
Crime and Disease: Contagion by Metaphor

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To see, as we do in many of the cases cited in this volume, the actions of a person known to be suffering from a serious, indeed potentially terminal, physical illness such as HIV-AIDS being categorised as criminal is, in principle, deeply shocking. On further investigation, however, it becomes clear that there has always been a close association between the concepts and categories 'illness' and 'crime' and that our thinking, and so our public policies, in the two domains run closely parallel. This chapter explores the nature of the association between them, employing a range of disciplinary perspectives. In addition, it highlights the extent to which an uncritical use of metaphor around both 'crime' and 'disease' contributes to a worrisome tendency towards a collapse of the conceptual boundary between the two domains.

The Shifting Boundary between Illness and Crime

As sociologists since Talcott Parsons in the 1950s have pointed out, illness and crime are regarded by most societies as forms of social deviance, in the sense that those who are sick and those who commit crimes disrupt normal social functioning in ways which are considered undesirable.¹ Correction of both kinds of deviance, as far as that is possible, is seen as a priority in most societies. Of course, the deviance of those who are sick is in most cases socially sanctioned, whereas the deviance of those who commit crimes is not.² Indeed, we often use the terms in a contrastive way, for instance, in judicial decisions about whether a person should or should not be held criminally responsible on the basis of their mental

¹ See, for instance, G. L. Weiss and L. Lonnquist, *The Sociology of Health, Healing, and Illness* (Upper Saddle River, NJ: Prentice Hall, 2003), especially chapter 7.

² A. C. Twaddle, 'Illness and deviance', *Social Science and Medicine*, 7 (1973), 751–62 at 755; P. Conrad and J. Schneider, *Deviance and Medicalization: From Badness to Sickness* (Philadelphia: Temple University Press, 2012).

health for the act which brings them before the court. Debate in such cases has become increasingly complex.³

As this last point suggests, it is not just that sickness and crime are close neighbours, but that the boundary between the two categories has been fluid over time and across cultures; interactions between the categories have been frequent and varied. Anthropologists, theologians, historians, political scientists and sociologists have much to say about the overlap between thinking around sickness and thinking around crime.⁴

Blaming for Illness

In certain cultures and eras, sickness has been seen as stemming primarily from the commission of some kind of offence. In many indigenous cultures, sickness is viewed as the consequence either of the infringement of a taboo by the sick person or a member of their family or of a curse uttered by an enemy.⁵ It was a fundamental tenet of ancient Jewish thought that sickness, whether individual or in epidemics, was a punishment sent by God for impurity or sin (Leviticus 26:21, 25; Numbers 16:49 and 25:9; Deuteronomy 28:22). Leprosy was singled out as unclean and a punishment for sin (Leviticus 3 and 14).^{6,7} In the Christian Middle Ages, syphilis,

³ T. R. Medina and A. McCranie, 'Layering control: medicalization, psychopathy, and the increasing multi-institutional management of social problems', in B. A. Pescosolido, J. K. Martin, J. D. McLeod and A. Rogers (eds.), *Handbook of the Sociology of Health, Illness, and Healing: A Blueprint for the Twenty-First Century* (New York: Springer, 2011), pp. 139–62.

⁴ An outstanding recent example of a collection of essays which explores this overlap from a historical perspective, and in contexts ranging from nineteenth-century London to Nazi Germany and contemporary China is R. Peckham (ed.), *Disease and Crime: A History of Social Pathologies and the New Politics of Health* (New York; Abingdon; Oxon: Routledge, 2014).

⁵ See, for instance, R. Griffith Jones, 'Rongoa Maori and primary health care', unpublished Master of Public Health thesis, University of Auckland, 2000, pp. 25–7 on understandings of the origins of sickness in traditional Maori society.

⁶ Kerri Inglis's chapter in this volume refers in detail to the mix of motives, treatment and punishment, with which leprosy was handled in Hawai'i from the mid-nineteenth century to the mid-twentieth century.

⁷ It should be noted that those biblical commentators who, in other respects, insist on a literal interpretation of the text, tend to reframe the Bible's clear identification of leprosy with sin as a merely metaphorical relationship. So, on a website entitled 'The Bible Says' (<http://biblesays.faithsite.com/content.asp?CID=23981>, accessed 18 May 2015) James T. Heron, in an article entitled 'Comparing Leprosy and Sin' declares: 'Leprosy is a physical disease, while sin is a spiritual disease . . . Sin, like leprosy, is contagious . . . Sin, like leprosy is deceptive' to which James C. Guy adds: 'Leprosy was one of the most highly feared diseases in times of old, and still is in many places. The similarities to sin are interesting. If only sin were feared as much as leprosy!' See also the blog by Mike Boldea, entitled 'The Leprosy of Sin', *Homeward Bound* (Friday 22 May 2009). <http://Mikeboldea.Blogspot.Com/2009/05/Leprosy-of-sin.html> (accessed May 2015).

too, was viewed as retribution for sin.⁸ In the modern period, such a belief has persisted among some religious groups in relation to HIV-AIDS, especially when it first manifested itself in the early 1980s in the male homosexual community in the United States. American preacher Jerry Falwell insisted that 'AIDS is not just God's punishment for homosexuals, it is God's punishment for the society that tolerates homosexuals.'⁹ More generally, it has been observed that stigma attaches to certain groups of physically ill people, as it does to criminals.¹⁰ Stigma is usefully defined by Link and Phelan as involving 'labeling, stereotyping, separation, status loss, and discrimination' in a context where power is exercised.¹¹ Sick people often report that they find themselves labelled as 'outsiders.'¹² The experience of stigma may well have a further negative effect on health.¹³

What makes the question of blame around illness more complicated today is the increasing realisation that individual choices (to smoke, to eat badly, not to exercise enough, to use alcohol and other drugs to excess, to have unprotected sex) do indeed contribute greatly to poor physical health.¹⁴ Although such behaviours are not generally referred to as 'criminal', those who undertake them may reasonably be held in part 'responsible' for their illness. There is, however, a danger that we will over-blame those who get sick for their plight. It appears that prejudice is particularly strong against those whose illness is severe and deemed to have been behaviourally caused.¹⁵ As Richard Gunderman points out, even among medical professionals, there is an extraordinary tendency to

⁸ G. FitzGerald, 'The punishment of God: social reactions to syphilis in the works of Hutten, Fracastoro, Clowes and Lowe'. <http://velascobereguener.blogspot.com.nz/2011/05/punishment-of-god-social-reactions-to.html> (accessed May 2015)

⁹ R. S. McElvaine, *Grand Theft Jesus: The Hijacking of Religion in America* (New York: Random House, 2013), p. 35.

¹⁰ It was Erving Goffman, in his book, *Stigma: Notes on the Management of Spoiled Identity* (New York: Prentice Hall, 1963), who really opened up the topic of stigma for social science research. For an overview of the rich field of research on social stigma since Goffman, see B. G. Link and J. C. Phelan, 'Conceptualizing stigma', *Annual Review of Sociology*, 27 (2001), 363–85.

¹¹ Link and Phelan, 'Conceptualizing stigma', 363.

¹² Early work on this topic was undertaken by H. S. Becker, *Outsiders: Studies in the Sociology of Deviance* (New York: Free Press, 1963). For a quite recent overview of research in the field since Becker see B. Major and L. T. O'Brien, 'The social psychology of stigma', *Annual Review of Psychology*, 56 (February 2005), 393–421.

¹³ Major and O'Brien, 'The social psychology of stigma', 420.

¹⁴ See, for instance, M. Minkler, 'Personal responsibility for health? A review of the arguments and the evidence at century's end', *Health Education and Behavior*, 26 (1999), 121–41 at 121.

¹⁵ C. S. Crandall and D. Moriarty, 'Physical illness stigma and social rejection', *British Journal of Social Psychology*, 34 (1995), 67–83.

blame patients unreasonably, for instance, for their 'failure to respond to therapies which, from the physician's point of view, should have worked'. He cites case notes which state that a woman with breast cancer 'failed the standard breast cancer protocol, subsequently failed our newest investigational protocol, most recently failed autologous bone marrow transplantation, and now presents for palliative care with widely metastatic disease'.¹⁶ Indeed, surgeons conventionally refer to surgical instruments or swabs that they have mistakenly left inside a patient during an operation as having been 'retained' by the patient, as if he or she could be blamed even for that!¹⁷

Crime Seen as Stemming from Disease

Alongside the tendency to view disease as, in some sense, stemming from a sin, or crime, or the inadequacy of the patient, there has been a tendency also to see crime as stemming from some sort of disease. Most notorious was the assertion of late-nineteenth-century psychiatrist Cesare Lombroso, widely accepted at the time, that criminals are distinguished by physical anomalies (which he interestingly named *stigmata*), consisting of abnormal forms or dimensions of the skull and jaw, asymmetries in the face as well as of other parts of the body).¹⁸ In the 1920s, speculative research suggested that much crime might be caused by physical, as well as mental, illness.¹⁹ Modern genetic research, employing rather more reliable scientific principles, examines the extent to which the predisposition to criminality may be genetically determined.²⁰ There has been discussion, too, about whether people experiencing such degenerative conditions as Huntington's Disease are more prone than others to commit crime.²¹

¹⁶ R. Gunderman, 'Illness as failure: blaming patients', *The Hastings Center Report*, 30: 4 (July–August 2000), 7–11 at 8.

¹⁷ A. A. Gawande, D. M. Studdert, E. J. Orav, T. A. Brennan and M. J. Zinner, 'Risk factors for retained instruments and sponges after surgery', *New England Journal of Medicine*, 348 (2003), 229–35.

¹⁸ C. Beccalossi, 'Sexual deviances, disease and crime in Cesare Lombroso and the Italian school of criminal anthropology', in Peckham, *Disease and Crime*, pp. 40–55.

¹⁹ L. L. Stanley, 'Disease and crime', *Journal of the American Institute of Criminal Law & Criminology*, 14: 1 (May 1923), 103–9.

²⁰ D. W. Denno, 'Revisiting the legal link between genetics and crime', *Law and Contemporary Problems*, 69 (2006), 209–57; N. Rafter, *The Criminal Brain, Understanding Biological Theories of Crime* (New York: New York University Press, 2008).

²¹ P. Jensen, K. Fenger, T. Bolwig and S. A. Sorensen, 'Crime in Huntington's disease: a study of registered offences among patients, relatives, and controls', *Journal of Neurology, Neurosurgery, and Psychiatry*, 65: 4 (October 1998), 467–71.

There have, nevertheless, been many critiques, by philosophers from Anthony Flew in the 1950s onwards, of the notion that crime should be regarded as a symptom of disease, in the sense of its deriving from the mental disorder of an individual. In his classic article, Flew asserted that clinicians often tacitly adopt a form of determinism in individual cases, in effect denying that their patients have been able to exercise any free will. He pointed out that such a belief has major implications for social and penal policy.²² Mariana Valverde explores the related question of the role of free will in cases of alcoholism.²³ On a rather different track is research suggesting that the occurrence of infectious disease may actually contribute to the occurrence of property crimes and violent crimes. In a fascinating article, Shrira, Wisman and Webster argue that '[u]nder persistent disease threat, xenophobia increases and people constrict social interactions to known in-group members.' In such circumstances, they suggest, inhibitions against harming and exploiting out-group members are reduced.²⁴

There has been much discussion, too, in a range of disciplines, about forms of correlation other than direct causal linkage, between sickness and crime. So Robert Peckham has drawn attention to the way in which disease and crime were often seen in nineteenth-century Britain as having common origins in derelict and dirty living conditions. 'As the century progressed, disease and crime came to be increasingly located through the visualization of unsettled and unsettling metropolitan places and spaces.'²⁵ Current research in urban areas of Europe likewise shows a strong correlation between neighbourhood violent crime, poverty and potentially fatal conditions such as coronary heart disease.²⁶

Social Roles and Gatekeeping in Relation to Sickness and Crime

It was Talcott Parsons again who first drew attention to the way in which we attach distinct social roles to those in each domain, attributing a 'sick

²² A. G. Flew, 'Crime or disease', *The British Journal of Sociology*, 5: 1 (March 1954), 49–62.

²³ M. Valverde, *Diseases of the Will: Alcohol and the Dilemmas of Freedom* (Cambridge: Cambridge University Press, 1998).

²⁴ I. Shrira, A. Wisman and G. D. Webster, 'Guns, germs, and stealing: exploring the link between infectious disease and crime', *Evolutionary Psychology*, 11: 1 (2013), 270–87, at 270.

²⁵ Peckham, 'Pathological properties: scenes of crime, sites of infection', in Peckham, *Disease and Crime*, p. 56.

²⁶ See, for instance, a study undertaken in Stockholm: K. Sundquist, H. Theobald, M. Yang, X. Li, S-E. Johansson and J. Sundquist, 'Neighborhood violent crime and unemployment increase the risk of coronary heart disease: a multilevel study in an urban setting', *Social Science & Medicine*, 62 (2006), 2061–71.

role' to those who deviate in one direction and a 'criminal role' to those who deviate in the other. In both cases, the role is, to a considerable extent, learned by individuals as they interact with the health system and the judicial system, respectively.²⁷ The attribution by society of a 'sick role' to the person experiencing illness imposes obligations and controls on those who become ill, just as the attribution of a 'criminal role' does on those convicted of crimes. The person who claims to be sick must be genuinely ill, is obliged to seek treatment, and, most importantly, is obliged to do their best to avoid transmitting the disease.²⁸ Failure to fulfil this last obligation is blameworthy and may be deemed criminal. Such a failure is, in a sense, at the heart of the issues discussed in this volume.

Both the sick and the criminal are crucially subject to gatekeepers, who define their status and control their actions: medical professionals serve as gatekeepers for the sick; and the police, the judiciary, and even juries serve a similar function in relation to those deemed criminal. In both cases, a significant degree of social control is exercised. (It should be noted that both sets of gatekeepers are concerned equally with admitting and with discharging the individuals in their care.) The two groups of gatekeepers are increasingly in competition over the boundary between their realms:

Now, the criminal justice system and medical profession compete for this authority – contending that their own definition over actions is the more proper. Behaviors once thought criminal can now be medicalized, ushered into the realm of medicine, and removed from their criminal implication by being redefined as a medical pathology. As the medical field grows and the criminal justice system defends its legitimacy – a contested space is created; actions can now become medicalized or criminalized.²⁹

Of course, medical practitioners interact with the penal system in other ways, too: treating prisoners for both physical and mental conditions and advising on whether prisoners have undergone sufficient psychiatric rehabilitation to merit parole.³⁰ Astonishing as it may seem to people living in other jurisdictions, doctors assist, in some US states, in the administration of lethal injections in judicial executions, despite warnings from the American Medical Association that to do so is unethical.³¹

²⁷ T. Parsons, *The Social System* (Glencoe, IL: Free Press, 1951).

²⁸ W. Cockerham, *Medical Sociology*, 11th edition (Upper Saddle River, NJ: Prentice Hall, 2010).

²⁹ <http://thesocietypages.org/sociologylens/2011/11/10/illness-or-deviance-a-contested-space-between-criminal-justice-and-medicine/>

³⁰ L. Birmingham, S. Wilson and G. Adshead, 'Prison medicine: ethics and equivalence', *The British Journal of Psychiatry*, 188 (2006), 4–6.

³¹ L. Black and R. M. Sade, 'Lethal injection and physicians: state law vs medical ethics', *JAMA*, 298:23 (19 December 2007), 2779–80. See also J. L. Groner, 'The Hippocratic

Medicalisation (and Demedicalisation) of Deviant Behaviour

The boundary between sickness and crime is especially blurred in relation to conditions and behaviours which have an obviously psychological dimension, for instance, actions resulting from psychosis or other major forms of psychiatric disorder, whether long-term or short-term.³² Moreover, certain behaviours and conditions have oscillated historically between the two categories. Homosexual acts were, for many generations in the West, regarded in some contexts as a crime (and in some religious contexts as a sin) and in others as an illness. Indeed, the first two editions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), published from 1952 to 1974, defined homosexuality as a more or less treatable medical condition at a time when, in many of the countries where the manual was used, homosexual acts were also still illegal. Yet homosexuality is now regarded in most Western countries as neither criminal nor a disease, though it is estimated that over seventy countries worldwide have laws prohibiting homosexual acts, and many even prohibit education which treats homosexuality as 'normal'.³³ On another front, there is vigorous debate in many countries about whether it is more appropriate for those addicted to drugs to be treated as criminals or as sick people.³⁴ The Secretary General of the United Nations Ban Ki-moon took a clear stand on this at the launch of the 2011 World Drug Report, when he declared: 'Drug-dependent people should not be treated with discrimination; they should be treated by medical experts and counsellors. Drug addiction is a disease, not a crime.'³⁵

paradox: the role of the medical profession in capital punishment in the United States', *Fordham Urban Law Journal*, 35 (2008), 883–917; T. Alper, 'The truth about physician participation in lethal injection executions', *North Carolina Law Review*, 11 (2009), 11–70 and <http://bigstory.ap.org/article/oklahoma-execution-renews-debate-doctors-role> (accessed 18 May 2015).

³² J. J. Brent, 'Illness or deviance: a contested space'. <http://thesocietypages.org/sociologylens/2011/11/10/illness-or-deviance-a-contested-space-between-criminal-justice-and-medicine/>. One of the standard modern texts to treat this topic is P. Conrad and J. Schneider, *Deviance and Medicalization: From Badness to Sickness* (Philadelphia: Temple University Press, 2012).

³³ <http://76crimes.com/76-countries-where-homosexuality-is-illegal/> (accessed May 2015).

³⁴ See, for instance R. McCray, 'Treating addiction as a disease, not a crime', American Civil Liberties Union, Blog of Rights, 23 May 2012. www.aclu.org/blog/criminal-law-reform-prisoners-rights/treating-addiction-disease-not-crime (accessed May 2015).

³⁵ United Nations, 'UN Secretary General: drug addiction a disease, not a crime', *United Nations, Regional Information Centre for Western Europe*, 23 June 2011. www.unric.org/en/drugs/27033-un-secretary-general-drug-addiction-a-disease-not-a-crime (accessed May 2015).

One might suppose that for a society to reassign a behaviour from the category of ‘crime’ to the category of ‘disease’ would be bound to indicate a greater degree of leniency towards it, but that is not necessarily the case. To be deemed ‘not guilty by reason of insanity’ for the killing of another person will, in many First World nations, result in incarceration in a psychiatric hospital for an indeterminate period, whereas conviction for murder might have resulted in imprisonment for a fixed period.³⁶ On a very different level, some totalitarian societies, including the former Soviet Union and the current People’s Republic of China, have classified various forms of opposition to the government/party line as evidence of mental disorder, rather than as a criminal act – let alone reasonable political behaviour.³⁷ Such people are thereby prevented from defending their actions in a court of law. To categorise individuals as sick permits the state to control them in ways and to a degree which sending them for criminal trial does not.

Inconsistency in Prosecutions for Spreading Disease

It is worth noting that criminal prosecutions relating to the transmission of infectious diseases are initiated much more often in the individual-to-individual context – as in all the cases referred to in the other chapters of this book – than in relation to actions by corporations, governments or international organisations, which actually damage the health of considerably larger numbers of people. So, though pharmaceutical companies and governments which continued to distribute blood products after they realised that those products could be infected with HIV and Hepatitis C have in some countries been belatedly required to pay civil damages to those infected or their families, the number of criminal prosecutions for these acts has been tiny (see the film *Bad Blood: A Cautionary Tale*).³⁸ Similarly, Haitians have had the greatest difficulty in obtaining any admission from the United Nations of its responsibility for the cholera epidemic brought

³⁶ J. Rodriguez, L. LeWinn and M. Perlin, ‘The insanity defense under siege: legislative assaults and legal rejoinders’, *Rutgers Law Journal*, 14 (1983), 397–430 offered an outstanding early study of this topic and a recent review of theory and practice is to be found in R. Mackay, ‘Mental disability at the time of the offence’, in L. Gostin, J. McHale, P. Fennell, R. D. Mackay and P. Bartlett (eds.), *Principles of Mental Health Law and Policy* (Oxford: Oxford University Press, 2010), pp. 721–56.

³⁷ R. Munro, *China’s Psychiatric Inquisition: Dissent, Psychiatry and the Law in Post-1949 China* (London: Wildy Simmonds and Hill, 2006).

³⁸ *Bad Blood: A Cautionary Tale*, 2010. Film directed by Marilyn Ness. <http://badblooddocumentary.com/> (accessed May 2015).

to their country by Nepalese troops stationed there under the aegis of the United Nations after the 2010 earthquake and have, to date, received no compensation for it.³⁹ It has been argued that the prevalence of cholera in Africa should be treated as a crime against humanity, in that failure on the part of First World nations to introduce measures to treat and prevent the disease represents 'one feature of an ongoing policy of genocide'.⁴⁰ On the other hand, it should be noted that many Western organisations have recently made large financial and professional contributions to the development of strategies for the prevention and treatment of cholera.⁴¹ On a rather different front, while some governments, both national and local, are seeking to limit the distribution of foods and beverages overloaded with fats and sugars, which undoubtedly contribute greatly to the incidence of heart disease, diabetes and other diet-related diseases, none has taken criminal proceedings against their manufacturers.⁴² Writer for the *New York Times* N. Cristof highlighted the anomaly posed by this inaction in the memorable statement: 'Imagine if Al Qaeda had resolved to attack us not with conventional chemical weapons but by slipping large amounts of high fructose corn-syrup into our food supply. That would finally arouse us to action – but in fact it's pretty much what we are doing to ourselves.'⁴³ Overstated though this statement may be, it highlights the tendency for blame around factors negatively affecting human health to be attached disproportionately to individuals rather than to corporations or governments or economic and social systems.

Having demonstrated something of the diversity and fluidity of relations between our notions of disease and of crime, this chapter now approaches its central topic: the argument that metaphor plays a major part in the association of disease with crime.

³⁹ D. S. Kemp, 'Should the United Nations be liable for the Haiti cholera epidemic?' *Verdict – Legal Analysis and Commentary from Justia*, 21 October 2013. <http://verdict.justia.com/2013/10/21/united-nations-liable-haiti-cholera-epidemic>; C. Krishnaswami, 'The United Nations' shameful history in Haiti: "Cholera is a crime against humanity!"' *Slate* 19 August 2013. www.slate.com/articles/news_and_politics/foreigners/2013/08/united_nations_caused_cholera_outbreak_in_haiti_its_response_violates_international.html (accessed May 2015).

⁴⁰ L. K. Freeman, 'Cholera in Africa today is a crime against humanity: it is genocide', *EIR*, 22 July 2011. www.larouche.com/eiw/public/2011/eirv38n28-20110722/46-50_3828.pdf (accessed May 2015).

⁴¹ See, for instance, the work of the Taskforce for Global Health. www.taskforce.org/our-work/projects/coalition-cholera-prevention-and-control-ccpc

⁴² See the discussion of this topic in the chapter by Matthew Weait in this volume.

⁴³ N. Cristof, 'Mike Huckabee lost 110 pounds. Ask him how', *New York Times* (4 February 2006).

Conceptual Metaphors and Public Policy

Since the ground-breaking work of linguist George Lakoff and philosopher Mark Johnson almost thirty-five years ago, it has been widely recognised that the metaphors we employ around any topic not only reflect, but even shape, the way in which we conceptualise, and so behave around, that topic: ‘Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.’⁴⁴ To take a straightforward example, let us look at what a patient experiencing an intractable cancer says: ‘There have been times when I felt I was cutting my way through a jungle, other times when it’s been quite smooth sailing’. Here, the experience of cancer is what linguists call the ‘target domain’ of the metaphor and the references to journeys of different kinds represent the ‘source domain’. Metaphor links two domains or categories, implying that, while they remain distinct, certain features may be identified as common between the two and that the target domain (in this case, ‘cancer’) may usefully be seen through the lens of the other domain (‘journey’). Strengths of the metaphor include the way in which it captures the potential for the diagnosis to take the patient as readily to a positive outcome as a negative outcome and its emphasis on agency for the traveller. Thinking of CANCER AS A JOURNEY may impact significantly on the attitudes not only of those who experience cancer, but also of the wider public.

It was Donald Schön, also around thirty-five years ago, who argued more specifically that, when a particular metaphor or cluster of metaphors is selected to embody a given social issue, policymakers are inclined to come up with solutions which derive from that original metaphor.⁴⁵ He describes these as ‘generative metaphors’. Over the period since then, thinkers about issues of public policy such as Anthony Judge have pointed to the importance of metaphors in what Judge terms the ‘imaginal framework’ through which we view the topic under consideration.⁴⁶ Paul H. Thibodeau and Lera Boroditsky have argued more recently that the adoption of a given metaphor to refer to the challenge posed by a social issue will in large part determine not only the policies which officials will

⁴⁴ G. Lakoff and M. Johnson, *The Metaphors We Live By* (Chicago: Chicago University Press, 1980), p. 3.

⁴⁵ D. Schön, ‘Generative metaphor: a perspective on problem-setting in social policy’, in A. Ortony (ed.), *Metaphor and Thought*, 2nd edition (Cambridge: Cambridge University Press, 1993), pp. 137–63.

⁴⁶ A. Judge, ‘Enhancing sustainable development strategies through avoidance of military metaphors’ (1998). www.laetusinpraesens.org/docs/targets.php

propose to deal with them, but also the attitudes of the public towards those policies.⁴⁷ The example they use is directly relevant to the current discussion. Thibodeau and Boroditsky found that, if crime in a given city is referred to as a 'beast' preying on the community, people will tend to support enforcement measures involving detection, capture and prosecution, whereas, if it is presented as a 'virus' infecting the city, they are more inclined to support preventive measures and treat the problem through social reforms.⁴⁸ As a number of commentators have suggested, there is a tendency for such metaphors to become literalised or concretised.⁴⁹

Crime as Disease

It turns out that the metaphor of CRIME AS A DISEASE is in widespread use and has been found in many circumstances to be highly productive. It has been most strikingly employed by Gary Slutkin who, on returning to Chicago in 1995 after working for years as an epidemiologist for the World Health Organization on the spread of diseases such as tuberculosis and HIV in Africa, observed similar patterns to be at work in the spread of violence in the city. He argued that it is productive to view crime as if it were an infectious disease and use similar strategies to overcome it. Violent crime, especially, he suggested was 'contagious' and measures should be introduced to limit the 'epidemic'.

Maps and graphs that chart the spread of violence look almost identical to those that chart infectious diseases with maps showing clusters and graphs showing wave upon wave.... The good news is, once we recognize violence as a contagious process, we can treat it accordingly, using the same methods that successfully contain other epidemic processes – interrupting transmission, and behavior and normative change.⁵⁰

⁴⁷ P. H. Thibodeau and L. Boroditsky, 'Metaphors we think with: the role of metaphor in reasoning', *PLOS ONE*, 6: 2 (2011), 2.

⁴⁸ While the CRIME AS BEAST metaphor is not familiar in all countries, it lies behind much discussion of crime in the United States, where the notion of 'keeping the streets safe' is prevalent. Indeed an Act of Congress in 1968 had the title 'Omnibus Crime Control and Safe Streets' Act. For discussion, see J. Simon, 'Governing through metaphors', *Brooklyn Law Review*, 67 (2001), 1035–70. On the broad topic of metaphors for crime, see S. L. Winter, *A Clearing in the Forest: Law, Life, and Mind* (Chicago: University of Chicago Press, 2001).

⁴⁹ B. F. Bowdle and D. Gentner, 'The career of metaphor', *Psychological Review*, 112: 1 (2005), 193–216.

⁵⁰ G. Slutkin, 'How to reduce crime: treat it like an infectious disease' <http://ideas.time.com/2013/05/30/how-to-reduce-crime-treat-it-like-an-infectious-disease/>; see also his TED talk, G. Slutkin, 'Let's treat violence like a contagious disease' (2013). <http://on.ted.com/ViolenceEpidemic>

He is one of the founders of the organisation Cure Violence, which has worked with city administrations in Chicago, Baltimore, New York, Philadelphia and beyond, appointing selected workers into communities to prevent violence and encourage behaviour change through outreach. Commentators and activists in other countries have used similar metaphors. Writing of the problem of violent crime in Jamaica, social commentator and entrepreneur Henley Morgan wrote an article in the *Jamaica Observer* with the headline: 'Treat the crime epidemic like the disease it is'. He writes of the need to 'understand the pathology of the disease', 'quarantine the constituencies ... against spreading the disease to unaffected areas of the population', and concludes that '[i]f we approach fighting crime as if it were a deadly and contagious disease, we will find solving the problem is not beyond us.'⁵¹ Mahatma Gandhi, it should be remembered, declared long ago that: 'All crime is a kind of disease and should be treated as such.'⁵²

Reinforcing the CRIME AS DISEASE analogy, we frequently liken detectives to doctors in the way in which they analyse the evidence they find. It is no coincidence that author Sir Arthur Conan Doyle was trained in medicine at the University of Edinburgh and that he modelled the great fictional detective Sherlock Holmes, with his extraordinary powers of observation and deduction, on his medical lecturer Joseph Bell.⁵³ It should not be surprising that television series such as *Bones*, depicting teams of forensic medicine specialists working at the intersection of detective work and medicine, are so popular. *House* is another program which highlights the pursuit of clues in diagnosis. As Mariana Valverde has shown, public understanding of crime and the legal system is significantly shaped by the grossly simplified representations of detective work and forensic medicine we encounter in films and television series.⁵⁴

Nevertheless, some criminologists have expressed objections to the, sometimes uncritical, ways in which terms such as 'predisposition' and 'rehabilitation', commonly employed in the field of public health, have been borrowed for use in their discipline. Kaye Haw argues that concepts such as 'risk factor' and 'pathway into crime' have moved from being

⁵¹ H. Morgan, 'Treat the crime epidemic like the disease it is', *Jamaica Observer* (7 February 2014). www.jamaicaobserver.com/columns/Treat-the-crime-epidemic-like-the-disease-it-is_15948706 (accessed May 2015)

⁵² www.worldofquotes.com/author/Mahatma+Gandhi/7/index.html (accessed May 2015).

⁵³ For a wonderfully vivid account of one of Bell's demonstrations of his powers, see A. Vergheze, 'A Doctor's Touch' (2011). www.ted.com/talks/abraham_verghese_a_doctor_s_touch

⁵⁴ M. Valverde, *Law and Order: Images, Meanings, Myths* (New Brunswick: Rutgers University Press, 2006).

useful generative metaphors to the status of professional myth,⁵⁵ and Sarah Armstrong asserts that the concept of 'risk management' has undergone a similar shift.⁵⁶ She argues, in particular, that the metaphor promotes 'the risk management process as all-seeing, permanent, delivered as an actual edifice, and coordinated into a coherent system of action.'⁵⁷ 'Such a frame closes off critical conversations about definitions of problems in the first place ... It also treats human agency as relevant only at the margins.'⁵⁸ This critique illustrates the broad argument of Deborah A. Stone on the importance of teasing out the several kinds of causal explanation (mechanical, accidental, intentional, inadvertent) which may be employed around any social problem.⁵⁹

Direction of Meaning Flow in Metaphors

In general, the linkage between two domains through metaphor is perceived as working in one direction only. When a cancer patient refers to his or her experience of the DISEASE AS A JOURNEY, for instance, there is no suggestion that the equation is reversible and that it would be helpful to think of *journeys* as having some of the characteristics of *cancer*, via the metaphor JOURNEY AS DISEASE. Most of the metaphors studied by linguists and philosophers are 'unidirectional'.⁶⁰ Nevertheless, it sometimes happens that the flow of metaphorical meaning does actually run in both directions. This occurs especially when the domains on which a metaphor draws are closely adjacent, as with disease and crime. So, alongside statements such as 'violent crime is a cancer on the neighbourhood', where crime (target domain) is viewed through the lens of disease (source domain), we find many instances of metaphors of crime being used to describe or explain disease, as in: 'the HIV virus *lurks* in the ... glands and *insinuates itself* into the blood supply', where the disease (target domain)

⁵⁵ K. Haw, 'Risk factors and pathways into and out of crime, misleading, misinterpreted or mythic: from generative metaphor to professional myth', *Australian and New Zealand Journal of Criminology*, 39: 3 (2006), 339–53 at 339.

⁵⁶ S. Armstrong, 'Managing meaning: the use of metaphor in criminal justice policy' (15 June 2009). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=15083405.

⁵⁷ *Ibid.*, 17

⁵⁸ *Ibid.*, 18. See also R. Canton, 'Not another medical model: using metaphor and analogy to explore crime and criminal justice', *British Journal of Community Justice*, 8: 1 (2010), 40–57.

⁵⁹ D. A. Stone, 'Causal stories and the formation of policy agendas', *Political Science Quarterly*, 104: 2 (Summer 1989), 281–300.

⁶⁰ Z. Kövecses, *Metaphor: A Practical Introduction* (New York: Oxford University Press, 2002), p. 25.

is viewed through the lens of crime (source domain).⁶¹ Both viruses and cancers are frequently referred to, even in professional literature, as if they are persons who have malevolent intentions. So, for instance, a report on a research programme at Vanderbilt University on potential vaccines against HIV comments: ‘The difficulty in developing a vaccine against the virus that causes AIDS testifies to its *wiliness*. The human immunodeficiency virus mutates rapidly to *evade detection* by the body’s immune system.’⁶²

While Conan Doyle saw that detectives needed to employ skills akin to those learned by students of medicine, the Vanderbilt report is only one of many reminders that doctors employ skills akin to those of detectives. So we find articles such as Lawrence K. Altman’s ‘The doctor’s world: A correspondent recalls his days as a medical sleuth’⁶³ and US television’s Dr Mehmet Oz bringing together a panel of ‘disease detectives’ to discuss new ways of diagnosing and treating key diseases.⁶⁴ The metaphor DOCTORS AS DETECTIVES is widely accepted and used.

In many cases, research and public education on diseases and their treatments are clearly illuminated by the use of metaphors from the domain ‘crime’. So a fascinating article from 2005 in the journal *Nature*, titled ‘Cancer: Crime and Punishment’,⁶⁵ illustrates the way in which human cells use ‘exile, execution and lifetime imprisonment’ as strategies to prevent mutant cells from turning into fully fledged cancers.

The metaphors which view disease through the lens of criminality are a subset of what Scott Montgomery identifies as the dominant metaphors in the West around disease, the biomilitary (deriving from Pasteur) and the bioinformationist (deriving especially from the discovery of DNA and research in genetics).⁶⁶ He shows that these dominant metaphor clusters

⁶¹ H. V. Fineberg, ‘The social dimensions of AIDS’, *Scientific American*, 259: 4 (1988 October), 128–34.

⁶² B. Snyder, ‘Studies investigate potential HIV vaccines’, Reporter: Vanderbilt University Medical Center’s Weekly Newspaper (19 June 2009). www.mc.vanderbilt.edu:8080/reporter/index.html?ID=7321

⁶³ L. K. Altman, ‘The doctor’s world: a correspondent recalls his days as a medical sleuth’, *New York Times* (17 April 2001).

⁶⁴ M. Oz, ‘Dr Oz’s disease detectives, pt 1’, The Dr Oz Show, 2012. www.doctoroz.com/videos/dr-oz-s-disease-detectives-pt-1.

⁶⁵ N. E. Sharpless and R. A. DePinho, ‘Cancer: crime and punishment’, *Nature*, 436 (4 August 2005), 636–7.

⁶⁶ S. L. Montgomery, ‘Illness and image: on the contents of biomedical discourse’, *The Scientific Voice* (Chicago: Chicago University Press, 1996), pp. 139–60 at 147. Montgomery traces in some detail the increasing occurrence in Pasteur’s writings on microbes through the 1860 and 1870s of terms such as ‘invade’, ‘foreign’, ‘defeat’ and ‘overwhelm’ and their adoption by biologists and physicians from then on. He also shows how terms such as ‘message’, ‘code’,

feature not only in popular discourse but also in technical and professional discourse and that 'they have provided organizing images, even image systems, whose own internal logic later became the guiding basis for inquiry'.⁶⁷ The subset of metaphors which represent disease as crime refers to diseases as *attacking*, by *stealth*, and making use of *covert communication systems*. Many of the metaphors used suggest spying, invasion and even terrorism, rather than simple criminality. Montgomery acknowledges that the adoption of such metaphors has shaped professional understanding of, and research in, many fields of medicine in ways which are fruitful.

It may well be, however, that this tendency to view illness through the lens of criminality stems also in part from the etymology of the English words 'health', 'healing' and 'illness'. 'Health' and 'healing' are cognate with both 'whole' and 'holiness', with the implication that the person who lacks 'health' is less than whole and may indeed be 'unholy'. Moreover, the 'ill' of 'illness' is a contraction of the word 'evil', which means that the term 'illness' suggests that an evil has been done – and that, as we have already seen, begs the question of whether it has been committed *to* or *by* the person who is sick.⁶⁸ This possibility may start to bring into question the appropriateness of the DISEASE AS CRIME metaphor.

Metaphors of 'Self' and 'Other'

Rather than just a matter of popular belief, the notion that sickness involves some intrusion from the outside has, to a considerable extent, become fixed in the professional conceptualisation of both cancer and diseases of microbial origin. A central feature of the notion of the 'immune system', as it emerged in the late nineteenth century, is the 'self-other' distinction. So, the opening paragraph of a standard text on immunity and immunology states:

The human organism, from the time of conception, must maintain its integrity in the face of a changing and often threatening environment. Our bodies have many physiological mechanisms that permit us to adjust to basic variables such as temperature, supply of food and water, and physical injury. In addition, we must defend ourselves against invasion and colonization by foreign organisms. This defensive ability is called *immunity*.⁶⁹

'copying' and 'decoding' emerged from genetic and computer research in the 1940s and 1950s, and became indivisibly linked to the military metaphors.

⁶⁷ Ibid., 136.

⁶⁸ K. M. Boyd, 'Disease, illness, sickness, health, healing and wholeness: exploring some elusive concepts', *Journal of Medical Ethics: Medical Humanities*, 26 (2000), 9–17 at 9.

⁶⁹ S. Sell, *Immunology, Immunopathology, and Immunity* (New York: Elsevier, 1989), p. 3.

Yet, as several commentators have pointed out, the self-other distinction is somewhat misleading. In particular, the assumption that ‘bacteria,’ as ‘other’ to the human organism, are in principle to be feared and, as far as possible, removed, is inaccurate, since the physiology of the body is highly dependent on the presence, especially in the gastro-intestinal system, of large numbers of ‘positive’ bacteria. To suggest, likewise, that cancer cells originate outside the bodily system is also misleading, given that they are actually mutations of cells internal to that system.⁷⁰ The metaphorical leap involved in borrowing the term ‘immunity’ from legal language is obscured in most textbooks where the concept is presented as if it had literal validity. This is one of a number of areas in which doubt has been raised about the appropriateness of military and criminal metaphors as they are used in relation to sickness.

Military/Criminal Metaphors in Relation to Disease

More broadly, there has been ongoing concern since the 1980s about the implications for social attitudes towards sickness of the widespread use of metaphors with military and criminal connotations to characterise disease. It was novelist and essayist Susan Sontag who raised concerns first in relation to cancer, then to HIV. According to Sontag, the ascribing of military or criminal associations to those diseases tends in the first instance to demoralise the patients. In addition, there is a tendency for the notion of guilt to be somehow transferred from the disease to the patient. ‘Ostensibly, the illness is the culprit. But it is also the cancer patient who is made culpable.’⁷¹ This may well indicate, in part, a kind of hangover of earlier assumptions about the origins of disease lying in criminal or sinful actions by the person who gets sick, or those around them. As Sontag also suggested, focus on the ‘otherness’ of cancer, HIV-AIDS and certain other infectious diseases may engender prejudice against the social other, in the shape of both xenophobia and homophobia. ‘This is the language of political paranoia with its characteristic distrust of a pluralistic world’⁷² the kind of paranoia which fosters representations of Muslims or Asian immigrants or homosexuals as toxic.

⁷⁰ E. Cohen, ‘Metaphorical immunity: a case of biomedical fiction,’ *Literature and Medicine*, 22: 2 (Fall 2003), 140–63, 150.

⁷¹ S. Sontag, *Illness as Metaphor and AIDS and Its Metaphors* (New York: Farrar, Straus and Giroux, 1990), p. 57.

⁷² *Ibid.*, 106.

A complicating factor in this is that several of the most serious diseases to have surfaced in the world in recent years such as HIV, Severe Acute Respiratory Syndrome (SARS), avian influenza, and now Ebola, emerged first in non-Western countries, with HIV-AIDS and Ebola originating in Africa, and SARS and avian flu in East Asia. Indeed, all of these viruses appear to have been first transmitted to human beings from other animals, thereby doubling their 'otherness.' These facts have made it only too easy for commentators in Europe and the United States to adopt melodramatic metaphors derived not just from the military domain, but from the domains of individual criminality and of terrorism. Referring to the geographical spread of avian flu, two *New York Times* journalists wrote: 'like enemy troops moving into place for an attack, the bird flu known as A (H5N1) has been steadily advancing',⁷³ to which other writers added 'the virus lurks' and another still 'it is a serial killer' which 'did not need one of the host's own enzymes to turn traitor and cleave apart the hemagglutinin protein to help the virus infect a cell ... the virus toted its own cleaving mechanism into the host on that gene, like a butcher who brings his own knife.'⁷⁴

In reference to public health responses to these threats, Western leaders seem to have thought mostly in terms of defending their own territories and population against 'invasion' by these viruses, rather than seeking to treat them and the people whose lives are devastated by them in Asia and Africa directly. The rhetoric of President George W. Bush in relation to avian flu was particularly remarkable in that it was almost indistinguishable from his rhetoric on international terrorism and 'homelands security', with references to 'insufficient surveillance', the importance of 'stockpiling Tamiflu' (the antiviral medication) not only at the national level, but also at the level of individual households and his promise to give Americans 'the protections they deserve'.⁷⁵ It does seem, however, that the response from rich countries to the current Ebola outbreak in 2014 is somewhat more positive, in that it is focusing primarily on the problem as it presents itself in the countries of West Africa.⁷⁶ In this context, it is all too easily forgotten

⁷³ D. Grady and G. Kolata, 'Avian flu: the uncertain threat – Q & A: how serious is the risk?' *New York Times* (28 March 2006).

⁷⁴ J. Shreeve, 'Why revive a deadly flu virus?' *New York Times* (29 January 2006), 90; see also M. Hanne, and S. Hawken, 'Metaphors for illness in contemporary media', *Journal of Medical Ethics: Medical Humanities*, 33 (December 2007), 93–9.

⁷⁵ T. Williams, 'Bush calls for \$7.1 billion to prepare for bird flu threat', *New York Times* (1 November 2005).

⁷⁶ WHO, 'Statement on the meeting of the international health regulations emergency committee regarding the 2014 Ebola outbreak in West Africa', World Health Organization (8 August 2014). www.who.int/mediacentre/news/statements/2014/ebola-20140808/en/

that, through history, it has been much more often the case that diseases have been transmitted from the first, colonising world to the populations of the third, colonised world, than the reverse.⁷⁷

It is, of course, relevant, too, that diseases, notably anthrax, cholera and typhus, have actually been used as weapons of war⁷⁸ and are contemplated as weapons of terrorism.⁷⁹ Following the establishment of the Biological and Toxin Weapons Convention in 1972, which has been signed by the governments of 120 countries, to use diseases for military or terrorist purposes is in fact criminal.⁸⁰ In this specific sense, therefore, the characterisation of disease as criminal is not wholly metaphorical.

Interestingly, the mirror image of the DISEASE AS TERRORISM metaphor is to be found in the frequent contemporary references to terrorism as a cancer or contagious disease.⁸¹ A vivid example is to be found in the words of President Obama on 20 August 2014, when he spoke of the murder of an American journalist in Syria: ‘From governments and peoples across the Middle East, there has to be a common effort to extract this cancer so that it does not spread.’⁸²

The Crime of Disease and the Disease of Crime

The widespread use of both the DISEASE AS CRIME metaphor and the CRIME AS DISEASE metaphor derives not just from the general contiguity of the two fields that I referred to at the start of this chapter. More specifically, it springs from the long-established dual conventions whereby we view society as a body and the body as a society. The SOCIETY AS BODY metaphor has been widely used in the West, but with different emphases, for 800 years or more. Whereas, in the Middle Ages, the emphasis was on the detailed anatomy of the ‘body politic’, with the prince being regarded

⁷⁷ J. Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: W.W. Norton and Company, 1997).

⁷⁸ F. Frischknecht, ‘The history of biological warfare: human experimentation, modern nightmares and lone madmen in the twentieth century’, *European Molecular Biology Reports*, 4: Supplement 1 (June 2003), 47–52.

⁷⁹ L. Paquette, *Bioterrorism in Medical and Healthcare Administration* (Boca Raton: Florida CRC Press, 2004).

⁸⁰ Frischknecht, ‘The history of biological warfare’.

⁸¹ I. Shrira, ‘Why the fight against terrorism is like the fight against cancer’, *Psychology Today* (2 October 2011). www.psychologytoday.com/blog/the-narcissus-in-all-us/201110/why-the-fight-against-terrorism-is-the-fight-against-cancer

⁸² Obama, <http://blogs.wsj.com/washwire/2014/08/20/obama-transcript-world-appalled-by-foley-murder-isis-cancer-must-be-extracted/>.

as ‘the head’, and every social group corresponding to one or another necessary part of the body, right down to the peasants and craftsmen, who were ‘the feet’,⁸³ in the modern era the tendency has been to focus on the question of the ‘health’ or ‘sickness’ of the society and, specifically, its vulnerability to some kind of ‘infection’ from other communities or nations.⁸⁴ The BODY AS SOCIETY metaphor has an equally long history, which depends broadly on our identifying the organs as playing different roles in the normal functioning of the body, with, at different times, the heart, the brain and the liver being perceived as ‘in charge’.⁸⁵ In the modern era, the emphasis has shifted to the processes by which the organs ‘communicate’ with each other and, as has been seen, the tendency to view the body as subject to ‘invasion’ and ‘colonisation’ by outside forces. At a microscopic level, the whole body is depicted as a vast and complex community of citizen cells, not unlike a community of bees or ants (or humans). Discussion of the mechanisms by which the body responds to infection depicts the cells of the body as citizens with specialised roles. For instance, a recent article on the immune system for a general interest magazine refers to the way in which a virus will:

do its best to infect a host cell and keep out of the way of the immune system, which may, in turn, identify the viral material and sound the alarm. Antiviral elements are then released; uninfected cells are cautioned to bolster their defences against viral intrusion, and cells that have already been infected are coaxed towards committing suicide.⁸⁶

Subsequently, the article refers to ‘helper T cells (that mostly help other immune cells by directing them to the right spot and providing guidance and encouragement)’.⁸⁷

The conclusion that follows is that the closeness, in so many ways, of the domains ‘crime’ and ‘disease’ and, especially, the widespread use of dual

⁸³ A. Musolff, ‘Political metaphor and bodies politic’, in U. Okulska and P. Cap (eds.), *Perspectives in Politics and Discourse* (Amsterdam and Philadelphia: John Benjamins Publishing, 2010), pp. 23–41.

⁸⁴ D. Skinner and R. Squillacote, ‘New bodies: beyond illness, dirt, vermin and other metaphors of terror’, in Okulska and Cap, *Perspectives in Politics and Discourse*, pp. 43–60. See also M. Hanne, ‘An introduction to the “Warring with Words” project’, in M. Hanne, W. D. Crano and J. S. Mio (eds.), *Warring with Words: Narrative and Metaphor in Politics* (New York and London: Psychology Press, 2014), pp. 1–50 at 8–11.

⁸⁵ R. Selzer, ‘Liver’, in *Mortal Lessons: Note on the Art of Surgery* (New York: Houghton Mifflin Harcourt, 1996), pp. 62–77.

⁸⁶ M. Broatch, ‘A survivor’s guide to the immune system’, *New Zealand Listener*, 245:3876 (23–29 August 2014), 20–1, 21

⁸⁷ *Ibid.*

direction metaphors between the two domains leads to a worrisome tendency towards a collapse of the conceptual boundary between them. As a result, rather than the one being seen as analogous to the other, they come to be seen as more or less identical. When we are aware that we are using metaphors, we realise that only some of the features of the source domain are transferable to the target domain; however, when the boundary between the domains collapses, we assume that all features are shared between the domains. When, as we saw earlier, the concepts of 'predisposition', 'pathway', 'risk factor' and 'rehabilitation' are employed in an undifferentiated way across both the public health sector and the field of criminology, it becomes very easy to suppose that all the key concepts in the two domains are mutually interchangeable. In the words of Sarah Armstrong: 'The boundary between the literal and the metaphorical can become obscured when a cross-domain mapping occurs between domains that are very near to each other.'⁸⁸ While Armstrong's concern, given that she is a criminologist, is with the misleading tendency for offenders to be regarded as patients, the concern of Sontag and her successors, whose pre-occupation is with medicine, has been that the patient may too easily be regarded as an offender.

In conclusion, therefore, it is imperative that the issues discussed in the other chapters of this book concerning the criminalisation of people suffering from a potentially terminal illness, who engage in behaviour which may put others at risk of contracting the disease, be viewed against the linguistic and cultural background outlined in this chapter. Although not recommending for a moment, as Susan Sontag did, that we should entirely abandon the use of metaphor in relation to either domain, I do suggest that there is a great need for more critical thinking around just how we refer to the relationship between the two domains, especially in terms of the uncritical use of metaphors derived from the one domain in relationship to the other.

⁸⁸ Armstrong, 'Managing meaning', 5.