It’s a great honour and privilege to have been asked to deliver this lecture, but you may well be wondering why it is that a historian is standing before you and not a scientist. In the course of the next 45 minutes or so, I hope to convince you that history has a lot to contribute to the communication of common sense about science. What I want to discuss is the relationship between the state and society during outbreaks of epidemic disease. The modern history of this relationship begins in the nineteenth century. So I’ll explore it by looking at six case studies, starting with three nineteenth-century cholera epidemics, one of which, in Hamburg, was the subject of a book I wrote some time ago, the other two that I want to examine, in Naples and in the Russian town of Saratov, have been researched in more recent work. I’ll then move on to cholera in Haiti in our own century, to AIDS in South Africa, and to the BSE crisis in the UK in the 1990s. I’ll conclude by suggesting a few lessons that can be learned from these six cases and look forward to your comments and questions at the end.

(1) Cholera, as is well known, came to Europe in the 1820s as a result of the opening up of new trade routes through Afghanistan and Persia following the British conquest of North India. In the mid-1820s it was halted, possibly by a military cordon sanitaire set up by the Russian authorities but at the end of the
decade it spread westward again, reaching Germany in 1830 and having its full impact on Britain two years later. Medical opinion, crucially, was divided. The failure of quarantine measures and *cordons sanitaires* *(2)* convinced many that it was not a directly infectious disease, but spread through the atmosphere in a miasma, an invisible vapour, which by the 1870s scientists led by Max von Pettenkofer in Munich were arguing rose from the ground-water under certain climatic conditions.

This belief appealed particularly of course to liberal opinion at the time, while authoritarian states on the European Continent instinctively resorted to the same measures they had mobilized in earlier times against the plague, restricting movement from place to place, forcibly quarantining or hospitalizing victims, and imposing quarantines on seaports and towns affected by the disease. It wasn’t the case that the miasmatists opposed any kind of state intervention out of a dogmatic belief in *laissez-faire* liberalism; a reformer like Edwin Chadwick in England, for example, combined miasmatism with support for sanitary reform, and even Pettenkofer, who declared roundly that cholera could not be passed from person to person or transmitted through water, urged the clean-up of slums and the improvement of waste disposal in his native Munich to prevent dangerous miasmas. Nevertheless, the miasmatists believed strongly that once an epidemic had broken out, it continued to be transmitted through the air *(3)* and thus there was little anybody could do to reduce its effect except flee the site of infection,
which of course those who believed it was indeed infectious regarded as a sure way of spreading it further; alternatively one could stir up the air with fumigation to dispel the miasma, \(4\) a tactic widely adopted in the mid-century epidemics such as this one in France in 1865.

Miasmatism or anti-contagionism, as it was known, naturally appealed to the interests of any state that was particularly concerned about the economic effects of quarantine, and none more so than the self-governing city-state of Hamburg in north Germany, the largest seaport on the European Continent and the biggest and richest in the world after London, Liverpool and New York. Even after the unification of Germany in 1871, it continued to govern its own internal affairs, including trade and industry. It was controlled by an oligarchy of wealthy merchants, who dominated the city’s administration and appointed all its senior officials including medical and public health officers. Over the decades this oligarchy had been forced to share some of its power with the representatives of the city’s property-owners, but all were agreed that the working class – overwhelmingly socialist in their political allegiance – should be kept out of power, and the city should be governed in the interests of free trade.

The merchants believed strongly in a minimalist state, refusing for many years to appoint a professional municipal civil service, rejecting costly initiatives for the construction of a sand-filtered water supply and failing to spend money on adequate sewage and waste disposal systems, leaving the tidal canals that criss-
crossed the city filled with detritus and excrement. (5) The city’s ruling Senate rejected the introduction of compulsory smallpox vaccination such as existed in neighbouring Prussia on grounds not only of expense but also because, as one local politician declared in 1871, it violated ‘the most basic right of the individual, that of the freedom to dispose of his body as he wishes.’ Smallpox was the one epidemic disease where medical intervention had been proved effective following Jenner’s development of the cowpox vaccine at the end of the eighteenth century, and states across Europe had been quick to put pressure on people to allow themselves to be inoculated. By 1870 Hamburg was an exception to what had become a general practice across Europe. It paid the price. Troops returning from the Franco-Prussian War brought smallpox to the city, triggering a massive epidemic in which more than four thousand people died, a mortality rate of 15.4 per thousand, far higher than anywhere else in Germany. (6) Three years later a Reich Vaccination Law made smallpox vaccination compulsory throughout Germany.

The medical profession in the city had been broadly in favour of compulsory vaccination, but it was careful not to criticize the Senate for its inaction once the epidemic had broken out. Yet medical opinion was virtually unanimous on the issue. Smallpox was the outstanding example in the nineteenth century of an obviously successful medical action in preventing disease. It was a very different matter when it came to cholera. Hamburg’s Medical Board, under the powerful
influence of the merchant families, ensured throughout the 1870s and 1880s that no medical officer was appointed to an official position unless he was an adherent of Pettenkofer's miasmatist theory of the disease and its transmission. The Chief Medical Officer of the city, Dr Johann Kraus, appointed in 1871 at the age of 47, was described in his obituary as a ‘convinced supporter of Pettenkofer's views.’ These views were still dominant in Berlin in the 1870s. But they were challenged in the following decade by the publicity given to Robert Koch’s claim to have discovered the cholera bacillus – in fact identified some years before by an Italian scientist, but now trumpeted as a triumph of German medical science by a national government in Berlin eager to put up a rival to the Frenchman Pasteur. (7).

By 1890 Koch’s views had conquered the Imperial Health Office, reflecting the turn of the German government from 1879 onwards to greater intervention in economy and society, and Berlin was officially backing the contagionist theory of cholera, putting in place plans for quarantines and disinfection measures should the disease break out anywhere in Germany. But the powers of central government over the federated states were limited. Berlin could not force Hamburg to accept its views. In August 1892, a renewed outbreak of cholera in Russia spread rapidly to Hamburg as thousands of migrants, driven out by a major famine and by the Tsar’s decision to expel Jews from Moscow in 1892, travelled by train from the infected areas to the seaport where they hoped to embark on ships bound for America. Convinced that cholera could only break out in consequence of local
climatic conditions, and refusing to believe it could be carried in water, the medical authorities in the city took no action.

The hot weather and brackish water of the tidal Elbe river provided ideal breeding grounds for the bacillus, which entered the river from the cheap lodging houses and primitive, insanitary barracks where the migrants were housed, and was swept upstream by the tide, which was unusually strong because the prolonged drought of the summer had lowered the normal levels of the river-water. It soon reached the city’s water intake point, spread through the unfiltered reservoirs and was pumped into homes and houses across the city before the medical authorities had taken steps to diagnose the disease in its first victims or take any measures to deal with it or warn people of its presence. Soon victims were being collected in their thousands from infected homes and taken to hospital, in 50% of cases never to return. (8)

Chief Medical Officer Kraus had issued firm instructions to doctors in the city to be cautious about identifying gastric diseases as cholera, ‘nor’, as one newly appointed hospital administrator in the city, the first to take Koch’s side in the debate, ‘to diagnose a cholera epidemic from isolated cases of cholera, because the publication of such reports would cause immeasurable damage to Hamburg’s trade.’ Within six weeks, ten thousand people had died from the disease in the city. Death rates were highest amongst the very young (underestimated in the official statistics) and the elderly and old (9); but what was particularly striking to
contemporaries was the fact that normally young, fit and healthy people died in large numbers, boosting excess mortality rates in these age-groups, especially among women whose job it was to clean the household and prepare the food. (10)

The legitimacy of Hamburg’s state administration was severely damaged by the epidemic. Koch was sent by the national government sent to Hamburg to impose quarantine, disinfection and other measures including the distribution of free, uncontaminated water and instructions to citizens to boil all water before they used it - measures that eventually had some influence in bringing the epidemic to an end. (11) Convicted in the national press of causing delays and even of concealing the diseases’s presence, Kraus was forced to resign. The disease hit the poorest most severely, living as they did in overcrowded and unhygienic dwellings. (12) Surveying the slum quarters by the harbour where the impact of the disease was greatest, and remembering the squalid dwellings he had seen in Egypt and India, Koch turned to his team and said: “Gentlemen, I forget that I am in Europe”. In the age of imperialism it was hard to think of a more damning verdict. Hamburg was forced eventually to reform its system of administration and appoint contagionists to key posts in the medical service.

In a last-ditch attempt to rescue his miasmatic theory of the disease, Max von Pettenkofer (13) obtained a sample of the bacillus culture from Hamburg and swallowed it, though in the true style of the German professor he also made his assistant do the same immediately afterwards, in the presence of a hundred
onlookers. Both survived, largely because, it seems, the doctor in Hamburg from whom Pettenkofer had ordered the sample had a shrewd idea of what he intended to do with it and so sent him a diluted culture. It took some time for Koch’s contagionism to triumph everywhere, and miasmatism still had its champions even after the turn of the century, but the 1892 epidemic was the major turning-point in the debate.

It was remarkable in 1892 that ordinary people in Hamburg raised no objection to the measures taken by Koch. At least 40,000 people fled the city, many of them by rail, as these statistics suggest (14); there were reports of mass drunkenness, and the churches were crowded with unusually large numbers of people praying for deliverance. But the working classes in the city overwhelmingly supported the Social Democratic Party, which as a progressive political movement believed in the legitimacy of modern medical science, and co-operated fully with the authorities in combating the epidemic. German society had begun a process of mass medicalization in the 1870s, implemented first of all in a national compulsory vaccination law passed in 1874 after the Hamburg smallpox epidemic, and Koch had particularly high prestige because of the publicity given to his discoveries by the national press. The political effects of the epidemic were found not in protests against medical intervention but in the Social Democrats’ use of the disaster to pillory the state administration for serving the interests of a rich minority and neglecting the health and safety of the mass of ordinary people. In the 1893
national elections all the city’s Reichstag seats fell to the Social Democrats, and they made such gains in local elections that in 1906 the city’s ruling Senate changed the voting qualifications to reduce the chances of a Social Democratic takeover.

The situation was very different in the only other part of Europe affected by epidemic cholera in 1892, namely Russia. (15) When cholera had first struck Europe at the beginning of the 1830s, there had been popular disturbances in many areas; in Russia, peasants and townspeople massacred physicians, local administrators and medical teams who came to the stricken areas to lend help, in the belief that the government was trying to poison the people to reduce their burden on the state; Tsar Nicholas I was forced to appear in person to quell the unrest, as seen in this commemorative relief (16); in the Habsburg Monarchy angry mobs sacked castles and slaughtered quarantine officers; in Prussian towns crowds broke into isolation hospitals and forcibly removed the patients, stormed officials’ houses and resisted attempts to take victims to hospital; in Britain people rioted against the doctors, accusing them of trying to poison them in order to get bodies for the anatomy schools, along the lines of the Burke and Hare murders in Edinburgh. (17)

The reduction of state intervention in subsequent epidemics, partly as a result of the spread of miasmatic theories of the disease, partly in consequence of the realization that quarantine and isolation had not stopped the spread of cholera, helped prevent the recurrence of cholera riots after the 1830s; and by the 1890s the
prestige of medicine in western and central Europe was such that doctors and medical officials met with a high degree of acceptance and trust. But this was still not the case in Russia. In the same epidemic that spread to Hamburg in 1892, the city of Saratov, on the Volga, was overrun by people fleeing the disease, and when the first cases broke out, the Tsarist authorities closed down food shops, heavily restricted the sale of vegetables, banned markets, and enforced quarantine, hospitalization and isolation not through the medical services, which were minimal in the city, but by the police. Notices of instruction posted up in public places by the authorities were meaningless to most people in the city, who were illiterate and unable to read them. The hospitals and hastily constructed barracks where the sick were taken were unhygienic, overcrowded, poorly equipped and understaffed. The dead were not given up to their families but disposed of in mass graves.

(18) Deprived of their livelihood, or of the means of feeding themselves properly, a large crowd of tradesmen, shopkeepers and craftsmen gathered in the city’s most prosperous district and began a manhunt for doctors and policemen, stoning and assaulting anyone in a white coat, attacked the town hospital and released the sick, then set the building on fire. They broke into pharmacies and doctors’ homes and ransacked the contents. Eventually troops arrived, opened fire and dispersed the crowd. Similar disturbances took place in Astrakhan, shown in the illustration. Commentators quickly ascribed the riot to the ignorance and superstition of the populace, but in fact they were acting rationally to the heavy-handed and largely
futile measures imposed by the authorities. Provoked by these disturbances, the Tsarist authorities undertook major reforms of the medical services, inaugurating a partial medicalization of society in the town and indeed more generally; but they did little to bring about real sanitary reform, and cholera returned in 1910, by which time the medical profession in the city was strong and well organized and clashed seriously with the local and regional authorities, who grasped for the same, traditional policing measures as before; a significant moment in the alienation of the middle classes from the Tsarist regime.

The epidemic of 1910 also hit the southern Italian city of Naples, returning in a more severe epidemic the following year. During the previous cholera outbreak in the city, in 1884, the state mobilized military force to repulse the migrants and outsiders whom it accused of bringing the disease to the city. Quarantines were imposed by the military (19), and victims were forcibly taken off to the hospitals, where they were subjected to painful treatments including the administration of electric shocks and the purging of the intestines with strychnine – not surprisingly, death rates in the poorly organized and badly equipped hospitals were very high. The municipal authorities were notoriously corrupt and in league with local crime syndicates; the mass of the inhabitants of the city’s poorer districts, were illiterate, uneducated, and mistrustful of the local government, especially when it restricted food supplies and closed down markets.
Here as in Hamburg and Saratov, cholera hit the poorest parts of the city hardest, reflecting insanitary and overcrowded living conditions and poor, usually shared water supplies; here too, as in all cholera epidemics, the usual pattern of mortality was reversed, with normally healthy age groups in their late teens, twenties and thirties being severely affected, so that excess mortality rates among these groups were extremely high; cholera made little difference to death rates among the very young and the old, but it made a huge difference to the youthful and the middle-aged, further stoking suspicions of poisoning among the poorer parts of the population. Crowds forcibly freed victims being taken off to hospitals, attacked doctors, stretcher-bearers and policemen, pelting them with stones, chairs and even tables and benches, and even stopped workmen from lighting fumigation bonfires because they filled the streets with swarms of sewer rats. For most people, religious processions through the streets were the most persuasive way of fighting the disease. (20)

By 1910-11, however, the Neapolitan and national Italian authorities had learned the lesson of the 1884 disturbances. Instead of coercive policing measures, they formed sanitary squads consisting mainly of working men from the areas in which they operated, instructed them to use courtesy and persuasion and not force, and avoided alarming publicity. The sale of food on the streets was banned, wells and cisterns were sealed, sewers were disinfected, the water supply was monitored, swimming in the harbour was stopped, the streets were swept, the homes of
victims were cleaned and their clothes destroyed; but a huge effort was made to
win public trust through persuasion and education, and indeed after some initial
resistance, there was widespread popular acceptance of these measures, as there
had been in Hamburg in 1892. Unfortunately the rehydration therapy used with
some success by the English physician Leonard Rogers (21) in a hospital in
Palermo could have no effect in Naples because the Italian authorities banned him
from the mainland fearing it would result in knowledge of the epidemic spreading
to the rest of the world.

Cholera riots and disturbances and attacks on physicians and medical teams were
thus not simply the product of ignorance and illiteracy, though these clearly played
a part. They were also an expression of popular fear and distrust of the medical
profession and the state, and this fear and distrust was at least to some extent not
only understandable but even justified. Crudely authoritarian policing measures
carried out on behalf of a remote or notoriously corrupt state imply intensified the
fear and panic already affecting the population. State authorities increased the
likelihood of panic by concealing the presence of the disease, leading to the spread
of rumours as the number of unexplained deaths among the normally healthy
population in a city began to multiply, particularly among the poorer classes, a fact
that aroused suspicion in itself. Quarantine, isolation, forcible hospitalization and
police restrictions on trade and movement all deepened the sense of panic among
those affected either directly or indirectly. Medical discoveries like those of Koch
were not immediately accepted, since they were linked not only to particular views of the world – in his case a heavy, “Prussian” dose of state intervention in society – but also to particular interests, most notably in Hamburg, where medical theories denying the need for quarantine spoke clearly to the interests of the mercantile elite. As the example of the Naples epidemic in 1910-11 showed, public health measures had to be undertaken in a way that did not affect people’s sensitivities.

Cholera epidemics occur and spread not least because of the crisis or disorganization of the state. It’s no coincidence – as historians like to say – that the great outbreaks of the 19th century coincided with wars, revolutions and social upheavals that set large numbers of people in motion, whether in the shape of counter-revolutionary armies, people fleeing conflict, or migrants leaving the scene of famine and oppression – the 1830- revolutions, especially in Poland; the revolutions of 1848/49; the Crimean War in 1854-46; Bismarck’s wars of 1866 and 1870-71; the expulsion of Jews from Moscow and the Russian famine of the early 1890s; the violent guerilla movement of the “Shining Path” that drove thousands of Peruvians from their mountain homes down to makeshift camps on the coast in the early 1990s (22); and so on.

It’s no surprise therefore that the most recent major epidemic should have occurred in Haiti, where the state is weak and disorganized, the population poor, educational standards low, and a major earthquake early in 2010 followed by a devastating hurricane had left one and a half million people homeless. A major
cholera epidemic broke out in October 2010. (23) By February 2011 over 120,000 people had been hospitalized with the disease, which had affected nearly a quarter of a million people, with more than 4,500 deaths. Morbidity was running cumulatively at 23.5 per 1,000 inhabitants, reaching nearly 40 per 1000 in some districts. The spread of the disease was intensified by poor sanitation in the camps set up for earthquake victims, only around half of which (600 out of 1,152) had latrines. (24) Water supplies were inadequate or unhygienic and the resources and organization to provide clean water and proper waste removal facilities were lacking, with the result that the epidemic is continuing, amidst predictions that the total of those affected will top 800,000 by the end of this year, with more than 11,000 fatalities. (25)

In November 2010 the news that the strain of cholera found in Haiti was familiar in South Asia but unknown in Latin America led to attacks on UN troops, especially from Nepal, who were blamed for bringing the disease to Haiti. (26) There had been around 12,000 UN peacekeeping forces in the country since 2004, following violence accompanying elections and the effective disbanding of the country’s army and police. The UN’s stabilization mission or ‘Minustah’ was engaged in training up a local police force and maintaining security but had little contact with the population and played little or no role in dealing with the consequences of the earthquake. It was widely seen as propping up a generally hated government and the belief that it had brought cholera to Haiti was another
expression of the widespread popular distrust of the force (27). As the political temperature heated up with approaching elections, crowds threw stones at the UN mission, burned tyres and blockaded roads, preventing cholera medication from coming in to affected areas. UN aid workers were attacked because of their association with the stabilization force, which was seen by some sectors of the population as an occupying army. (28) The riots eventually died down, but they provided another example of how popular disturbances could be triggered by an insensitive approach to a desperate local situation.

By the time of the Haiti epidemic, cholera had been known to medical science for 120 years and there was general agreement about its causes, prevention and treatment. For much of the nineteenth century, however, as I’ve pointed out, medical opinion was divided and there was no effective prevention and treatment. Nineteenth-century medical science got very good at working out what caused diseases, but it had little success in working out how to cure them. For this reason, its popular legitimacy wasn’t very high. By the late twentieth century, the public prestige of medicine had grown substantially. Yet health care remained an eminently political issue, especially where some political movements identified the medical profession for historical reasons with colonialism, with multinational drug companies, or with the long history of an oppressive regime that denied adequate health care to the majority of citizens on racial grounds.
This was above all the case with the African National Congress, which saw the AIDS epidemic that began under apartheid in the 1980s as the product of a plan by the white-supremacist South African government to reduce the numbers of the black majority population, in an obvious parallel to the suspicions articulated in nineteenth-century European cholera riots. The lack of any effective treatment, and the widespread publicity given to a small number of medical scientists who denied the connection between HIV and AIDS allowed these suspicions to harden into a political decision to reject the first effective therapy – AZT, made available in 1998 – as an expensive confidence trick by drug companies and agents of “western medicine”. (29) Once Nelson Mandela was replaced by Thabo Mbeki as President, the ANC government’s identification with AIDS denialism became complete, with the Health Minister advocating the use of garlic, beetroot and lemon juice as treatment and encouraging a wide variety of alternative therapies. Mbeki claimed AZT was a poison that caused deformities in babies and refused to allow its distribution, calling together instead a scientific advisory panel on AIDS consisting almost exclusively of hard-line denialists including some who claimed AZT actually caused AIDS. (30) For Mbeki and his supporters, the idea that AIDS was spread by sexual contact was an expression of western stereotypes about African sexuality. Yet his dismissal of “western” medical science was not backed by many of the ANC’s supporters, such as the powerful trade union movement, and it was widely ridiculed in the press, particularly after the South African delegate
attempted to justify the government’s position at a World AIDS Conference. (31) Mbeki’s stance had a good deal to do with his reluctance to lose prestige by admitting he was wrong.

The result was that AIDS spread unchecked in South Africa until in 2007 the number of South Africans with AIDS reached an estimated 5,700,000 or 12 per cent of the population, the largest number in any country in the world, with the next five highest incidence of HIV/AIDS all being countries in southern Africa as well. (32) More than 300,000 people were dying of AIDS each year in the mid-to-late 2000s, while in KwaZulu-Natal province the rate of infection in women who attended antenatal clinics was 40%. Massive pressure by the international medical community had no impact on Mbeki’s views, (33) but succeeded in persuading the cabinet to transfer responsibility for the issue to the Deputy President, while the health minister’s absence through illness put her non-denialist deputy in charge, resulting in a new plan to take effective action. The proportion of South Africans with advanced HIV/AIDS who received anti-retroviral treatment increased from a mere 4 per cent in 2004 to 28 per cent four years later. However, when the health minister returned, her deputy was sacked and the plan put into reverse, and it was only with the defeat of Mbeki in the 2008 election and the replacement of his health minister that the government’s position began to change. It is not unlikely that the ridicule to which he had exposed South Africa abroad, and the deaths he had caused at home, played a role in his defeat. Comment following the death of
his former Health Minister the following year was unusually bitter. (34) Once more, particular political circumstances were at work in determining reactions to a major epidemic.

Before I reach my conclusion I want briefly to turn to one final example, that of the BSE crisis in the UK. In 1986 the presence of a new disease in cattle was noted, causing cows to lose co-ordination and become unable to stand. Bovine spongiform encephalopathy or “mad cow disease” spread rapidly and before long more than 180,000 cattle had been diagnosed with the disease, and a programme of mass slaughter got under way, with more than 4 million cows being incinerated. (35) One theory held that the disease was caused by feeding animal products to herbivorous cattle, and a committee of enquiry was set up under the Oxford biologist Richard Southwood which recommended the ending of this practice. This would clearly cost farmers money and get them annoyed with the government, however, so Southwood only raised the matter at the end of his enquiry, allowing Agriculture Secretary John Gummer to dilute the recommendation to the point where it had little immediate effect.

Southwood’s report said that the likelihood of the disease being transmitted to humans through beef products from infected cattle was ‘remote’, and to allay public and media fears, the Agriculture Secretary had himself photographed in 1990 getting his young daughter to eat a burger, declaring it was completely safe. (36) Unfortunately for him, evidence started to accumulate that the disease could
indeed be spread to humans through infected beef, producing what was known as variant Creutzfeldt-Jacob disease or variant CJD. The advisory body set up to monitor BSE was however very slow in reporting the research, preferring to wait until there was a high degree of certainty. So it was not until 1996 that the government announced that a link had been discovered between BSE and vCJD. The result was an EU ban on British beef products that lasted for a decade and widespread condemnation of British farming and disease control throughout the world (37). It was clear that the incubation period of BSE and variant CJD could be very long, so there was considerable uncertainty about the numbers of people who might eventually be affected. Some claimed the potential victims might run into the millions. By the end of this period, however, the number of humans affected was still less than 170.

Despite this, the episode caused massive public distrust in scientific opinion. Scientists had, it seemed, denied any link, and the government had accepted this advice. As a result, the legitimacy of scientific advice was severely compromised. If scientists could not agree, or changed their mind, on a scientific issue, then how could they expect public trust? Just as dissident voices on the AIDS epidemic in South Africa, or cholera in 19th-century Hamburg, had won government support because their views chimed in with what government saw as its own interests, so too the apparent uncertainties of science on BSE and vCJD allowed government to adopt policies that would avoid alienating a major constituency of its supporters
in the farming community. Dissident voices on issues such as genetically modified foods or the MMR vaccine achieved a hearing despite failing to secure government support because the BSE crisis had shaken the legitimacy of science; in the case of the MMR vaccine the effects on public health could be damaging (38). Correspondingly, where government considered scientific advice politically dangerous, it openly disregarded it, as in its rejection of the advice of the Advisory Council on the Misuse of Drugs and its sacking of the Council’s head, Professor David Nutt, in 2009.

What conclusions can we draw from all this? These examples have shown, I hope, that it’s too simple just to say governments should listen to scientific opinion. As new epidemic diseases strike, whether it’s cholera in the nineteenth century of AIDS or BSE in the twentieth, scientific opinion is initially uncertain and often divided. Governments and politicians are frequently driven to choose the science that best serves their interest, or their ideological standpoint. By the late twentieth century this was made easier by the growth of the popular press and then the Internet, where minority opinions flourish and a good story can be made from science, or pseudo-science, that proclaims its dissent from the mainstream (39). Politicians are often impatient with the caution of scientists; on the other hand, scientists are sometimes wary, as was Southwood, of voicing opinions they know will be unpalatable to governments – the example of David Nutt indeed shows why. And it’s also too simple to say that the public should trust scientists. Why
should they, when as the BSE crisis showed, and the example of miasmatism a
century or more earlier had shown, scientists can get things wrong? When
government is carried out in the interests of a small minority, as in nineteenth-
century Hamburg, where it is remote and authoritarian, as in Saratov, or where it is
inefficient and corrupt, as in Naples in the 1880s, there is good reason for public
distrust of the measures it takes.

Yet even in the era of bacteriology that saw the birth of modern state responsibility
for the prevention and combating of epidemics, even when medical opinion was
effectively settled and unanimous, the state can arouse suspicion and even outright
hostility if it fails to explain itself to the public, invades and curtails their civil
liberties by policing measures, and fails to provide people with basic levels of
health, sanitation, and education, as in Haiti. Accurate and as far as possible
objective and balanced information is vital as a means of giving the public a choice.
Perhaps the best counter-example here is that of Naples in the epidemic of 1910-
11, where the state had taken effective measures to avoid the hostile public
reaction that had taken place a quarter of a century before. Nobody can say what
new epidemics and infections may arise in the future, but we can be certain that
they will occur. History may not help us learn how to prevent them, but it can
teach us at least a few lessons about how we can deal with them when they arrive,
try to minimize their impact, and take steps to avoid their recurrence. These aims
can only be achieved in a democratic context where state, medical scientists and
the public have some degree of mutual trust and respect. How precisely this can be achieved is not an easy question to answer; and what the impact of future epidemics will be is not for me to try and predict; (40) in the end, after all, I’m only a historian.