i>Situation in FMD outbreak</i>
Nick Wright	Ben	M	Vet	North Yorkshire	Worked in local practice. Bulk of work involved inspections for movement licenses
Nick Wright	Harry II	M	Arable & suckler heard	North Yorkshire	Infected and slaughtered
Nick Wright	Peter	M	Arable, dairy & beef	North Yorkshire	Slaughtered in contiguous cull
Nick Wright	Henry	M	Beef & suckler heard	North Yorkshire	Farm survived slaughter: just outside area of contiguous cull
Nick Wright	John, Nancy & David	M, F & M	Arable, sheep and cattle	North Yorkshire	Infected and slaughtered.
Nick Wright	Ned	M	Dairy Hygiene Inspector with Food Standards Agency & farmer	North Yorkshire	Manned telephone helpline for North West
Nick Wright	Pat	M	Arable & cattle	North Yorkshire	Initial diagnosis proved unfounded. Not slaughtered
Nick Wright	Paul	M	Beef & sheep	North Yorkshire	Affected

We chose North Yorkshire for this study, as some of the biosecurity experiences of farmers there were quite distinctive. The most notable features of the North Yorkshire outbreak were the following: FMD broke out in North Yorkshire very late in the course of the disease spread (when in some other parts of the country, but not Cumbria, recovery had slowly begun<sup>2</sup>, when the general election, postponed at the height of the crisis, was over and the population at large thought the outbreak was 'under control'; see Hetherington 2001)<sup>3</sup>; biosecurity measures were vastly intensified to stop the spread of this late outbreak and they were more rigorously policed inside newly created 'blue box zones' (see Anderson 2002)<sup>4</sup>; one reason for this biosecurity clampdown was that there was a high risk of FMD spreading south to pig breeding areas which were regarded as potential "virus factories" because of intensive farming (Hetherington 2001); and, finally, the official cleansing policy of

<sup>2</sup> It should be stressed however that recovery everywhere was very slow. The fear of FMD returning stayed with the farming community for a very long time and with it the stress associated with keeping the virus at bay.

farms after slaughter was halted and reviewed just when North Yorkshire experienced its first major outbreak of FMD in July 2001 (see BBC News 2001a). This added to the general “confusion” surrounding the official disease control policy.

Uncertainty and insecurity were central features of living with the threat and then the arrival of FMD in North Yorkshire, as stressed in the following extract from an official document. Margaret Wood, a Health Visitor at Pickering Surgery, North Yorkshire, wrote a leaflet in which she wanted to raise awareness of issues surrounding the stress caused by FMD and its handling in the rural communities she dealt with. She wrote: “Client and community concerns centred around lack of knowledge about FMD, concerns for future livelihood and the stresses of trying to work with ever changing uncertainties. The biggest concern which embraced all others was uncertainty.” (Wood 2002; see also Mort et al. 2005)

In the following we will analyse the narratives told by the participants in our study of how they reconciled feelings of insecurity with increasing pressure on biosecurity. The results that emerge from this small interview study carried out in North Yorkshire are culturally and historically specific. Further empirical investigation at different times and in different places is needed to establish the extent to which the results from this study can be generalised. However, the results of our study tally with research carried out in a large-scale empirical investigation of the socio-psychological impact of FMD in Cumbria (see Mort et al., 2005).

### **Aims and objectives**

One of the central aims of the ESRC project on which this article is based<sup>3</sup> was to explore how ‘lay’ knowledge of the disease is framed and structured. In particular we set out to analyse images and narratives used by farmers and other stakeholders to construct events and explanations of the outbreak. In the course of interviewing farmers, vets, valuers, scientists, policy makers, journalists and activists for this

---

<sup>3</sup> ESRC Science in Society programme grant: Caught between Science and Society: Foot and mouth disease, March 2003-February 2005.

wider study<sup>4</sup>, it became clear that biosecurity measures were not only implemented to reduce the risk of infection; instead cleansing and disinfecting *became* Foot and Mouth. In recalling events, actions were ritualised as part of the symbolic spatial construction of an otherwise 'invisible' enemy. Measures designed and promoted with the aim of reducing the risk of spread, formed a focus around which the epidemic was narrated in terms of personal strategies of coping, of reducing guilt and or deflecting blame from others, rather than a story framed by science, risk or trust in nationally orchestrated biosecurity strategies.

### **Narrative structure**

The analysis draws on the tradition of the biographic-interpretative method. As Wengraf (2000) explains:

We analyse the 'lived life' to understand the sequence of the non-controversial 'objective' life events of the person in their historical context; the 'told story' to understand the structure and the modality of the narrative account, the significance of the way the story is told. (p. 117)

Our account tends towards the latter (but not exclusively so), as we treat accounts as texts which enable us to explore the frameworks around which people construct explanations for and accounts of events. We use the word 'construct' deliberately, as we analyse *post hoc* narratives about events that happened three years before the interviews, narratives that will probably have been repeated, rehearsed and reconstructed during the time that separates action from narration. As Bailey et al. (2003) pointed out:

---

<sup>4</sup> Overall 40 interviews were carried out.

[...] a narrative offers a translation of a perception of events, presenting cause and effect in a selective manner, which makes sense to the author. From our experience and the work of others [...] we know that narratives rarely simply 'reveal' what someone thinks or feels, any 'truth' is a construction. [...] a sense of a beginning, middle and end, a linear and ordered telling of a tale is a storyteller's way of creating order out of a flow of experiences in order make sense of actions and events [...] (Bailey et al. 2003: 42)

When analysing the participants' narratives three phases emerged from the data, phases that had distinctive emotional characteristics and during which individual coping strategies were used to deal with emotional stress, uncertainties and practical problems that arose from waiting for FMD to arrive and dealing with its arrival. These phases were: waiting for FMD (a phase that had two sub-phases: waiting to see whether FMD would reach North Yorkshire and waiting for FMD to reach the individual farm); contracting FMD (where one can distinguish between three sub-phases: waiting for the slaughter to begin, the slaughter phase itself and the removal of the carcasses) and the phase following the cull (where one can distinguish between the cleaning phase and the recovery phase – in North Yorkshire the cleaning phase was interrupted and therefore much prolonged, well into the winter of 2001). During phases one and three, keeping the farm "spotless" was regarded as all-important, for emotional reasons (having "peace of mind"), as well as practical ones (complying with biosecurity policy, avoiding prosecution and preparing for restocking).

In the following, we study the participants' narratives about how they dealt with various aspects of what later came to be known as biosecurity roughly following the chronological ordering identified above.

## **Before Biosecurity**

Using disinfectant and restricting access are discussed in retrospective as intuitive or 'common-sense'. Little reference is made to the science on which this is based, its just 'one of those things we all know'. Underpinning this, even though the word 'risk' was almost never used in our interviews, personal risk assessments happened within which biosecurity measures (again without the use of that term) taken were fitted and risks evaluated accordingly:

We were trying to be as clean and squeaky clean as we could. As soon as the outbreak was confirmed we virtually, well we didn't block the road off down here but where you come over the cattle grid there we'd got disinfectant points there, and of our places that you went on were disinfected. [...] so as the outbreak broke out we actually blocked that off and then rang the Highways Departments and said we'd blocked it off. (John, Nancy and David)

Keeping things "spotless" (a word used numerous times in the interviews) and keeping things out of the farm gave expression to and were a physical manifestation of personal disease management strategies. These constructions can, however, have negative consequences, as the following example recounted by a DEFRA scientist illustrates. There was a farmer who, before entering his field, had disinfected his vehicle with great care. His animals had shown no sign of disease and so he had driven off. Later on it was shown that his animals had been infected (although at the time they had shown no clinical signs), and that it was likely that FMD had been passed to his neighbour on his vehicle. Cleansing on departure from the field and not only when entering it would have reduced that risk. The scientist recounted this story to make the point that although the farmer thought of the measures he had taken in terms of *keeping disease out*, this is a misnomer in that many of the measures are designed to stop the disease *spreading*. Personal risk assessments embedded in narratives not only formed post-hoc rationalisations, but affected implementation of biosecurity measures at the time.

A Trading Standards Officer interviewed pointed out that the risk of walkers spreading FMD disease was small (see also Cumbria Foot & Mouth Inquiry 2002); however there was reluctance to remove “No entry signs” on footpaths as the epidemic waned or to subsequently agree to keep the countryside ‘open’ except in infected areas should there ever be another outbreak.

We are not suggesting ideas of exclusion and cleanliness which combine in the risk assessments outlined above were exclusive to farmers; the idea of ‘shutting the countryside’ as a precautionary measure initially found support within central and local government, and, indeed, the public voluntarily stayed away from the countryside in their droves. The appeal of this strategy lay in the way it chimed in with cognitive ‘common-sense’ accounts, some of them rooted in abiding memories of the last outbreak of FMD in 1967, of attempts to keep the disease out and anxiety at bay.

### **Virtual FMD**

Biosecurity was not only talked about as a practical necessity, but as a mental and emotional matter. It was discussed as something of a state of mind (see Potter and Wetherell 1987). Each stage was discussed in terms of coping strategies accompanied by characteristic emotions. During the first phase, when farmers were still uncertain whether FMD would come to North Yorkshire or later to their own farm, they described being under enormous emotional stress. As the following quote shows, emotions are intimately linked up with the biosecurity narratives of ‘keeping the disease out’ and ‘keeping the farm clean’:

You thought well if we can just keep it out of the farm for that month, if we can just keep it out then it will all be all right and we can get on. You felt as though this weight was on your shoulders, this pressure of not knowing of where it is and how we’re going to cope if we got it and what to do to keep it out. And you tried your best to keep it out with disinfection at the, what we call the top

gate, the farm gate on the drive. As you've seen it's a concrete road, we kept it spotlessly clean (right).

I don't know what the emotions were it was, it was fear, it was anxiety, I don't know I can't explain it (mm). It was horrible I know that much it was just horrible. (Peter)

Descriptions of keeping biosecurity up paint a picture of personal anguish and of living under threat. "Anxiety", "fear", "worry" "anger" and "rage", which alternated with hope that FMD would pass the county by, were characterised as emotionally exhausting ("the waiting was the worst"). Participants began their accounts of FMD by highlighting an anxiety phase, when FMD was still virtual. This found expression in utterances such as:

Well when it first came on the news I suppose as with everything that comes on the news, some sort of well be it illness or just anything really you think oh it's not going to happen to me (yeah). (Harry)

Well what happened was it was literally like waiting for it to arrive... (Ben)

People described this stage of waiting for what was virtual and relatively abstract to become the reality they had seen so long on TV and in the newspapers in the following way:

[...] it doesn't come home to you until it gets close to your own doorstep. You know you see it on television and the pictures are horrendous and you try and visualise what people are going through but it still seems very remote from what you actually do on your own farm with your day to day running of your farm [...] (Henry)

In emotional terms, this phase was described as other-worldly: "it was a weird time, really weird", "it was a weird feeling", "it was really weird, felt really weird"; and again: "you feel you just sort of on tenterhooks waiting for something to happen or not to happen, it's really weird feeling, really felt really weird" (Henry). The anticipation and suspense were contrasted with the 'reality' to aid expression of just how bad this stage was:

The anticipation of thinking well I might get it is worse if you've got it you could just say well that's it, they've got it, they've been killed and it's over and it's finished isn't it. (Henry)

[...] the suspense of not having foot and mouth and everybody else around you having it you know you would think well you're bound to get it, it's in your mind all the time (said three times) (Henry)

It's sort of a bigger worry to you thinking well I might get it all the time than what it would be if you just said "Right well that's it they've got it (mm) and it would just be over and finished wouldn't it? (Henry)

The suspended reality of this stage was described in a number of instances by referring to relatively abstract cognitive processes, for example hoping that FMD would go away and not arrive: "so we thought may be we're going to be okay, may be luckily enough we, it won't come to us" (Ben). These were intrinsically linked to the reality of physical activities that were undertaken, namely disinfecting and locking oneself away. In this way the biosecurity measures become Foot and Mouth. The disease was not something occurring elsewhere for that had a sense of unreality; the reality was what was happening on the ground; it was embodied in the practical measures being taken.

## Placing FMD

A distinct next phase of the epidemic was constructed in terms of anxiety levels increasing when FMD had reached the county, but not yet the individual farm. The disease transforms from an abstract 'other', to take on a clearer geographical dimension. As the disease is given cartographical shape and located geographically, expression is given to the desire to monitor and control its progress. This forms part of the personification of the disease as an enemy against which one had to fight, sometimes in a one-to-one battle.

In the following quote FMD and, metonymically, the premises it infected are conceptualised as prowling animals or ghosts, creeping slowly up on their prey or as a threatening force of nature, such as a thunderstorm (see Nerlich et al. 2002 for similar metaphors used by the media).

[...] you'd look on the Internet every night which was DEFRA's website was not bad actually, I know the communications on the whole were quite poor, that was reasonably up to date. And every night, literally every night I'd spend half an hour looking at the latest lot of infected premises (mm). And er they just seemed to start coming, you know just creeping closer. [...] And they were still sort of er grumbling on as I remember. And it just gradually rumbled and grumbled. (Ben)

Luckily in March we bought a computer and that was on twenty four hours a day you know every time you went in you'd look to see where the next one had popped up at. (Paul)

Emotional intensity is conveyed in terms of intimate attachment. This was poignantly expressed by a vet who described keeping close watch on the spread as actually sitting on the means of information: "... sitting on the Internet really er looking at the latest cases and thinking crickey it's getting closer" (Ben).

This 'spatial modelling' of the disease spread went hand in hand with a personalisation of the response to the disease threat and of the strategies deployed to stop the spread of the disease. This response can be regarded as different from the 'mathematical modelling' of the epidemic carried out by scientists, but it also shows some similarities. The 'lay' spatial modelling and the 'expert' spatial modelling of the disease were means of taking 'control' of the disease. However, for farmers this control was not matched by power (either political or computational) – it was more symbolic than real -, whereas in the case of the government, using mathematical models to aid decision making about the disease meant taking control and was matched by having power (on 'situating risk', computer modelling and local experience, see Bickerstaff and Simmons 2004). In both cases biosecurity became part of 'spatial practice'; in one case biosecurity became part of an embodied and embedded spatial practice imbued with spatial symbolism (such as signs on gates); in the other it became part of a disembodied spatial practice imbued with power exerted from a distance (see Lefebvre 1991) and permeated with abstract symbolism (interactive maps, graphs, numbers etc.).

Just like the Cumbrian sheep farmers affected by the fallout from the Chernobyl nuclear disaster in 1986 (see Wynne 1996), the farmers, but also and perhaps even more so the vets, affected by FMD in 2001 came to see government scientists as unready to note variability in environmental conditions and data and as unwilling to work with the local expertise of the farmers and vets themselves (see Bickerstaff and Simmons 2004).

[...] central control has taken over. But unfortunately it doesn't work you know you do need the local knowledge and that, that's one of the things that failed dismally I think, they didn't really make use of what local knowledge, the didn't use for instance the hunt slaughterers when they were desperate for slaughterers [...] (Pat)

## **Personalising biosecurity**

Reducing the risk of spreading the disease therefore became a personal matter and a matter of personal responsibility. It was not just a matter of science and certainly not only one of government policy. The threat of infection was framed in personal terms, as demonstrated by a vet summarising what many farmers thought: "so they literally thought Christ that's it, they're going to come and *kill me* tomorrow". This metonymical use of the pronoun is very common in FMD discourse, where the personal pronouns - *I* (will be killed) or (FMD will kill) *me* - stand for the infected premise, which again stands for the infected herd, which again stands for the individual cow, pig or sheep that is actually killed. Under these circumstances, certain official policies, such as regular inspection by a vet, were again personalised. Creative thinking or coping replaced or supplemented regulation. To avoid direct contact between farmer and vet, a possible source of disease transmission, one farmer implemented the following strategy to minimise risk:

I learnt him [the vet] how to ride a quad bike, showed him all the, once he got the lay of the land and he knew where all the farm was, told him where all the cows were and I used to say to him "Right you come when you want and then I don't have to meet you at the road end." I says "You wash your car off, disinfect yourself, come down, get the bike, go round them all yourself," I says "And then if you think there's owt badly come back and tell me." (Pat)

When another farmer heard the then Parliamentary Under-Secretary of State, DEFRA, Elliot Morley, visiting Penrith on 5<sup>th</sup> July, proclaim on the radio that farmers were perhaps 'not doing enough' (see also Hetherington 2001), the account of how he reacted to this bit of news was more than an expression of its emotional impact. Recounting the tale provides an opportunity to contest government policy from personal experience:

[O]n July 5<sup>th</sup> I remember milking these cows [...] I remember it was 6 o'clock, the news, on the local radio [...] and is it Elliot Morley was one of the agricultural ministers? And he came on and I can't remember the exact quote but when you're trying your hardest to keep this disease at bay and you're under such pressure it was exhausting, the pressure was exhausting it was awful, it was just, you were just tired out all the time and he came up on the radio and he, he said words to the effect of that farmers weren't doing their bit to try and control the disease. And I was in such rage if he'd walked in I think I'd have killed him and I've never felt like that in my life and I mean that, I think I'd have killed him. [...] I know cows can feel, can sense when you're feeling angry or something and I er took all the clusters off the cows and let out what I was milking and I walked out. I had to really, really calm down, I couldn't go on with my work feeling such rage towards him with that statement. You'd think feeling like that I'd remember what he'd said wouldn't you but I can't, like I said earlier I've blocked a lot of it out. (Peter)

For a dairy farmer to remove the clusters (group of four rubber-lined cases that attach to the cows teats to milk them) in the middle of milking is an unprecedented action and the marker of an extreme response - similar to a teacher suddenly walking out of a lesson in the middle of explaining something to children, leaving them confused and unattended and the lesson unfinished (Sue Wrennall, personal communication).

Enacted policies will inevitably have undergone translation to multiple personal experiences. Previous studies have shown that narratives constructed in response to collective events, such as FMD, impact on individuals lives in many ways and are subsequently imbued with multiple meanings (see for example Wengraf 2000). For those who thought farmers were being victimised and that the government wanted to shift responsibility from the government onto the farmers, this translation made for an emotive point of resistance: "they kept adding more

rules and regulations and they classified us as a blue box, a very high risk area, that's when we were supposed to put disinfectant at road ends and so there was police cars up and down here two and three times a day, patrol cars" (Paul); "it was like having somebody sat on your shoulder" (Paul); "you feel like bloody criminals" (Paul).

### **Rituals of FMD**

During the first and last phase of the process of dealing with FMD, keeping everything 'spotless' was described as an obsession, integrated into very ritualised and personal coping patterns, as articulated in the fictional account quoted at the beginning of this article. "Only essential human excursions were made outside the farm space, presaged by a ritual of spraying vehicles and driving or walking through baths of disinfectant that became symbolic." (Wrennall 2002)

Under circumstances of stress and anxiety the use of disinfectant was sometimes described not only in terms of best scientific practice and as the best way to resist infection, but also as a symbol of warding off disease in a quasi-magical way. This is not surprising, as in many cases where uncertainties surround diseases, such as tuberculosis or more recently SARS (Severe Acute Respiratory Syndrome), reverting to well-known cleansing rituals has been identified as a way of reducing anxiety and feelings of helplessness (see Wallis and Nerlich, 2005). As the Chicago sociologist Julius Roth pointed out about half a century ago, uncertainty and ritualisation seem to go hand in hand when coping with contagious diseases, especially when the routes of transmission are unknown or uncertain, as they were in the case of FMD:

Tuberculosis is a contagious disease. But just how contagious is it? In what ways and under what circumstances is it likely to be transmitted from one person to another? And what procedures are most effective for preventing transmission? The answers to these questions are quite uncertain and TB

specialists show considerable disagreement in the details of the manner in which they deal with these problems. These uncertainties leave the way open for ritualized procedures that often depend more on convenience and ease of administration than on rationally deduced probabilities. They also leave the way open for irrational practices that can properly be called "magic." (Roth 1957: 310)<sup>5</sup>

The use of disinfectant became more than just best scientific practice; it took on an important ritualistic role to ward off the disease in just such a quasi-magical way (see also Douglas 1970).

XY for example stopped using his car and started cycling everywhere because he perceived that the bicycle was less (( )) disease transmission risk than driving the car (right). YZ for example [...] he had like a big four wheel drive thing which he sold and swapped for like a crap little car er because he says "Oh it's just impossible to keep a Land Rover clean." And literally this is how, how worried people were that you know they'd cycle to [town] on the bike rather than going in the car, things like this (mm). (Ben)

I used to go to the pub and all over on my push bike, wouldn't even bring the car. Looking back it seems silly what I did but you just, you did anything you could to keep it out. (Peter)

In recall, scepticism of the effect of such measures is tempered by the power these actions have as expressions of 'just how worried farmers were'. Actions were defended by asserting that, at the very least, they provided comfort for the individual concerned.

We did have a big straw pad down in the yard that we disinfected every day hoping that would help but you sort of make yourself think it will work (yeah), a bit of wishful thinking, whether it works or not I don't know. (Paul)

Actions were evaluated in terms of the 'off-chance' that they help, rather than in terms of evidence offered by scientific method. Actions across the board by different actors had such characteristics, from pre-emptive closure of footpaths by individual farmers or directed by central government to disinfectant pads laid out across highways by individuals or by councils.

Visible biosecurity measures, such as putting down disinfectant mats and putting up 'keep out' signs were described in a number of instances as physical evidence of efforts to deflect blame. The demarcation of boundaries was offered as evidence of "doing one's bit", but it might also have been conceived as a magical 'cordon sanitaire' (see Murcott 1993: 131). It had both physical/material as well conceptual/symbolic functions. As Wrennall has pointed out:

Throughout the FMD outbreak signs were fixed at this point and mats drenched with disinfectant were maintained across every farm gateway in the region [...]. The 'farm gate' was thus further imbued with meaning, becoming a conceptual barrier to the disease. (Wrennall 2002)

Conversely, questioning of the measures taken led to self-evaluation by farmers in terms of reducing guilt – "how could we live with ourselves if we had done nothing and caught it"; "you know and this guilt was going on in your mind forever and ever and ever". Being physically active kept the mental demons at bay, just as much as, hopefully, FMD:

You've done everything that you can do but you think well if it comes on the air it's a waste of time or whatever I've done I've (( )) I suppose it's just peace of

mind isn't it? You've done everything that you physically can do so as you can say well if it comes now I've done all I can do... (Henry)

Yeah well you had to do something don't you because if it didn't, it had happened and you hadn't done it you'd have felt terrible. (Paul)

And I actually went to [town], got myself a whole load of carpet and I nailed it to the public road [...] with a nail gun. And I went personally and disinfected it three times a day for six months. I never went out, my wife thought it was very strange but we never went out. And the day I put the mat on the road who should turn up but the police saying "What are you doing Mr G?" I said "Well what's it look like I'm doing?" "Oh well take it down," I said "Well you take it down, I'll put it straight back down. Lock me up if you want but it will still be there because you pratts aren't prepared to do anything." [...] (Harry)

In the last quote, stories of individual (heroic) actions carried out to control the disease are expressed in terms of criticism of authority. Biosecurity measures are appropriated as measures of resistance against authority whose perceived inaction was contested and whose inability to control the disease was ridiculed.

Personalising and ritualising biosecurity measures was however not only peculiar to farmers. In attacking an occupational group for not trying hard enough to keep the disease out, personalising biosecurity was also being carried out by the government. In its most punitive phase (in our case in the so-called 'blue-box' zones), washing-out routines imposed by government inspectors came to resemble those of punishment rituals in prisons.

### **Security of FMD**

Once FMD reached their farm, those participants in the interviews whose herd was infected described their experience in terms of an improvement in emotional state,

although there were obviously a great deal of individual differences at the time. The stress of waiting contrasted with the certainty of slaughter. The slaughter was, in some respect, a relief from worrying about risk, as action borne out of certainty overtook reflection about risk and uncertainty.

It actually made, when it arrived eventually you know what it made it, not to say easier but at last it took kind of the, the uncertainty away because you knew what you were dealing with. (Ben)

At the time I actually felt much more sorry for the people who were very close to us who didn't get it and who didn't get knocked out because they couldn't do anything and their stress levels, I mean once we'd got it was almost, well it came on the Thursday a mile and a half away and I thought well this is, this is bad news you know. But it, then my cousin got it next door and then I got it on about the same day. So if it was going to come you know that close it was almost a relief to sort of (( )) crisis, (( )). I felt much more sorry for those people who had to struggle on. (Harry)

Some participants told us about the slaughter process in relative dispassionate terms:

So we had one slaughter gangs working on the pigs, one slaughter gang working on the sheep and one slaughter gang working on the cattle. [...] the slaughter thing went pretty smooth [...] We had no hassle. (John, Nancy and David)

Others were emotionally still very affected by the cull. One participant, for example, told the interviewer that a year ago, that is, in 2003, two years after the outbreak,

the interview would still have been "too upsetting" and that he was still haunted by images of the "killing field" (Peter).

If some found relative security, or at least certainty, in the slaughter then this was absent in descriptions of the clean-up operation that followed the slaughter. When the enemy had actually breached all barriers and the farm was infected, farmers who had done everything in their power to keep FMD at bay were infuriated by the way that the virus might be spread through various activities that were beyond their control: the transport of infected carcasses and the erratic movements taken by some army vehicles, for example.

But we were told that the slaughter men had been using that, that Inn that was next to our cattle and we were therefore concerned that something had come on their tracks and that we'd taken it into the field with the tracks. We couldn't really see why otherwise it should be that field (right) [which was infected]. (John, Nancy and David)

And the wagons [removing slaughtered animal carcasses] you couldn't believe why the wagons were coming up past farms with no infection when they could've easy accessed from the infected end. (Peter)

I rigged up a pressure hose and we washed every wheel, there was not a spot of anything on anything and off it went [wagon full of corn salvaged after the slaughter]. And then damn it all the Army came past, never even stopped, and where they'd come from inland, I don't know to this day where they'd appeared from (right) zooming past, they never even stopped. I thought well here we are, doing all this, trying to stop the damn disease and off they go sort of thing covered in mud, I couldn't believe it. (Peter)

Incidents like this, and the suspension of post-infection cleaning operations to review costs, added to the general feeling of miscommunication, misinformation, misunderstanding and disempowerment that seems to have characterised many of the policies used to eradicate FMD (see Donaldson, Lowe and Ward 2002). Farmers also reported that the management of the clean-up operation, as well as the advice they received about how and what to clean after the slaughter, was very inconsistent. In the following quote we therefore find a rather rare but derogatory use of the term 'risk assessment':

But as the work, they sent those out to carry out this operation of disinfecting everything and at the same time there was a health and safety man came out to do a risk assessment (right) which should've been done before these people came on. So these people were on at the same time as he was on (right) and he was doing the risk assessment to write a report as to what should be looked at and what shouldn't be looked at by the cleansing (( )) these people that were coming but they were all here at the same time (right) so there wasn't any great co-ordination between anybody. (John, Nancy and David)

In another extract from the same interview one of the participants also questioned the science behind the biosecurity advice they were given – again stressing how inconsistent it was.

John

Oh yeah they've backtracked on a lot of the things that they obviously were finding either better information really as they went on, they were hitting the sledgehammer with what they thought initially that it was initially, but it wasn't initially because well some of the farms and that in Cumbria they were taken apart weren't they? [whole buildings were destroyed during the clean-up that followed the slaughter]

[...]

David

I think at the end they said you know if you just pour boiling water over it it was quite sufficient.

John

All the fence posts and things, we didn't disinfect the fence posts where the stock had actually been but you had to disinfect the buildings

Nancy

Where they hadn't been.

David

Where they hadn't been yeah.

John

But I suppose the fence post was in sunlight to give it its due (right) so in theory it would be dry and the virus wouldn't, they said it wouldn't survive would it but

David

No, no

Another participant raised similar issues about the uncertainties and contradictions surrounding (scientific) biosecurity advice and the management of the cleaning process (see also BBC News 2001a).

There was research going on because I think to start with they were working with an unknown quantity, they didn't know how long the disease would survive and then they'd, I forget the figures, I had them written down because it was intriguing when it did come out I think they told us that it was after 3, 4 days I think it would be dead outside anyway in the sunlight, as long as it's direct sunlight and not trapped up in muck, that sort of thing (right okay). Inside it was some time later, I'm making these figures up, it was something like weeks

and even if it was underground in the wet, in, concealed in muck it would only last I don't know a month or two. It wasn't long you know and this was, it must've been October, November time [when they were allowed to clean up after the slaughter] and we got it in July, so in other words technically speaking the disease was dead but we still had to go through it all and get it absolutely spotless. [...] As soon as Christmas was approaching suddenly the standards dropped dramatically just to get finished so everybody could go home for Christmas [laughs] you know there was a lot of that went on, it was a bit of a nonsense. But you know you thought well the disease is supposed to be dead anyway. And everything absolutely spotless, we're finished, you're signed off - brilliant. (Peter)

## **Conclusion**

Farmers talked about biosecurity measures in ways other than just reducing risk; they became a focus for the construction of coping strategies and attempts to lay blame and to resist blame. There was a lot of pressure (in terms of political rhetoric and enforcement by government, as well as social pressure from others, including farmers) to implement biosecurity measures. One farmer recalled that his brother, an *arable* farmer, was chastised by neighbours for not having a biosecurity mat at the entrance to his farm. Visible, physical biosecurity actions became ways to deflect blame and were self-evaluated by farmers as reducing guilt in terms of 'how could we live with ourselves if we had done nothing and caught it'; "you know and this guilt was going on in your mind forever and ever and ever" (Peter). The majority implemented what became known as biosecurity measures because (a) they were forced to and (b) they wanted and needed to feel they were doing something to help them cope. In this context biosecurity measures were cast as a symbol that things got 'out of control' rather than being regarded as ways that helped 'gain control'. Sensitivity to this framing is required, if concerned agencies are to encourage

farmers to adopt best practice. Policy makers need to work hard to understand the politics of the situation, for biosecurity has essentially become politicised.

Personalisation and ritualisation of biosecurity measures afforded people caught up in the crisis a way of exerting some form of personal control over the disease and provided an occasion for the assertion of, at least symbolic, powers of agency. Paradoxically, such control measures (including visible symbols of these measures, such as keep out signs and disinfectant mats) became, in many ways, the FMD crisis (just as much as the burning pyres became the FMD crisis for the non-farming public watching the spread and control of FMD on TV and in the newspapers). Local actions taken by farmers gave physical expression to a narrative that the centrally organised measures for 'controlling' the disease from a distance were not working and that these individual actions were the last line of defence against the enemy that they saw creeping up on its prey.

This suggests potential difficulties for the promotion of practices to improve animal health: (a) a focus on the visible runs the risk of reawakening memories of FMD and of provoking resistance, and (b) the visible should not be promoted at the expense of the invisible, for example buying stock from known sources (The Royal Society 2002). The challenge is to embed in everyday practices and in responses to extreme events such as epidemics, actions that are both meaningful in terms of the science of controlling disease, *and* which recognise narratives of coping constructed during the last outbreak.

The interviews we carried out in North Yorkshire demonstrate quite clearly that scientific theory and practice did not cohere, something that was also evident in other parts of the UK which were severely affected by FMD, such as Cumbria. As shown in a large scale empirical study carried out by Maggie Mort and her colleagues (see Mort et al., 2005), disinfectant mats and soaked barriers were immediately placed at farm entrances because that was the one thing to hand which local people could immediately do, whilst awaiting further news. Some also used household products, such as bicarbonate of soda, before 'official' disinfectant became available.

Knowledge about such measures had survived from the 1967 outbreak of FMD and was quickly reactivated. However, it later became apparent that the science of (the new) 'biosecurity' was hugely problematic and that its advocates had little understanding about conditions on the ground. This echoes the situation in which the Cumbrian sheep farmers found themselves after the Chernobyl accident, studied by Brian Wynne (Wynne 1996). The clash between the disinfectant practices and the biosecurity theory or between the lay response and the expert response during the FMD outbreak might have contributed to the emotional and sometimes obsessive ways in which biosecurity measures were carried out, not only by individual farmers but also by local authorities and government agencies.

## References

- Anderson, I. 2002. *Foot and Mouth Disease 2001: Lessons to be Learned-Inquiry Report HC 888* (The Stationery Office, London).
- Bailey, C., Convery, I., Baxter, J. and Mort, M. 2003. 'Narratives of trauma and on-going recovery: the 2001 foot and mouth disease epidemic'. *Auto/Biography* **xi** (1&2): 37-46.
- BBC News 2001a. 'Ridding my farm of foot-and-mouth' <http://news.bbc.co.uk/1/hi/uk/1452846.stm> [accessed 2 August, 2004]
- BBC News 2001b. What's the point of foot-and-mouth mats? <http://news.bbc.co.uk/1/hi/uk/1270148.stm> [accessed 2 July, 2004]
- Brown, N. 2001. Hansard: <http://www.publications.parliament.uk/pa/cm200001/cmhansrd/vo010409/debtext/10409-07.htm> [accessed 15 September, 2004]
- Burr, V. & Butt, T. 2000. Psychological distress and postmodern thought. In D. Fee (ed.), *Pathology and the Postmodern: Mental Illness as Discourse and Experience* (London: Sage.)
- Cumbria Foot & Mouth Disease Inquiry. 2002. *Inquiry Report*, (Cumbria County Council, Carlisle.
- Bickerstaff, K. and P. Simmons. 2004. 'The right tool for the job? Modelling, spatial relationships, and styles of scientific practice in the UK foot and mouth crisis.' *Environment and Planning D-Society & Space* **22**(3): 393-412.
- Biosecurity, n.d.: 'Biosecurity': <http://www.wordiq.com/definition/Biosecurity> [accessed August 2004]
- Curry, D. 2001. House of Commons - Speeches, 21 June 2001: <http://www.davidcurry.co.uk/speeches/2001/2106.htm> [accessed September 2003].
- DEFRA. 2001. Public opinion on foot & mouth. RS 251034. Final Report, November, 2001. Prepared for the Research Unit COI Communications on behalf of DEFRA:

[http://www.ukresilience.info/contingencies/pubs/defra\\_fmd.pdf](http://www.ukresilience.info/contingencies/pubs/defra_fmd.pdf) [accessed 20 September, 2004]

DEFRA. 2003. Biosecurity guidance:

[http://www.defra.gov.uk/animalh/biosecurity/farmguidance/biosecurity\\_guidance.pdf](http://www.defra.gov.uk/animalh/biosecurity/farmguidance/biosecurity_guidance.pdf)  
[accessed 2 September, 2004]

DEFRA. 2004. The Animal Health and Welfare Strategy for Great Britain, <http://www.defra.gov.uk/animalh/ahws/strategy/ahws.pdf> [accessed 24 August 2004]

Donaldson, A., Lowe, P. and Ward, N. 2002. 'Towards a sustainable rural economy: lessons from foot and mouth', in M. Eames (with M. Adebawale) (eds.), *Sustainable Development and Social Inclusion* (York: Joseph Rowntree Foundation), pp. 31-35.

Donaldson, A., and Wood, D. 2004. 'Surveilling strange materialities: categorisation in the evolving geographies of FMD biosecurity'. *Environment and Planning D: Society and Space* **22**(3): 373-391.

Douglas, M. 1970. *Purity and Danger: An analysis of concepts of pollution and taboo*. Harmondsworth: Penguin.

Ferguson, N. M., Donnelly, C. A. and Anderson, R. M. 2001. 'Transmission intensity and impact of control policies on the foot and mouth epidemic in Great Britain'. *Nature*, **413**: 542-548.

Hansard (2001). <http://www.parliament.the-stationery-office.co.uk/pa/cm200102/cmhansrd/vo011112/debtext/1112-12.htm> [accessed 26 August, 2004]

Hetherington, P. 2001. "'Careless" farmers spread disease'. *The Guardian*: [http://www.guardian.co.uk/uk\\_news/story/0,,520284,00.html](http://www.guardian.co.uk/uk_news/story/0,,520284,00.html) [accessed 25 August, 2004]

Leaney, S. 2001. *Diary of a farming wife. One woman's view of the foot and mouth crisis*. Cardiff: Merton Priory Press.

Lefebvre, H. 1991. *The Production of Space*. Oxford: Blackwell.

MAFF. 2001.

[http://212.187.155.84/pass\\_06june/Subdirectories\\_for\\_Search/Glossary&References\\_Content/MiscellaneousContents/FMD\\_DiscussDocs2001/MAFF\\_Biosecurity.htm](http://212.187.155.84/pass_06june/Subdirectories_for_Search/Glossary&References_Content/MiscellaneousContents/FMD_DiscussDocs2001/MAFF_Biosecurity.htm)

[accessed September 2003]

Morpurgo, M. 2001. *Out of the Ashes*, London: Macmillan.

Mort, M., Convery, I., Baxter, J., and Bailey, C. (2005). 'Psychosocial effects of the 2001 UK foot and mouth disease epidemic in a rural population: qualitative diary based study'. *British Medical Journal*, 7 October, 2005: doi:10.1136/bmj.38603.375856.68 (accessed 10 October, 2005).

Murcott, A. 1993. 'Purity and pollution: body management and the social place of infancy', in S. Scott and D. Morgan (eds.), *Body Matters* (London: The Falmer Press), pp. 121-134.

Nerlich, B., Hamilton, C., Rowe, V. 2002. 'Conceptualising foot and mouth disease: The socio-cultural role of metaphors, frames and narratives': <http://www.metaphorik.de/02/nerlich.htm>

Potter, J. and Wetherell, M. 1987. *Discourse and Social Psychology: Beyond Attitudes and Behaviour*. London: Sage

Reissman C. 1993. 'Narrative Analysis', in A. Huberman and M. Miles (eds.) (2002) *The Qualitative Researcher's Companion* (London: Sage), pp. 217-270.

The Royal Society (2002) *Infectious diseases in livestock*. The Royal Society: London.

Roth, J. 1957. 'Ritual and magic in the control of contagion'. *American Sociological Review* **22**: 310-314.

Shenk, D., Davis, B., Peacock, J.R. & Moore, L. 2002. 'Narratives and self-identity in later life two rural American older women'. *Journal of Aging Studies* **16**: 401-413.

Wallis, P. and Nerlich, B., 2005. 'Disease metaphors in new epidemics: The UK media framing of the 2003 SARS epidemic.' *Social Science & Medicine* **60**: 2629-2639

Wengraf, T. 2000. 'Betrayals, trauma and self-redemption? The meanings of "the closing of the mines" in two ex-miners narratives', in M. Andrews and S.D. Sclater, C.

Squire, C. and A. Treacher (eds.), *Lines of Narrative* (London: Routledge), pp. 202-221.

Wood, M. 2002. 'Leaflet for foot & mouth disease'. The Northern and Yorkshire regional NHS Modernisation Programme. Primary Care Improving Practice. Health Visitor, Pickering Surgery, North Yorkshire, April 2002. <http://www.nyx.org.uk/modernprogrammes/primarycare/goodpractice/april2002/footandmouth.html> [accessed April 2004]

Woods, A. 2004. *A Manufactured Plague: The History of Foot-and-Mouth Disease in Britain*. London: Earthscan.

Wrennall, S. 2002. 'Echoes of Death: Transforming the "place" of Cumbrian farms'. Paper given at 'Emotional Geographies: An interdisciplinary conference on the place of emotions in everyday life', hosted by The Institute for Health Research, Lancaster University, September 2002.

Wynne, B. 1996. 'May the Sheep Safely Graze? A reflexive view of the expert-lay knowledge divide', in S. Lash, B. Szerszynski and B. Wynne (eds.), *Risk, Environment and Modernity* (London, Sage), pp. 44-83.

---

<sup>1</sup> See <http://www.guardian.co.uk/footandmouth/flash/0,7365,443772,00.html> for one of the many animated maps of the disease spread.

<sup>2</sup> This was illustrated in stories told to Nick Wright during an interview conducted with regional helpline operator and Trading Standards Officer.

<sup>3</sup> As David Curry, MP for Skipton and Ripon, told the House of Commons on 21 June 2001: "When the rest of the country believed that things were over—indeed, the

---

government were telling us that the disease was under control and all the graphs happily pointed to it petering out on or about 7 June [date of the general election]—we had a virulent, violent and destructive outbreak that consumed all other activity [...] Not merely did the world not know about the outbreak, it did not want to know about it.” (Curry, 2001)

<sup>4</sup> “By the end of July, when a large outbreak centred on Thirsk in North Yorkshire began to cause concern, FMD was present only in geographically isolated pockets and more resources were available. As a result a new policy tool was introduced. The ‘restricted infected area’ was also known as a ‘blue box’ because of the coloured ink used to demarcate its boundaries on a map. [...] Any vehicle visiting a farm premises within the blue box required a license in advance. DEFRA officers supervised over 4500 such visits. Vehicles entering and leaving the area were disinfected at roadblock disinfectant stations utilising high-pressure hoses rather than drive-over matting. [...] During the existence of the blue box, the patrols carried out 5000 spot-checks on vehicles to determine if the drivers were following biosecurity regulations.” (Donaldson and Wood, 2004: 383)

<sup>5</sup> We would like to thank Anne Murcott for alerting us to this article.