


ARTICLE

Plague, Crisis, and Scientific Authority during the London Caterpillar Outbreak of 1782

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Abstract

In the summer of 1780, anti-Catholic riots led by Lord George Gordon in London left hundreds dead and stretches of the city burnt and destroyed. Eighteen months later, during a tense period in the city's history, London was invaded by brown-tail moth caterpillars. The metropolis and surrounding countryside disappeared behind the tents and nests of the insects, prompting widespread fear of famine and plague. With the memory of the riots still fresh, philanthropists such as Jonas Hanway and entomologists like William Curtis sought to assuage the public's fear, insisting that the brown-tail moth outbreak was part of the normal operations of nature, that the infestation bore no danger to the public, and that efforts to alarm the public or describe them as dangerous were contemptuous. At the same time, the conjurer and philosopher Gustavus Katterfelto, performing in the city, sought to profit from the public agitation, developing spectacles and performances that promised the insects would soon deliver famine, plague, and ruin on the city. This article examines the intersection of scientific authority, public fear, and performance, showing that the outbreak placed tremendous stress on the relationship between scientific authority and security in the metropolis.

Security itself has become an enemy.¹

Jonas Hanway, Red Lion Square, 2 April 1782

In the spring of 1782, London and the surrounding countryside disappeared under mysterious webs that teemed with eggs and hatching caterpillars. The insect in question was the brown-tail moth (*Euproctis chrysorrhoea*, native to Britain and Europe), yet few people seemed certain of its identity. Newspapers instead filled with notices and advertisements warning that the insects had brought disease upon the city. 'It being well known to the

¹ *London Chronicle*, 4 Apr. 1782, 3344, [p. 3].

philosophic world', as one writer explained, 'that wherever an epidemical distemper has prevailed, either amongst men or brutes, the air has been full of animalculae.'² As it happened, the webs (and the insects they contained) arrived at the city alongside an influenza outbreak. The physician William Grant believed the disease to have begun to spread 'in the suburbs of the city, as is often the case in contagious diseases, among the people that live low, and neglect cleanliness'.³ The suburbs were also the regions worst hit by the brown-tail moth outbreak. Persuaded by alarming stories in the press that the nests should be removed and burnt, one of the early volunteers that undertook to remove nests in London reported 'an uncommon kind of sickness at his stomach' after having breathed in dust from the nests while clearing them.⁴ Other volunteers testified to breathing difficulties, rashes, and vomiting after touching the nests. London was unable, for several weeks, to determine the scale of the outbreak, with its press divided between voices describing it as a mere nuisance, while others believed it to be a genuine threat.

The caterpillars struck the city at a tense moment. The metropolis was still recovering from the Gordon Riots; poverty and crime were rampant, and an uneasy relationship between the cities' inhabitants and the military, installed in London after the riots, was still being negotiated and tested within the outskirts of the city and in its public spaces.⁵ The damage caused by the mobs and crowds had raised discussion in the press and in parliament about the dangers posed to the city by the public itself. These debates were explicit, for example, in the contests over the rights of subjects to bear arms (argued vehemently through the 1780s).⁶ The arrival of the mysterious nests across the city were not only a curious spectacle for the cities' inhabitants; they also presented the worrying question of how the public might respond. What if they caused panic, fear, or alarm amongst those fearing famine, disease, or the loss of their gardens and farms to an unexpected pest? Entomologists like William Curtis (1746–99), Joseph Banks (1743–1820, president of the Royal Society), and the philanthropist Jonas Hanway (1712–86) all expressed concern that the population of the metropolis might be freshly provoked into panic by the insect invasion.

Still others actively sought to engender such provocation. Profiting from the confusion in the papers, the conjurer and performer Gustavus Katterfelto (c. 1743–99) developed a new three-hour performance themed on the insect invasion, promising audiences that these 'monstrous reptiles' would bring plague, pestilence, and famine upon the city.⁷ William Curtis, troubled by the

² *Edinburgh Magazine*, 55, 4 Apr. 1782, p. 41.

³ William Grant, *Observations on the late influenza* (London, 1782), p. 18; see also Margaret De Lacy, 'The conceptualization of influenza in eighteenth-century Britain: specificity and contagion', *Bulletin of the History of Medicine*, 67 (1993), pp. 74–118.

⁴ Joachim Smith, 'A letter to the editor', *London Courant*, 22 Apr. 1782, [p. 3].

⁵ Tim Hitchcock, 'The Gordon Riots and the criminal justice system', in Ian Haywood and John Seed, eds., *The Gordon Riots* (Oxford, 2012), pp. 185–205, at p. 198.

⁶ See Lois Schwoerer, *Gun culture in early modern England* (Charlottesville, VA, 2016).

⁷ *Morning Chronicle*, 27 May 1782, [p. 2].

sensational advertisements run by Katterfelto and others, argued that the insects were harmless, and published a pamphlet within ten days of the first reports titled *A short history of the brown-tail moth, the caterpillars of which are at present uncommonly numerous and destructive in the vicinity of the metropolis*.⁸ Curtis's aim in writing this new pamphlet was to 'give the public a true idea of the nature of these insects, and to dispel their imaginary terrors'.⁹ It included a copper-plate colour illustration so that readers could verify the identity of the nests for themselves (see Figure 1). Jonas Hanway, meanwhile, instigated a campaign that enlisted churches to destroy the nests, warning readers in the press that the state and public had under-estimated the danger posed by the insects. 'Security itself', he warned, 'has become an enemy.'¹⁰

The workings of nature were on display – but how to determine what meanings and interpretations of the spectacle were being made in impoverished corners of the city? Scientific demonstrations and performances of the era were viewed as tied to the moral consciousness and development of the public.¹¹ Simon Schaffer has argued that the experimental natural philosophy of the eighteenth century ought to be analysed in terms of 'a practice of public display' that had the potential to pose both political and cultural threats.¹² Debates in natural philosophy during this period did not concern nature per se, but rather the 'putative effect on an audience' of the experiment itself. Such arguments have run like a thread of red string through the history of the Enlightenment and science in the eighteenth century, extending from Robert Darnton's arguments that hot-air balloons and Mesmer's magnetic tub drew crowds and provided spectacles that contributed to the French Revolution.¹³ An insect outbreak is no less a spectacle, but one that takes place on a vast scale, and escapes all sense of human agency and control.¹⁴ How could those concerned to promote rational and philosophical systems hold the same power to interpret the spectacle of the insect outbreak, especially when charlatans and magicians like Katterfelto were promising that it would bring plague and famine? Jessica Riskin's observation that mesmerism enjoyed a status of being both 'absurd and plausible' could be applied also to the kinds of theatrics and demonstrations around insects, the hidden

⁸ The pamphlet is first advertised for sale in *London Courant*, 3 Apr. 1782, [p. 2], within ten days of the first letters that signalled public alarm.

⁹ William Curtis, *A short history of the brown-tail moth* (London, 1782), p. 4.

¹⁰ *London Chronicle*, 4 Apr. 1782, 3344, [p. 1].

¹¹ Jessica Riskin, *Science in the age of sensibility* (Chicago, IL, 2002), p. 2.

¹² Simon Schaffer, 'Natural philosophy and public spectacle in the eighteenth century', *History of Science*, 21 (1983), pp. 1–21, at p. 2.

¹³ Robert Darnton, *Mesmerism and the end of the Enlightenment in France* (Cambridge, MA, 1968); Bernadette Bensaude-Vincent and Christine Blondel, 'A science full of shocks, sparks, and smells', in Bernadette Bensaude-Vincent and Christine Blondel, eds., *Science and spectacle in the European Enlightenment* (London, 2008), pp. 1–12.

¹⁴ On non-human agency, see Chris Pearson, 'Beyond "resistance": rethinking nonhuman agency for a "more-than-human" world', *European Review of History: Revue européenne d'histoire*, 22 (2015), pp. 709–25.



Figure 1. Illustration of the life cycle of the brown-tail moth, colour leaf plate, in William Curtis, *A short history of the brown-tail moth, the caterpillars of which are at present uncommonly numerous and destructive in the vicinity of the metropolis* (London, 1782). Wellcome Images, public domain, <https://wellcomecollection.org/works/tjfxq44b>.

world, and disease developed by performers like Katterfelto.¹⁵ His performances were comic, but that did not mean they were not also plausible.

The intrusion of the brown-tail moth into the urban environment demanded a response, enlisting entomologists in wider political debates over safety and security. In this article, I hope to show that the caterpillar outbreak of 1782 provides us with a useful and singular perspective on familiar aspects of London's history: the recovery from the Gordon Riots, the responses of the metropolis to the threat of disease, and also the city as a theatre, home to

¹⁵ Riskin, *Science*, p. 195.

spectacles that challenged existing political and social order. It is very difficult for us to assess to what extent London's inhabitants really did panic over the caterpillar outbreak; but those that intervened in the press – Hanway, Curtis, and Banks – faced this same problem. As I argue in this article, scientific authority contested with theatre, church vestry meetings, and the press for the final word on the significance of the brown-tail moth outbreak. While the apocalypse advertised by Katterfelto did not arrive, the true consequence of the outbreak was the emergence of a public audience positioned between the lures of falsehoods and conjuration and the enlightened claims of entomology.

I

The brown-tail moth has never caused famine (or plague), but fluctuations in population size can produce devastating alterations to landscapes. The larvae build tents (nests) on trees and hedges over the winter and emerge in the spring to feed. The hairs of the moth larvae cause skin rashes and breathing difficulties, particularly to anyone that handles nests. Normally, their presence in the landscape is minimal, but large outbreaks do occur in Europe and America: a recent outbreak in Maine resulted in 4,300 hectares of near-complete defoliation of the trees.¹⁶ An outbreak in the 1730s in France threatened to devastate all timber and trees for miles around Paris.¹⁷ The initial confusion over the identity of the insects could be attributed to the unusual season, their number, but also the fact that even trained naturalists struggled to identify moths and butterflies at early stages in the life cycle.¹⁸ The brown-tail moth outbreak of 1782 must have been visually daunting, as it was remembered for decades, and used to illustrate the threat to society posed by insects. When seeking to explain how related species decimated and destroyed the hops harvest in 1793 and again in 1798, botanists and agriculturalists pointed to the London brown-tail moth infestation as the key example of 'nature's full and terrible powers'.¹⁹ By 1802, naturalists and botanists referred to the species as being 'remarkable for its ravages', assuming readers were familiar with the London outbreak.²⁰

What kind of news did the caterpillar invasion represent? Was it an idle curiosity for readers, or could the event have genuinely inspired fear and

¹⁶ Karla Boyd, Francis Drummond, Charlene Donahue, and Eleanor Groden, 'Factors influencing the population fluctuations of *Euproctis chrysorrhoea* (Lepidoptera: Erebidiae) in Maine', *Environmental Entomology*, 50 (2021), pp. 1203–16, at p. 1204.

¹⁷ René-Antoine Ferchault de Réaumur, *Mémoire pour servir à l'histoire des insectes*, II (Paris, 1734–42), pp. 131–2; James Rennie, *Insect architecture: to which are added instructions...* (London 1845), p. 169.

¹⁸ Mary Terrall, *Catching nature in the act: Réaumur and the practice of natural history in the eighteenth century* (Chicago, IL, 2014), pp. 20–2.

¹⁹ Alexander Hunter, *Georgical essays*, IV (London, 1803), p. 112.

²⁰ Ebenezer Sibly, *Magazine of natural history. Comprehending the whole science of animals, plants, and minerals; divided into distinct parts, the characters separately described, and systematically arranged*, XIII (London, 1802), p. 300.

panic? Fluctuations in insect populations could be a matter of life and death in the eighteenth century (as they are today). Reports of disasters abroad involving locusts, cockchafer plagues, *Tenthredo* sawflies, and other insect pests were frequently reported in the ship news. Eric Jorink has shown that the mid-eighteenth century saw fascination in insects reach a peak in Europe – Linnaean classification meant that insects were now regarded as a separate class of beings.²¹ This increased interest was accompanied by work to compile and understand the causes and potential disasters occasioned by insect outbreaks. John Dillon's *Travels through Spain*, republished in 1782, included a chapter on the ravages of locusts in Spain from 1754 to 1757. Dillon was astonished by and critical of the peasants' attitude not to seek to eradicate the insects, writing that 'the peasants look at them with indifference, while they are striking about in the fields, neglecting any measures to destroy them, till the danger is imminent'.²² Agricultural writers in the 1770s and 1780s made occasional reference to accounts of 'cockchafer' plagues in Ireland documented by Thomas Molyneux in a communication to the Royal Society in 1697. 'They appeared on the coast', Molyneux explained, recounting the disasters of 1688. 'In a short time after their coming, they had so entirely eaten up and destroyed all the leaves on the trees for some miles round about, that the whole country, though it was in the middle of summer, was left as bare and naked as if it had been the depth of winter.' The farmers and peasants set fire to woodlands and fields to attempt to drive them off.²³ In 1730, René-Antoine Ferchault de Réaumur recorded a similar caterpillar invasion of Paris, reporting that all oak and fruit trees between Paris and Tours were at risk of being lost. The parliament of Paris had ordered that the people cut and remove the nests from the trees – but according to Réaumur, heavy rains saved the trees (and public) from devastation.²⁴

Readers in Britain knew that the island was by no means safe from invasion by new insect species. The agricultural writer William Marshall calculated that a swarm of *Tenthredo* (sawflies) could be blown from the coasts of Norway to Scotland in fewer than ten hours.²⁵ In 1789, a Select Committee asked Joseph Banks his opinion on the dangers of importing pests with grain; he advised the British government to embargo all corn from America after the Hessian fly razed crops and destroyed wheat production in North America.²⁶ The marketplace for specimens and the remains of 'monsters' – natural curiosities – in the eighteenth century further reinforced the awareness that ships and transport

²¹ Eric Jorink, 'Insects, philosophy, and the microscope', in H. A. Curry, N. Jardine, J. A. Secord, and E. C. Spary, eds., *Worlds of natural history* (Cambridge, 2018), pp. 131–47.

²² John Dillon, *Travels through Spain* (2nd edn, London, 1782), p. 256.

²³ Thomas Molyneux, 'On swarms of insects, that infested some parts of the province of Connaught in Ireland', *Philosophical Transactions of the Royal Society*, 19 (1697), pp. 216–19.

²⁴ Réaumur, *Mémoire*, p. 132.

²⁵ William Marshall, *Rural economy of Norfolk*, II (London, 1795), p. 359.

²⁶ Philip Pauly, 'Fighting the Hessian fly: British responses to insect invasion, 1776–1789', *Environmental History*, 7 (2002), pp. 485–507.

provided a means for introducing new species to Britain (voluntarily and involuntarily).²⁷

Gordon Brown has characterized the Late Enlightenment as turning ‘a blind eye towards the ravages of disaster’, encouraging an intellectual culture that insisted that all events are, in essence, subject to human control.²⁸ Whatever the opinions of those who occupied political offices, parliament, the House of Lords, and the privy council were all silent on the caterpillar outbreak, although the newly established Home Office received at least one letter expressing panic at the invasion. A London postmaster feared famine would result from the outbreak.²⁹ Arguably, war in America and reform in Ireland presented crisis enough for the state. However, defences against the ravages of insects were viewed sceptically, and parliament had recently discussed defences against insects at length. A year before the brown-tail moth outbreak, parliament was stuck in a lengthy debate over whether to make an award of £600 to an apothecary who claimed to have invented a powder that could kill caterpillars and flies in any garden or farm. The session was lengthened by the outrage of several members who regarded the powder and its functions as ridiculous, and the effort to secure a monopoly as a mere job to deceive the public and the state.³⁰ The ravages of insects on crops were part of the natural order of things, and the suggestion that a powder had been discovered that could eliminate the pests was laughable.

What, then, of plague itself, which the caterpillars were believed by some to presage? The lack of interest in the caterpillars on the government’s part did not translate into a lack of interest in plague. This was during a period when quarantine reform was shifting from an obsession of merchants to a general concern, attached to concepts of liberty and free commerce.³¹ All the same, the work of the privy council that spring was incredibly cautious, maintaining strict quarantine measures. During the insect outbreak, the Polish ambassador learnt that a rumour of plague in Ukraine and the Baltic regions had led to stringent quarantine measures being adopted against all ships from Poland.³² When the privy council was asked to resolve a dispute over ownership of some carpets rescued from a shipwreck, despite spending two weeks under water, the council ruled they must still be held for two weeks to avoid the risk of plague or importing pests.³³ In a separate case, a quarantined asthmatic passenger hoping to escape the damp air on the ship was only permitted ashore once several men vouched that he had not come into contact with plague.³⁴

²⁷ Nathalie Lawrence, ‘Making monsters’, in Curry et al., eds., *Worlds of natural history*, pp. 94–111.

²⁸ Daniel Gordon, ‘Confrontations with the plague in eighteenth-century France’, in Alessa Johns, ed., *Dreadful visitations: confronting natural catastrophe in the Age of the Enlightenment* (London, 1999), pp. 3–31, at p. 4.

²⁹ John Harrison to Home Office, March 1782, London, The National Archives (TNA) State Papers (SP) 37/15/475.

³⁰ *House of Lords Sessional Papers, 31 October 1780–18 July 1781*, vol. 4, 28 June 1781, pp. 355–70.

³¹ Mark Harrison, *Contagion: how commerce has spread disease* (New Haven, CT, 2012), pp. 52–3.

³² Bukary to the secretary of state, 11 Feb. 1781, TNA Privy Council Papers (PC) /1 / 15/115–141/8–9.

³³ TNA PC 2/127/307/ 25 Apr. 1782.

³⁴ TNA PC 2/127/308/ 25 Apr. 1782.

But the government had never been perceived by those most alarmed by the invasion as the institution most suited to responding to the caterpillar outbreak. Church vestries, that spring, were already burdened with the task of negotiating rates to cover the damages of the riots – and it was to vestries that people like Jonas Hanway looked to respond to the crisis.

II

No one who wrote on the caterpillar outbreak made any allusion to the recent riots that had devastated the city. But Jonas Hanway responded in print to both the riots and the caterpillar outbreak – and both events provided him opportunities to express his political views on the responsibility the city's affluent members held in tending to the needs of the poor. Hanway's concerns for the situation of London's poor stretched back decades; he had worked to pass acts to extend and improve the lives of the poor in the 1760s, and enjoyed success through his ability to encourage London's merchants and wealthier residents to lend support to his movements and causes.³⁵ He believed that the lower orders were a 'key resource' for Britain's military and civic ambitions, and fused patriotism with humanism.³⁶ He also viewed literacy as a key means of maintaining peace and mitigating against riots. A government that worked to keep the poor illiterate in order to assert its power followed principles that belonged rather 'in lands of slavery and superstition'.³⁷ In the wake of the riots, Hanway republished his letters on the necessity of establishing a police force, arguing that during the riots 'our magistrates, with a timidity that stains our annals, looked on with seeming indifference!'³⁸ Hanway traced the origin of the riots to the 'lenity of government'.³⁹ His conclusion in the wake of the riots was that 'we must be more active in preventing evil'.⁴⁰

In 1782, the consequences of the riots – and the mistrust of the public that they had engendered – were visible everywhere. The Gordon Riots not only laid waste to many neighbourhoods and districts of London; they introduced a well-spring of popular support for Protestant political culture that was, at the same time, condemned as excessively violent and contrary to Protestant values.⁴¹ This conflict in values created a crisis in public trust, writ large in the print culture of the years that followed, with many likening the destruction of

³⁵ James Taylor, 'Jonas Hanway and the infant poor of London', *Eighteenth Century Studies*, 12 (1979), pp. 285–305; F. M. Dodsworth, 'The idea of police in eighteenth-century England: discipline, reformation, superintendence, c. 1780–1800', *Journal of the History of Ideas*, 69 (2008), pp. 583–604.

³⁶ Erica Charters, *Disease, war, and the imperial state* (Chicago, IL, 2014), p. 111.

³⁷ Jonas Hanway, *The citizen's monitor, shewing the necessity of a salutary police. With observations on the late tumults, the merits of the soldiery, and the London Volunteer Police Guard. In twenty-nine letters* (London, 1780), p. xi.

³⁸ *Ibid.*, p. iv

³⁹ *Ibid.*, p. iv

⁴⁰ *Ibid.*, p. vii

⁴¹ Brad Jones, "'In favour of popery': patriotism, Protestantism, and the Gordon Riots in the revolutionary British Atlantic", *Journal of British Studies*, 52 (2013), pp. 79–102, at p. 99.

London to the biblical destruction of Troy or Jerusalem.⁴² To provide the basic events of the riots, on 2 June 1780, somewhere between 40,000 and 50,000 people gathered in St George's Fields to support Lord George Gordon's petition for the repeal of the Catholic Relief Act.⁴³ Very quickly, the spirit of carnival and celebration was lost; the House of Commons was besieged and troops attempted to disperse the rioters, but a second wave of rioters that night set fire to various buildings, lit bonfires of the contents of Lincoln's Inn Fields, and assaulted buildings associated with Catholicism. By 8 June, hundreds of rioters had been shot dead or wounded, and large stretches of the city (including a prison) had been destroyed.⁴⁴

In the wake of the riots, trials increased and crime rates rose, while the mass trials concerning the loss of property during the Gordon Riots continued.⁴⁵ Tim Hitchcock and Robert Shoemaker evoke the tension in the city by highlighting Edmund Burke's appeal that no more than six rioters be executed, as poverty and misery were so extensive in the city, the people 'may very easily be exasperated, by an injudicious severity, into desperate resolutions'.⁴⁶ Policing remained scant, and order was kept by military and neighbourhood associations. A government-funded foot patrol was established in 1782 in an attempt to improve order, but for security purposes the police patrolling the city had to work in groups, otherwise they faced attacks and assaults.⁴⁷ Parks and open spaces in London were still filled with troops, and a new relationship between the military and the working classes was being forced upon the city.⁴⁸ During the insect outbreak in the spring of 1782, a letter from the Royal Artillery for the City of London was delivered to the Home Office, primarily to make a plea not be moved from the metropolis, but also to remind the government that they were essential for the defence of the Metropolis and its environs.⁴⁹

The putative costs of the insect outbreak were assessed during the same time that the actual costs of riots were being collected and paid out. The calls in the press for immediate action to fund the removal of the insects was out of step with the capacities of vestries to fund such a vast undertaking. Hanway viewed church vestries as a principal means of furthering his philanthropic and charitable causes – and like other voices in the press calling for

⁴² Ian Haywood, "'A metropolis in flames and a nation in ruins': the Gordon Riots as sublime spectacle", in Haywood and Seed, eds., *The Gordon Riots*, pp. 117–44, at p. 129; see also Nicholas Rogers, 'The Gordon Riots', in Nicholas Rogers, ed., *Crowds, culture, and politics in Georgian Britain* (Oxford, 1998), pp. 152–75, at p. 154.

⁴³ Haywood and Seed, eds., *The Gordon Riots*, p. 1.

⁴⁴ *Ibid.*, pp. 4–7.

⁴⁵ Tim Hitchcock and Robert Shoemaker, *London lives: poverty, crime, and the making of a modern city, 1690–1800* (Cambridge, 2015), pp. 350–2.

⁴⁶ Edmund Burke, 'Some thoughts on the approaching executions', in *The works of the Right Honourable Edmund Burke* (2 vols., London, 1846), II, p. 417; quoted in Hitchcock and Shoemaker, *London lives*, ch. 7, section 6.

⁴⁷ Hitchcock and Shoemaker, *London lives*, p. 377.

⁴⁸ Hitchcock, 'The Gordon Riots and the criminal justice system', p. 198.

⁴⁹ Address of the Royal Artillery Company, 14 May 1782, TNA Home Office Papers (HO) 42 / 1 / 1 / 186–7.

action, Hanway always addressed ministers, church-wardens, and vestries. As parishes in London were taking subscriptions to pay for the damages caused by caterpillars, the courts were sorting claims for damages caused by the rioters, determining that a rate on the inhabitants must be imposed to raise the funds for the destruction of property.⁵⁰ Vestry minutes from St Thomas's in Southwark record tense debates in April of 1782 over the 'riot rate' – the money to be paid to constables towards damages sustained in the riots.⁵¹ In the parish of Acton, the vestry met in the same month to calculate the rate to make good for the damages sustained by the church to the riots.⁵² At a church far from the centre of London near White Finchley, the vestry calculated 'four pence in the pound be made to raise the sum of forty pound fourteen shillings...for the damages sustained by the late Riot in London'.⁵³ The most immediate connection between the riots and the insect outbreak was felt here, in the finances of the vestries that were expected to pay both for the damages of the riots and also the costs in clearing the webs from the trees, hedges, and surrounding countryside. The politics at the financial level became clear: it was the responsibility of the cities' inhabitants themselves to respond to the outbreak.

III

The winter months of 1782 were mild, encouraging the brown-tail moth outbreak. The first reports of the insect invasion came towards the end of March, when the hedges and trees surrounding London became covered in what were described as 'insect bags'. On 26 March, an inhabitant of Hackney placed one of the first advertisements to raise funds to employ the poor to burn and destroy the nests, else 'you may expect to have all your turnips and vegetables totally destroyed'.⁵⁴ The parish of St Matthew in Bethnal Green organized a group of men on 4 April to cut and burn the nests, but the methods they used raised fears that fires could result from their efforts.⁵⁵ Holborn reportedly featured three poor people who managed to cut down 10,000 webs between them.⁵⁶ In Hampstead, the members of the vestry met to discuss how to respond to the 'noxious insects' that had infected the hedges.⁵⁷ One eye-witness reported seeing the same vestry pay for 870 bushels of webs collected at 6d per bushel.⁵⁸

⁵⁰ City of London Sessions Papers – Justices' Working Documents, 16 Apr. 1782, London Metropolitan Archives (LMA) LL ref.: LMSLPS150930030, LMSLPS15093003.1.

⁵¹ St Thomas's vestry minutes, Southwark, 15 Apr. 1782, LMA P71/TMS/0218.

⁵² Vestry minutes, Acton, Middlesex, 24 Apr. 1782, p. 42, LMA DRO/052/153.

⁵³ Vestry minutes, White Finchley, 4 Mar. 1782, LMA DRO /012/1/C/01/001, p. 102.

⁵⁴ *General Advertiser and Morning Intelligencer*, 29 Mar. 1782, [p. 1].

⁵⁵ *Morning Chronicle*, 8 Apr. 1782, [p. 3].

⁵⁶ *Stamford Mercury*, 4 Apr. 1782, [p. 3].

⁵⁷ Hampstead vestry minutes, Apr. 1782, Camden Local Studies Archive Centre (CLSAC), London, CLSAC P/HA2/M/1/2.

⁵⁸ 'To Jonas Hanway, Esq.', *Public Advertiser*, 2 May 1782, 14929.

In Sussex, the tents had reportedly spread onto the clover and the cinquefoil. The insects 'got into the nostrils of the cattle when they attempted to eat, and produced a disease amongst them'.⁵⁹ Newspaper reports confirmed that the bags and insects had appeared throughout southern England, covering fruit trees, hedges, and everything green. In Hampshire, the papers promoted that melted brimstone torches should be touched to the webs, so that the 'vapour of the sulphur' would kill the insects.⁶⁰ In Norfolk, papers repeated claims that the insects presaged plague, and reported them locally being attacked and destroyed in nearby parishes.⁶¹ Winchester, infested, also alerted residents that 'many able naturalists' understood the insects to presage the plague.⁶² A reader who referred to herself as 'a friend of the human species' alerted that the nests covered every bush and tree between Pancras and Kentish-town.⁶³ A correspondent to the *Public Advertiser* wrote that:

Whoever examines one of their webs, will find thousands of very small round black eggs, which will very shortly be hatched; and it may be expected that every bud will be destroyed by them as soon as the sun shall bring them into vigour in a new mode of life...The remedy, so far as it is in human power, is obvious, and has been kindly suggested by your paper, viz. to cut off their webs, and burn them.⁶⁴

The plurality of meanings and threats assigned to the appearance of the nests in the press alarmed readers as much as did the nests themselves. Quickly after the appearance of the nests, an anonymous advertisement addressed to 'Ministers and Church-Wardens' declared that the worms contained in the nests were poisonous, destructive, capable of rotting vegetables, flesh, and poisoning the milk of cattle.⁶⁵ A copy of the advertisement appeared in the back of *The Gentleman's Magazine* just as it was going to press – announcing that 'it is feared the worms are in too advanced a state to allow being torn off the branches without scattering the insects, therefore, the twigs must be cut'.⁶⁶

The announcements drew ire and criticism. 'Our fears have lately been practiced upon by a false alarm, *anonymously* propagated, with matchless effrontery.'⁶⁷ Counting up the advertisements, one reader found twenty examples of paid advertisements warning that the nests betokened plague.⁶⁸ Writing

⁵⁹ *Public Advertiser*, 27 Mar. 1782.

⁶⁰ 'London, Tuesday, April 2', *Hampshire Chronicle*, 8 Apr. 1782, p. 1.

⁶¹ 'Home news', *Norfolk Chronicle*, 6 Apr. 1782, p. 2.

⁶² 'Home news', *Hampshire Chronicle*, 1 Apr. 1782, p. 3.

⁶³ *London Chronicle*, 26 Mar. 1782, 28 Mar. 1782.

⁶⁴ *Public Advertiser*, 27 Mar. 1782.

⁶⁵ *St. James's Chronicle or the British Evening Post*, 23 Mar. 1782 – 26 Mar. 1782; the advertisement appeared in numerous papers, including Stamford – see *Stamford Mercury*, 28 Mar. 1782, 266; *Norfolk Chronicle*, 30 Mar. 1782, 13:669; *Leeds Intelligencer*, 16 Apr. 1782, 28: 1457, [p. 3].

⁶⁶ 'To the ministers, churchwardens, and overseers of every parish', *The Gentleman's Magazine*, 52 (Apr. 1782), p. 152.

⁶⁷ 'Brown-tailed moth innocent', *The Gentleman's Magazine*, 52 (Apr. 1782), pp. 173–4.

⁶⁸ *Ibid.*

from Hampstead, E. C. warned that the insects had ‘alarmed the minds of people very much’, saying that many feared the insects ‘portend plague, pestilence, or famine’.⁶⁹ Caused either by the influenza outbreak or fear of disease brought by the insect outbreak, crimes targeting apothecaries rose in the month of April. Records from the Old Bailey record thefts of Jesuit’s Bark and Resin of Jalap from apothecaries.⁷⁰ City of London records show a large theft from Bucklers London Drug Merchants where those caught had been urged to steal Jesuit’s Bark – the thieves managed to remove 25 pounds of the fever remedy.⁷¹

What, precisely, were these insects that had covered the city? A heavy rain towards the end of March led many to suspect that the insects were drowned or killed; but papers ran editorials explaining that the ‘eggs of some species of insects are fixed so safe to the branches or buds of trees, that the most rapid shower of rain that could fall, would not hurt them’.⁷² The paper in question did not identify the insects – nor did any others prior to Curtis’s publication. Just what, precisely, they were remained unknown. It is not surprising that people struggled to form consensus on the identity of the insects. Certainly, many would have recognized and been familiar with the brown-tailed moth, but names and identities of insects were unstable. In a letter on the ‘cock-chaffer’ addressed to the agricultural society in Bath in 1783, the author explained that cock-chaffers are ‘called by different names, such as, the *chaffer*, the *cock-chaffer*, the *Jeffry-cock*, the *May-bug*, and (in Norfolk) the *Dor*’. Having listed these names, the author continued to explain that ‘In what class Linnaeus ranks them, I do not remember.’⁷³

Experimentation did not resolve the question of identity. A surgeon, alarmed by the infestation, explored for miles around the vicinity of the metropolis, observing the extent of the infestation. Cutting off a web from a tree and taking it home, he placed it in a bottle by the fire, observing the next morning that over a thousand of creatures ‘of the caterpillar kind’ had emerged. ‘A pestilence and famine must ensue’, he warned, unless the webs were all cut off and burnt.⁷⁴ Attempting similar experiments to identify the pests, a gardener in Middlesex, placing some of the eggs in a hot house, reported that after a fortnight, they ‘grew to the size of about three inches, and were covered with a brown down or hair, much like to a sort of caterpillar’.⁷⁵ The unwillingness to name them or assert that they were, indeed, caterpillars or insects that had been observed in the country before was shared throughout the press coverage.

⁶⁹ *Morning Chronicle*, 8 Apr. 1782.

⁷⁰ Justices’ Working Documents, LMA LMOBPS450260141, 20 Apr. 1782.

⁷¹ Justices’ Working Documents, LMA LMSLPS150930056, 20 Apr. 1782.

⁷² *Public Advertiser*, 28 Mar. 1782.

⁷³ Edward Rack, ‘Description of, and observations upon, the cock-chaffer, both in its grub and beetle state’, in *Letters and papers on agriculture, planting, &c, addressed to the Society instituted at Bath*, 1 (London, 1783), pp. 262–6.

⁷⁴ *Morning Herald*, 2 Apr. 1782.

⁷⁵ *London Courant*, 30 Apr. 1782.

The actual work of organizing people to attempt to clear and burn the webs fell to church vestries – the parochial meetings that were also working that spring to collect and pay the riot rates. Vestry records show that while many regarded the insects as dangerous either to agriculture or public health, the challenge lay in finding the resources to pay for the work involved in clearing them. An entry to the vestry book at Mortlake parish south of London from 1 April records that the local poor were paid to clear ‘alarming’ bags of insects from the hedges ‘which may be productive of the plague’.⁷⁶ A church in Tooting Graveny disbursed £2 12s 6d to destroy the insects.⁷⁷ Other vestries found resources to clear the insects from funds already arranged to clean streets and maintain bridges.⁷⁸ But these were unusual outlays from the vestries’ own finances, and most other vestries sought to raise the money or manpower needed to clear the webs.⁷⁹ In Hackney, one vestry simply gathered volunteers, ordering ‘That a committee be appointed of the following persons...to proceed to business and to meet on Thursday next at three o’clock at the King’s Head at Crouch End for the purpose of destroying the insects as infest the hedge in this parish.’⁸⁰ At some point, vestries began taking money from the riot rates to pay the costs of clearing the insects, an approach that appears to have been popular. The minutes at St Mary’s in Acton record that:

At the vestry it was the unanimous opinion that the insects should be collected and destroyed...Adjusting to the scheme made use of in the other parishes (*viz.*) that they be paid for out of the money collected by the constable for the Riots and if that is not found sufficient the commander to be paid by the overseers out of the poor rate the price to be six pence a bushel.⁸¹

At the financial level, these vestries rendered the civic responsibility of paying for the riot damage and clearing the insect outbreak one and the same. Parishioners had the same moral duty to pay to clear insect nests as they did to pay for the riot damage from two years before. There are also hints that vestries worked to create systems so that those landowners who had cleared their land received documentation. St Mary’s vestry instructed that ‘every landholder [be given] a sale or certificate for the quantity gathered on his land and so then destroyed or burnt’.⁸² Such efforts to provide certificates spoke of the public resentment towards state powers that were not acting to provide aid, particularly the crown. The failure of the gardeners tending to St James’s Park to remove the webs led to scorn and ridicule. ‘Perhaps the *Master* of it’, Jonas Hanway mused, ‘is not yet informed.’⁸³ The presence of the military in and around the city provided one solution for how to eliminate

⁷⁶ Mortlake parish records, vestry minute book IV, 2414/4/4, held at the Surrey History Centre.

⁷⁷ Vestry minutes, St Nicholas, Tooting Graveny, 2 Apr. 1782, LMA P95/NIC/096.

⁷⁸ Vestry minutes, St Nicholas, Deptford, 4 Apr. 1782, LMA P78/NIC/044/787.

⁷⁹ Vestry minutes, St Nicholas, Tooting Graveny, 2 Apr. 1782, LMA P95/NIC/096.

⁸⁰ Vestry minutes, St Mary, Hornsey, 2 Apr. 1782, LMA DRO/020/C/01/001/88.

⁸¹ Vestry minutes, St Mary, Acton, 2 Apr. 1782, LMA DRO/52/153 [p. 16].

⁸² Vestry minutes, St Mary, Acton, 2 Apr. 1782, LMA DRO/52/153 [p. 16].

⁸³ *London Chronicle* 4 Apr. 1782, 3344.

the insects, and it does seem that there were instances in which soldiers aided the effort. The *Norfolk Chronicle* reported 82 bushels of insects burnt at Highgate in two days, and that the soldiery were aiding farmers and gardeners ‘in a compass of twenty miles around the metropolis’ to gather and burn the insects.⁸⁴ Hanway very likely saw the notice, but never called for the military to aid in the effort.

On 31 March, Jonas Hanway visited Joseph Banks at his home, alarmed by the scale of the infestation and the written response he had received from Banks regarding his first anxieties.⁸⁵ The fact that the outbreak stretched into the periphery of London, affecting its poorest areas, furthered Hanway’s fears that London’s wealthier inhabitants had little comprehension of the misery of its rural fringes, where he believed the ‘cold’, ‘nakedness’, ‘filth’, and ‘diseases’ provided a means for the city to ‘breed up numbers in criminality’.⁸⁶ Banks’s own views on the threats of insects were complex. His correspondence from April to July of 1782 was largely concerned with the causes and effects of the influenza outbreak (but he rejected any suggestion that it could be connected to the caterpillars).⁸⁷ Nonetheless, he was keenly aware of the dangers to a country posed by the accidental introduction of foreign species. In 1781, Banks had read a letter to the Royal Society sent from Henry Smeathman, describing the architecture of termites in Africa, and describing the insects as posing a tremendous danger to Europe, given the ‘vast damages they cause’ in the Indies.⁸⁸ William Marshall, an agricultural writer, wrote a letter to Joseph Banks and the Royal Society in 1782 detailing the ravages of ‘Black Canker’ (a caterpillar) on agriculture in Norfolk, which ‘have been so numerous as to cut off the farmer’s hopes in a few days’.⁸⁹ Marshall reported that farmers in Norfolk believed that the insects were not native to England, but were ‘washed up by the tide’ from foreign shores.⁹⁰ Locals described swarms of the flies moving inland after their arrival, stripping plants of everything green and working towards the centre of the county. Marshall sent preserved specimens of the yellow fly in both stages of its life cycle to Banks, hoping that the Society could diffuse knowledge of the species and encourage the public to eradicate it.⁹¹

⁸⁴ ‘Sunday and Monday’s post’, *Norfolk Chronicle*, 13 Apr. 1782, p. 1.

⁸⁵ Jonas Hanway to Joseph Banks, 3 Apr. 1782, Dawson Turner Collection (now held privately). See also Warren R. Dawson, ed., *The Banks letters, a calendar of the manuscript correspondence of Sir Joseph Banks*, British Museum (London, 1958), p. 394.

⁸⁶ Hanway, *The citizen’s monitor*, p. xix.

⁸⁷ Charles Blagden to Joseph Banks, 7 June 1782, 16 June 1782, 30 June 1782, in Neil Chambers, ed., *Collected scientific correspondence of Joseph Banks*, I (London, 2007), pp. 327–8, 330, 333–4.

⁸⁸ Henry Smeathman, ‘Some account of the termites, which are found in Africa and other hot climates’, *Philosophical Transactions of the Royal Society*, 71 (1781), pp. 139–92; Deirdre Coleman, ‘Henry Smeathman, the fly-catching abolitionist’, in Brycchan Carey, Markman Ellis, and Sara Salih, eds., *Discourses of slavery and abolition: Britain and its colonies, 1760–1838* (London, 2004), pp. 141–57.

⁸⁹ William Marshall, ‘Account of the black canker caterpillar’, *Transactions of the Royal Society* (1783), p. 218.

⁹⁰ *Ibid.*

⁹¹ *Ibid.*, p. 220.

It is also important to note that Banks's rejection of revolutionary (and riotous) politics found expression in his scientific views; his support for the Linnaean classification system and his fears that politics on the continent were slowing and troubling scientific work all evidenced his interest in maintaining political stability.⁹² In any event, Banks responded to Hanway that the caterpillars would 'totally destroy' the leaves of trees and shrubs, but that 'all the smaller vegetables on which mankind and the animals used for his food...are safe from *him*'.⁹³ Dividing the plant kingdom in this way (and with a surprising lack of concern for fruit trees in the environs of the city), Banks added that: 'How idle & childish then (to say no worse) has their conduct been who have publicly terrified their neighbors with the alarm of pestilence and famine to be brought upon this country by an innocent fly frequently met with in all parts of this island.'⁹⁴ In a further letter, Banks clarified that he did not believe famine or pestilence could be caused by 'hedge caterpillars'.⁹⁵ Banks did not recommend any kind of effort or intervention to remove the nests. He proposed to ignore them.

Hanway sent Banks a copy of the letter he had printed in the press, calling him 'a friend to mankind' and explaining that in addressing the public, he had 'taken the middle way & accommodated my doctrine to the feelings of the honest, without alarming the timid'.⁹⁶ But Hanway had taken a different position than that of Banks, emphasizing in the press the dangers and risks posed by the insects. Hanway explained that the insects had always existed, but that as their numbers were so vast, 'those may act wisely who destroy them...I recommend a timely War with Fire and Pruning knives against these animals, in behalf of my own species.'⁹⁷ Hanway continued to follow and report on the progress, commenting later that he calculated 1,000 bushels of nests had been removed from trees and hedges and burnt around London.⁹⁸ If Banks regarded the expense and effort as needless, Hanway persisted in driving vestries across the city to eliminate the tents.

IV

The complaints from botanists and philanthropists that some were attempting to delude the public did not prevent quacks, performers, and philosophers from marketing miracle cures to whatever diseases the insects might bring with them.⁹⁹ And the resentment against those predicting famine and plague

⁹² Edwin Rose, 'Publishing nature in the age of revolutions: Joseph Banks, Georg Forster, and the plants of the Pacific', *Historical Journal*, 63 (2020), pp. 1132–59.

⁹³ Banks to Hanway, 1 Apr. 1782, in Chambers, ed., *Collected scientific correspondence of Joseph Banks*, I, p. 315.

⁹⁴ *Ibid.*, p. 316.

⁹⁵ *Ibid.*, p. 315n.

⁹⁶ Jonas Hanway to Joseph Banks, 3 Apr. 1782, Dawson Turner Collection.

⁹⁷ Jonas Hanway, 'To the printer of the *Public Advertiser*', *Public Advertiser*, 3 Apr. 1782.

⁹⁸ *Public Advertiser*, 18 Apr. 1782.

⁹⁹ On the relations between entomology, performance, and the sale of medicines in the eighteenth century, see Deirdre Coleman, 'Entertaining entomology: insects and insect performers in the eighteenth century', *Eighteenth Century Life*, 30 (2006), pp. 107–34.

lasted long after the trees and hedges around London had regrown their foliage. That autumn, a reader wrote to the *Morning Chronicle* to condemn once more those that had tried to sound the alarm of famine over the insect outbreak, writing that: 'In these times of national difficulties, it is of great importance to the state, that men's minds should be relieved from every false alarm.'¹⁰⁰ The most ardent and sustained alarms over the caterpillars had not belonged to Jonas Hanway, however – these were advertised by the performer Gustavus Katterfelto.

His name was a commonplace for describing the gullible and the misled: an anonymous pamphlet, written by an ally of Charles Fox in the debates over the East India Company that raged in the 1780s, likened the public to Katterfelto's audience of 'thousands of persons in this metropolis who live in utter darkness'.¹⁰¹ Neither Curtis nor Banks deigned to mention his name; but they certainly had his performances in mind when condemning the public reaction. As Jan Golinski and Simon Schaffer (among many others) have argued, scientific practice in the eighteenth century was aimed at a general audience that included the poorer classes, and was not easily distinguishable from literature, the arts, or popular entertainment.¹⁰² In his work on Banks, John Gascoigne shared the emphasis on scientific practice at the local level, arguing that 'provincial bodies which promoted science' as a form of 'rational amusement' were the principal conduit through which men and women like Banks hoped values and ideas might be communicated to a wider segment of society.¹⁰³ Figures like Katterfelto provided points of great frustration in this economy: here were all the tools and instruments of natural philosophy turned towards exciting and entertaining the public's fears and imaginations.

Gustavus Katterfelto, often styled as 'Doctor' Katterfelto, most likely emigrated to Britain from Prussia in the 1770s, and went on tours providing lectures and performances in Gloucester and London. Performing at the 'late Cox's Museum' (the Great Room in Spring Gardens), Katterfelto had an audience that was urban and most likely literate, although his 1s seats provided for access to a wider array of the public.¹⁰⁴ His lecturing equipment included a solar microscope, by which he could illuminate the 'animacules' that lived in water, on clothes, in the air, and the insects on the hedges.¹⁰⁵ Popular descriptions also suggest he had an air pump, and would asphyxiate small animals in vacuum demonstrations.¹⁰⁶ His newspaper advertisements were tied to

¹⁰⁰ *Morning Chronicle*, 4 Sept. 1782.

¹⁰¹ *Impartial considerations on a bill now depending in parliament, for establishing certain regulations for the better management of the territories, revenues, and commerce of this kingdom in the East Indies. To which are added some remarks on the proposed surrender of the Company's charter*, printed for J. Debrett (London, 1783), p. 37.

¹⁰² Schaffer, 'Natural philosophy'; see also Jan Golinski, 'Joseph Priestley and the chemical sublime in British public science', in Bensaude-Vincent and Blondel, eds., *Science and spectacle*, pp. 117–27.

¹⁰³ John Gascoigne, *Joseph Banks and the English Enlightenment* (Oxford, 1995), p. 31.

¹⁰⁴ *Ibid.*, p. 252.

¹⁰⁵ Patricia Fara, 'Gustavus Katterfelto (d. 1799)', *ODNB*; see Oliver Hochadel, 'The sale of shocks and sparks: itinerant electricians in the German Enlightenment', in Bensaude-Vincent and Blondel, eds., *Science and spectacle*, pp. 89–101, at p. 96.

¹⁰⁶ John Shebbeare, *The pole-cat; or, Charles Jennings, the renegade school-master, of Parson's Green, detected. In a letter to Thomas S---n, Esq.*, [s.n.] (London, 1783), p. 50.

his precarious finances; he worked to make outrageous claims in the interest of maintaining his numbers at his nightly exhibitions, vacillating between gambling and card secrets, conjuring, and natural philosophy.¹⁰⁷ The shows were lively: Katterfelto used staged actors in the audience to pose as rivals and figures of authority that would attack him on the stage and attempt to destroy the machines.¹⁰⁸

Insects already played a key role within conjuring and natural philosophy performances in the city.¹⁰⁹ In a list of conjurers' tricks compiled and published in 1795 (alleging Katterfelto to number amongst the contributors), there are instructions on how to restore a fly to life that has been drowned. 'Take a fly', the instructions explain, 'put it in a glass or cup full of water, so as to deprive the fly of air.' After it has been perceived by the crowd to be motionless, 'take it out and put it on a place exposed to the sun, and cover it with salt: in two minutes it will revive and fly away'.¹¹⁰ Popular illustrations of him drawn after 1782 often connected him to insects. In a surviving woodcut (Figure 2), Katterfelto appears with his black cat (sometimes presented in his performances as the devil), with the animacules and insects projected by the solar microscope behind him. In an illustration of Katterfelto dated March 1783 where he is seen fighting the sexual therapist James Graham, Katterfelto is standing atop a box labelled 'Reservoir for Dead Insects destroy'd by Dr Katterfelto' (Figure 3), on which are depicted caterpillars and moths. The caterpillar outbreak became a lasting aspect of Katterfelto's public persona.

In March 1782, Katterfelto was focused on exposing cheats and card tricks in his performances – but in early April, his advertising took a marked change, promising a show focused on 'these most astonishing insects, which have been advertised in different papers, and which have threatened this kingdom with a plague, if not speedily destroyed'.¹¹¹ Developing the performance around the fears of disease and his existing demonstration of animalcules with the aid of the solar microscope, Katterfelto collected insects from the hedges and brought them 'forward to maturity for exhibition' – but these were no longer the benign and innocent insects that William Curtis illustrated. They were the harbingers of plague.¹¹² Magnifying the insects, spectators were promised they would appear 'as large as an ox, and are all alive'.¹¹³ For flair, the insects became 'the same kind, by all accounts, which caused a great plague in Italy in the year 1432'.¹¹⁴ By the month of May, they had been renamed 'the monstrous tribe of this dreaded reptile'.¹¹⁵ The end of every show provided

¹⁰⁷ Patricia Fara, 'Caricatures of Katterfelto', *Endeavour*, 26 (2002), pp. 81–2.

¹⁰⁸ Simon During, *Modern enchantments: the cultural power of magic* (Cambridge, MA, 2002), p. 247.

¹⁰⁹ Coleman, 'Entertaining entomology'.

¹¹⁰ Giuseppe Pinetti, *The conjuror's repository; or, The whole art and mystery of magic displayed, by the following celebrated characters: Pinetti Katterfelto Barrett Brislaw Sibley Lane, &c. embellished with an engraving* (London, 1795?), p. 108.

¹¹¹ *Morning Post*, 9 Apr. 1782, 2899.

¹¹² *Morning Chronicle*, 27 May 1782, 4065.

¹¹³ *Morning Herald*, 10 Apr. 1782, 451.

¹¹⁴ *Morning Post*, 16 Apr. 1782, 2905.

¹¹⁵ *Morning Chronicle*, 27 May 1782, 4065.

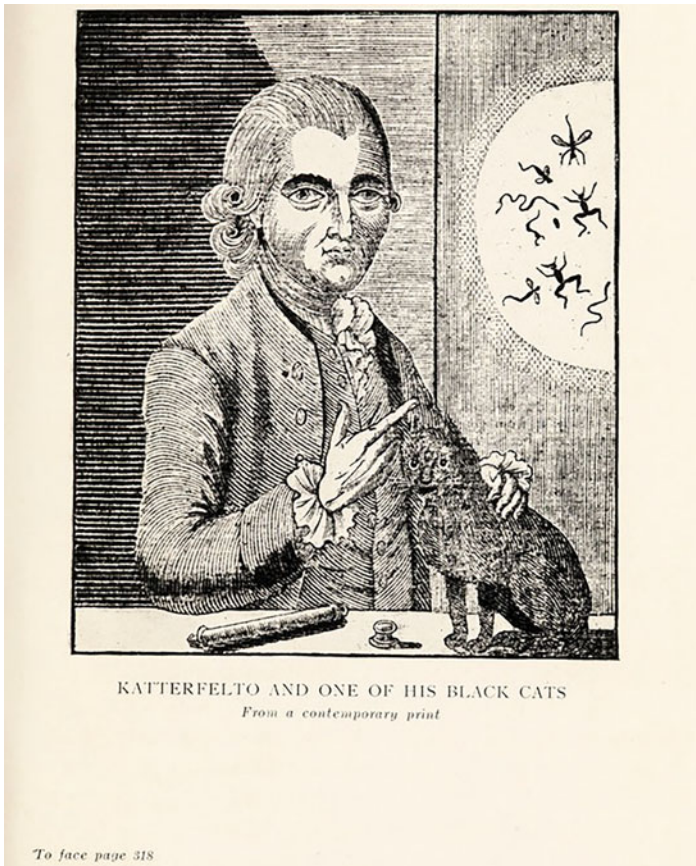


Figure 2. Illustration of Gustavus Katterfelto with the solar microscope, reproduced in *European Magazine and London Review*, 3 (1783), p. 406.

Wellcome Images, public domain, <https://wellcomecollection.org/works/r3a6sdz3>.

opportunities to sell tonics and remedies against the illnesses that would be caused by the insects.¹¹⁶

The theme was clearly a success – he ran with the plague of insects as his headliner for the months of April and May, developing the theme as he went. Visiting London in the spring and summer of 1782, the traveller Karl Moritz observed the fascination with Katterfelto’s insect performance, noting that notwithstanding the fact that most educated people rejected his performances, ‘he has numerous followers’.¹¹⁷ Katterfelto advertised that he was holding conversations among physicians in the Exhibition Room of his theatre where ‘most of them seem to be of opinion, that if these insects should get among the vegetables, it might cause a plague’. He advertised testimony

¹¹⁶ Robert Altick, *The shows of London* (Cambridge, MA, 1978), p. 85.

¹¹⁷ Kar Moritz, *Reisen eines Deutschen in England im Jahr 1782* (Berlin, 1783), p. 87.

into the city of London.¹²² The powers of the solar microscope to reveal the plague of insects attacking the city became a useful political metaphor. Accusing Charles Fox of corruption, a political critic threatened that Katterfelto had the power, 'by his grand solar microscope, to look into the hearts of all insects creeping up the Back Stairs'.¹²³ Numerous critics clearly found Katterfelto amusing, if not ridiculous; why, then, did botanists like William Curtis feel that his performances threatened to upset and cause alarm amongst the public?

V

It is a perplexing aspect of this history that the brown-tail moth was argued by William Curtis, Joseph Banks, and the Linnean Society to be a harmless (even innocent) marvel of nature.¹²⁴ In 1791, Curtis was celebrated at a meeting of the Linnean Society of London for his actions in 1782 in calming the public. The entomologist Thomas Marsham (secretary for the Linnean Society) declared at the meeting that if 'the appearance of an harmless caterpillar in great numbers than usual could cause so serious alarm to the inhabitants of London and its environs', then it was all the more necessary to promote works like that of Curtis who had 'restored tranquillity to a terrified multitude'.¹²⁵ In the same year, the botanist Edward Donovan recorded that the yellow-tail moth and brown-tail moth had been confused until 1782, when, he added derisively, 'prayers were offered to avert the famine supposed to be threatened'.¹²⁶ Other publications agreed – the sensation caused by the outbreak was needless. The editors of the *Annual register* complained in 1783 of the 'great and needless alarm' caused over the summer by the insects.¹²⁷ But this was a very brief lapse of the hard-earned knowledge that the brown-tail moth was (and remains) a pest to arboriculture and agriculture. Curtis had worked at the Chelsea Physic Garden for years, prior to establishing a botanic garden in Lambeth, where he compiled and produced the six-volume *Flora Londinensis* (1777–89).¹²⁸ His books already contained advice on collecting and identifying caterpillars, and he instructed his students in the art of beating the boughs of trees with poles to dislodge and collect caterpillars.¹²⁹ Familiar to a small readership, Curtis sought to assuage readers by appeal to the economy of nature.

¹²² Anonymous, *The balloon jester, containing a most curious collection of all that is pleasing* (London, 1784), p. 33.

¹²³ J. Hartley, *History of the Westminster election, containing every material occurrence, from its commencement [sic] on the first of April, to the final close of the poll, on the 17th of May* (London, 1784), p. 155.

¹²⁴ Curtis, *A short history*, p. 4.

¹²⁵ Linnean Society of London, *Transactions of the Linnean Society...*, I (London, 1791), p. 68.

¹²⁶ Edward Donovan, *The natural history of British insects; explaining them in their several states, with the periods of their transformations, their food, oconomy, &c.*, I (London, 1792), p. 26.

¹²⁷ *The new annual register, or general repository of history, politics, and literature, for the year 1782* (London, 1783), p. 221.

¹²⁸ Robert Hunt and K. G. V. Smith, 'Curtis, William (1746–1799)', ODNB.

¹²⁹ William Curtis, *Instructions for collecting and preserving insects* (London, 1771), p. 2.

The first printed claims that the caterpillars were a usual presage of the plague had appeared in Katterfelto's advertisements. While, arguably, Katterfelto's three-hour performance was better value for the money than Curtis's natural history pamphlet, it still lent the press plenty of material for excerpts and reprinting: newspapers advertising the title often made reference to a public 'unnecessarily alarmed respecting their health'.¹³⁰ Priced at 1s 6d, the pamphlet cost the same as a backrow seat at one of Katterfelto's performances. Without stating any names, Curtis noted that the infestation had 'tended greatly to alarm the minds of the people, especially the weak and the timid'. He had clearly seen the early advertisements of Katterfelto, as, continuing, he charged that:

Some of those writers [in the press] have gone so far as to assert, that they were a usual presage of the plague; others, that their numbers were great enough to render the air pestilential, and that they would mangle and destroy every kind of vegetable, and starve the cattle in the fields. From these alarming misrepresentations almost everyone, ignorant of their history, has been under some dismal apprehensions concerning them.¹³¹

Unsurprisingly, Curtis was keen to insist that the insect was not a foreign invader – it had not blown across the channel or invaded from ships.¹³² Curtis had also clearly undertaken travel to discover places *not* affected by the webs – he insisted that there were none 'about Comb Wood and Richmond Park', and consoled readers that the damage caused by them would not encompass the entire countryside.¹³³

Presaging the explanations that Malthus would avail himself of in explaining the laws of population, Curtis sought to assuage readers by drawing their attention to the powers inherent in nature that maintain balance even in the face of over-population. The point which clearly caused Curtis anxiety was whether or not the population would establish itself, and attack in greater numbers the next year. However, 'Their wings will never expand', Curtis promised his readers. He wagered that there would not be insufficient shoots on the trees and hedges to nourish all the insects to maturity.¹³⁴ Curtis also provided estimates as to the percentage of the population that would succumb to predators. The previous year (he explained), he had sought to collect twenty caterpillars for use in entomological lessons, but eighteen of them had been stung already by Ichneumon flies, and died.¹³⁵ The vast majority of these caterpillars would fall prey to predators, and the threatened invasion of 1783 would never arrive. The importance of this economy was not merely put into words:

¹³⁰ *London Courant*, 3 Apr. 1782.

¹³¹ Curtis, *A short history*, p. 4.

¹³² *Ibid.*, p. 5.

¹³³ *Ibid.*, p. 6.

¹³⁴ *Ibid.*, p. 8.

¹³⁵ *Ibid.*, pp. 9–10.

Curtis illustrated it. In the colour plate (Figure 1), numbers 12–15 illustrate the life cycle of the Ichneumon fly, emerging from a dead caterpillar and reproducing – the number of eggs produced by the fly clearly outnumbering the number of eggs produced by the brown-tail moth. These points were repeated throughout the popular press that summer. *The Lady's Magazine* explained to its readers that many of the caterpillars from the late outbreak would have been consumed by birds: 'a single sparrow and its mate, that have young ones, destroy above three thousand caterpillars a week, not to mention several butterflies, in which numberless caterpillars are destroyed in embryo'.¹³⁶ In the economy of nature, these population fluctuations only mean riches for other, predatory species. What appeared a disaster was, in fact, a feast.

VI

Neither plague nor famine followed the brown-tail moth outbreak. Joseph Banks regarded the fears surrounding the outbreak as ridiculous, yet the search for significance and meaning in the appearance of the nests – or at least, an expectation that it must presage something – fit eighteenth-century attitudes towards natural phenomena. In a period where emblematic logic still shaped the experience of nature, moths were familiar symbols of the nocturnal environment, death, and transformation.¹³⁷ We can find parallels by looking back to the reappearance of Halley's Comet in 1759. Then, both Benjamin Martin and John Wesley predicted that the return of the comet could portend divine retribution.¹³⁸ 'Comets', Schaffer has argued, 'were too potent a threat to be treated as meaningless wonders, rather than useful signs', throughout the eighteenth century.¹³⁹ The insects were a potent threat; they had arrived without warning, and much of the public debate was over what they foretold concerning the near future. Entomology and scientific authority provided only one means of reading the signs writ over the trees of the metropolis.

The state did not recognize any political emergency in the display of nature unfolding in the city, with parliament focused instead on legislative reform in Ireland, war in America, and procuring recruits for the army. Contrasted with the Gordon Riots, the most obvious difference was that the anticipated crisis did not arrive – trees survived, the life of the city carried on, new crises and dangers quickly emerged on the horizon. But if we look to the vestries as serving a political purpose within the city, as they certainly did in negotiating and managing reparations after the Gordon Riots, then the picture changes. Karen Brown introduced the concept of 'political entomology' in her discussion of

¹³⁶ 'Pairing birds', *The Lady's Magazine*, 13 (June 1782), pp. 302–4.

¹³⁷ Matthew Gandy, *Moth* (London, 2016); William B. Ashworth, *Natural history and the emblematic world view* (London, 2004).

¹³⁸ Simon Schaffer, 'Authorized prophets: comets and astronomers after 1759', *Studies in Eighteenth-Century Culture*, 17 (1988), pp. 53–4.

¹³⁹ *Ibid.*, p. 54.

efforts to manage insect invasions in late nineteenth-century South Africa.¹⁴⁰ In that moment, threats to food security and agriculture posed by insects demanded a new state-led politics of insect control. Hanway directly questioned the government's lack of response in the press, but he also set out practical guides for vestries across the city on how best to tackle the outbreak: he clearly regarded the state as incapable of responding, but saw the means of avoiding a disaster through the organization of vestries. But what motivated the vestries? Fears of plague, of lost crops, and a threat to trees and hedges all provided reasoned motivation in the vestry meetings that Easter. Here, as evidenced by vestry records, communities gathered, argued over the significance of the invasion, voted and debated courses of action, and invested money and manpower in response. Political entomology played a role here: the interventions of Curtis, and even Banks, were made with an understanding that churches across the city were organizing to clear the nests and rid the city of the insects.

Part of these politics involved making promises on the authority of science concerning the future: Curtis and Banks both described what kind of world the brown-tail moth would shape for the summer, the autumn, and the following year. Here, scientific authority was negotiated and fashioned to respond to public fears concerning natural phenomena and disease – a dialectic that is increasingly central to contemporary politics. Despite the efforts of entomologists to counter such ideas, the outbreak fused a relation in the mind of at least some people between the brown-tail moth caterpillars and epidemic illness, which the military surgeon Robert Hamilton rejected in a 1794 treatise as 'too ridiculous'.¹⁴¹ Scientific authority positioned itself as contending and vanquishing the delusional and dangerous ideas. But even here, the authority of Banks and Curtis was not entirely trusted by Hanway, who urged that the nests be destroyed just in case these entomological authorities were in any way misled or mistaken. Far from presenting a unified, enlightened account of nature, those that spoke for reason found themselves in disagreement over the nature of risk and their trust in the public.

¹⁴⁰ Karen Brown, 'Political entomology: the insectile challenge to agricultural development in the Cape Colony, 1895–1910', *Journal of Southern African Studies*, 29 (2003), pp. 529–49.

¹⁴¹ Robert Hamilton, *The duties of a regimental surgeon considered: with observations on his general qualifications; and hints relative to a more respectable practice, and better regulation of that department. In two volumes*, II (2nd edn, Ipswich, 1794).