

# Montagu's variolation

Isobel Grundy

Lady Mary Wortley Montagu is sometimes mentioned by both medical and literary historians as the introducer to England of smallpox inoculation. Usually, the story is garbled by confusion with Edward Jenner's later invention, vaccination. Some historians have rejected her claim, arguing that the credit belongs to the medical establishment of the day. So just how much importance has this gifted amateur in the story of medical science?

It seems that no medical procedure or cure is yet named after a woman. Yet it was a woman, Lady Mary Wortley Montagu, who first introduced to western medicine the practice of inoculating against disease by controlled exposure to it. Her daughter, inoculated against smallpox in London in 1721, was the first patient in England (or in Europe) ever to be immunized against anything. Why do we not speak, why has nobody ever spoken, of Montagu's Variolation?

This is a story that could be told in many different ways and few of those ways give much credit to Lady Mary. She had no medical qualifications; she had many professional medical allies as well as opponents; her name was largely absent from the media battles in which her new discovery fought its way to acceptance; and, in any case, variolation (or inoculation with live smallpox virus) was soon replaced by Edward Jenner's vaccination. Jenner's name is universally remembered and perhaps one name per disease is as much as the public mind can retain.

One story is that inoculation (or variolation) was a risky process that was mercifully superseded within a century by Jenner's superior discovery. Another, based on knowledge of the eighteenth-century medical profession, is that Sir Hans Sloane, John Arbuthnot, James Jurin and others introduced inoculation with the help of interested members of the ruling class. Another, based on knowledge of institutions, is that the Royal Society heard a paper on Turkish inoculation in 1714 and, in due course, Fellows of the Society acted on the new ideas it contained. Each of these stories allots Lady Mary Wortley Montagu a very subordinate role, merely providing some colour and human interest. In this, however, the stories are crucially inaccurate.

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Figure 1 'The Female Traveller'. Engraving probably by W. Greatbach from a miniature owned by the Earl of Harrington. Reproduced by permission of the Wellcome Institute.

## The protagonist

Lady Mary is hard to reconcile with anybody's image of a scientific innovator. She had not, of course, studied medicine. Apart from her noble birth, what made her a minor celebrity were her beauty, wit and scandalous poems about other society people. Yet the more one researches the story, the more it comes to resemble the heroic tales of scientific innovators. Our heroine was a young woman whose intellectual brilliance and critical cast of mind made it hard for her to conform acceptably to the social role laid out for her. Her great-grandfather had been a founder member of the Royal Society and (shockingly to his own class) both a physician

and a lawyer as well as a nobleman. Her male relations attended university, while her education was 'stolen' by herself.

She was passionately interested in literature, both ancient and modern, but was also, as a daughter of the Enlightenment, in the progress of knowledge about the natural world. She felt that mathematical training was the key to many kinds of learning and that Isaac Newton's calculations, although it had taken a genius to make them, could be grasped by any person of moderate capacity. Her writings touch on astronomy and technology; in later life, she experimented with growing unusual crops and compounding herbs into medicines.

She was frightened of smallpox from the first year of her married life, during which her much-loved brother died of it, aged 20, his promise all unfulfilled. Two years later, she herself went down with a bad case of it but she surprised everybody by weathering the crisis and surviving. While she was convalescent, her husband began to angle for appointment as British Ambassador to Turkey. She decided (unconventionally) to accompany him to this distant posting (Figure 1). She had their five-year-old son inoculated while she was there and, after their return, had the same operation performed on her daughter. She also lent her energy and influence to the succeeding campaign to get the practice established in England.

Thus far, the story is certain, but fleshing it out involves probabilities as well as certainties. Her physicians during her bout of smallpox (who were probably as surprised as anybody when she pulled through) were Fellows of the Royal Society. It was only a matter of months since they had had the opportunity of listening to a paper by Emanuel Timoni on inoculation as a folk practice in distant Turkey. In my mind, there is little doubt that the doctors and the patient talked about this. If they did, her imagination would have been fired. Her journey to Turkey would have been, among many other things, a scientific quest.

### The opportunity

It was a quest that she was almost uniquely qualified to take on. Her whole approach to Islamic society differed from that of, for instance, the English and French travel writers on the area, whose works she devoured in preparation. They shared the view that the Ottoman Empire was a barbaric culture whose inferiority was palpable in its rejection of Christianity, its segregation of women, its practice of slavery and its lack of technological advance.

Lady Mary was not prepared to buy into any set of preconceived opinions and she had the satirist's instinct for using some other culture as a yardstick against which to judge the practices of her own (and to find them wanting).

At her first immersion in the Other culture (three weeks spent in Belgrade at the house of an Islamic scholar whom she calls Achmet Beg), she learned to scorn the travel writers' views and to work out a cultural reading of her own. Christianity and Islam were, she decided, equally dogged by superstitious know-nothings and dogmatic bigots, but at the core of each lay a belief system that intelligent people could respect. Segregated Muslim women enjoyed a kind of social freedom that might be envied by Western women (who were not so free as the official version had it). The domestic slaves of Turkey, treated as members of the family, were no worse off than servants in Europe. And the knowledge possessed by Islam was not to be despised.

As soon as she reached her destination, she looked into the practice of inoculation against smallpox. It was, she found, a female concern: the professional inoculators were women. She wrote a letter home about this within two weeks of her arrival and chose to address it to her father, a close friend of at least one of her former attending physicians. (When she recopied and revised these letters in book form, she reassigned this one to someone else and the original version does not survive.) Her letter as edited covers all the essential points – smallpox communicated by inoculation confers immunity and it is the mildest of illnesses, from which fatalities are unknown.

She mentions no scientific reason why this should be so, for nobody understood the reason. I had worked on this issue for years before I was finally enlightened by a virologist (Peter Balfe, University College of London Medical School) on the way in which disease spreads swiftly and irresistibly through the body from the lungs, while its slower progress from under the skin allows the immune system time to muster effective defences.

### Her children

Lady Mary was at first in no hurry to inoculate her little boy but when her husband received a premature recall home, she had the operation done at once (Figure 2). She booked the old woman who made it her business to oversee inoculations in Constantinople (now Istanbul) to attend with some smallpox virus from a patient with a relatively mild form of the disease. Young Edward's inoculation was a multicultural affair: the old woman pricked one of his arms with her needle and Charles Maitland, the Scots surgeon who attended the Embassy, did the other with his scalpel. Lady Mary would have liked to have her baby daughter done too but did not, in case the child's Armenian nurse should catch smallpox from her. That is, her investigations had led her to conclude that the injected form of the disease could be communicated as dangerously as the natural.

Home in England, she once more waited until danger was near before acting: three years after her return, smallpox was already globalized and was sweeping both England and New England. It was she herself who then took action, not Maitland nor any other doctor who had been in Turkey or who had heard or read of Turkish inoculation practice. Indeed, when she summoned Maitland from his country practice to London, he was

reluctant to act. And not without reason: for a mere surgeon, a non-member of the College of Physicians, this was a very risky career move. At this date, the College was conducting a vendetta against unqualified

practitioners or anyone infringing on the prerogatives of the properly registered physician. It was not only if the operation should go wrong that it might cause trouble for the operator.

However, with official medical witnesses to observe the experiment, Maitland let himself be persuaded. Lady Mary's grand-daughter later recalled that these witnesses were appointed by the government, which suggests that Lady Mary had already gone to the highest level – to the royal family itself, where she succeeded in interesting Caroline, Princess of Wales, in the promise of this new advance.

The grand-daughter also said that the witnesses were hostile, so hostile that Lady Mary dared not leave her daughter alone with them for an instant, in case they should in some way harm her, to provide false experimental results. However, they were not all hostile. By chance, one of them, Dr James Keith (a countryman and old friend of Maitland), had lost two sons to smallpox in the past. He begged Maitland to come at once and inoculate his surviving son (a four-year-old, born just two months after his two brothers had died). The little girl and the little boy both did well, the former visited and observed not only by the doctors but also by upper-class friends of her mother. Among Montagu's circle, parents of small children, especially those who had themselves lost parents, siblings or spouses to smallpox, began to take up the new practice without waiting for any further experiment.

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Figure 2 A painting of Lady Mary Wortley Montagu and retinue, in which she may be holding her son's wrist to show the inoculation scar. Attributed to J.B. Vanmour c.1717. Reproduced by permission of the National Portrait Gallery, London, UK.

### The controversy

Meanwhile, matters escalated rapidly. Princess Caroline consulted Sir Hans Sloane, who would not actually advise her to inoculate her royal offspring; however, by simultaneously declining to advise against it, he no doubt fuelled her determination to act. Her father-in-law, George I, gave permission for the inoculation of his grand-daughters; his grandsons, being higher in the line of succession, had to wait several years more. Nonetheless, Caroline had persuaded him to set up a public experiment in which six condemned criminals in Newgate Prison were offered a pardon in exchange for allowing themselves to be inoculated. Maitland again performed the procedure, this time in the presence of both medical and political top brass, and under the glare of media publicity. Amid great public suspense, it was soon made known that the Newgate prisoners (all but one, who had survived smallpox already) had had a mild attack quickly followed by complete recovery.

The media at this date included a flourishing and uninhibited daily and weekly press, and a corps of professional pamphleteers, each divided into opposed party-political camps. The involvement of the royal family ensured that government writers would support inoculation and that opposition writers would decry it. Neither

side hesitated to bend the facts or to pull out all the stops of rhetoric, although the rhetorics used were different. Pro-inoculators tended to write in the cool and factual tones encouraged by the Royal Society, with frequent appeals to reason, the modern progress of science and the courtesy subsisting among gentlemen. Anti-inoculators purposely wrote like demagogues, using heated tones and lurid scare stories to promote paranoia.

Furthermore, the two sides told two different stories about the involvement of women in inoculation's origins. For the anti-inoculators, women were at the root of it – as indeed they were at the root of smallpox itself in one popular theory (that the 'seeds' of smallpox were transmitted to an embryo in the womb from impurities in the mother's blood). Writers against inoculation emphasized its origin in Turkey (the land of harems) and its female associations both there and in England. For both Edmund Massey, who preached a sermon against inoculation at St Andrew's, Holborn, on 8 July 1722 (on the text about the Lord smiting Job with sore boils), and William Wagstaffe, who followed up this sermon with a virulent pamphlet, a key argument against the new practice was that it originated with 'a few Ignorant Women, amongst an illiterate and unthinking People.' For them, the involvement of Lady Mary and Princess Caroline was a damning sign.



For their opponents in print, the female connection was something to be played down. In such writings, it is typically the British Ambassador to Turkey who had his son inoculated and the king, not the princess, who dreamed up the Newgate experiment. This was not antifeminism, it was tactics. Reason and medicine were coded male.

When the first deaths after inoculation occurred (at just the same time that suspense was aroused again by inoculation within the royal family), opposition newspapers gloated indecently. They, of course, claimed that inoculation had killed these victims (a toddler of immense newsworthiness whose statesman father had just died suddenly and a servant employed by another peer). In fact, it is likely that the baby died of a disease that predated his inoculation and the servant of naturally communicated smallpox (there was, after all, an epidemic in progress). However, the temperature of debate was raised another notch when the stakes were visibly raised to include the danger of death. Opponents of the practice flung around words like 'murder' and 'depopulation'. In New England, where inoculation had arrived at the same time as in old England, the city fathers of Boston had already marshalled a battery of bare-faced lies as statistics and declared the practice illegal.

### Further developments

In Britain, the first skirmishes settled into an on-again-off-again war that rumbled on until the advent of Jenner changed the rules. For half a decade, inoculation spread steadily among the upper classes and the more scientifically minded members of society. It was fuelled in the latter case by James Jurin, Secretary of the Royal Society, and the figures that he painstakingly compiled year by year from practitioners across the country, thereby ensuring that this great step for preventative medicine was also a great step for the science of statistics.

Then, there was a lull in the wave of epidemics; Jurin died; the spread of inoculation slowed but never actually halted. By mid-century, variolation was penetrating, slowly, through continental Europe. In 1750s England, the idea of mass inoculation took hold and produced another major escalation in the practice, this time accompanied by distasteful competitive self-advertisement from rival physicians. By the late eighteenth century, it was probably a minority, at least in and near major centres of population, who did not undergo inoculation.

### Lady Mary's place

What of Lady Mary Wortley Montagu? By then, she was long dead. A dozen references in print and a monument in Lichfield cathedral commemorated her medical 'invention'. Enthusiasts of French literature might remember Voltaire's paean of praise to her achievement in his *Letters Concerning the English*. However, nobody knew that her interest in inoculation had persisted for more than the few years one might expect for a hobby or a fad. Medical historians began to feel that the professionals would somehow be slighted by credit given to a dilettante aristocrat. The American Society for the History of Science celebrated the eradication of smallpox in 1980 with an address from its president (a woman, as it happened) entitled *Putting Lady Mary in Her Place*.

However, there is evidence (spotty, one might say) of Lady Mary's continuing campaigning for inoculation throughout the course of her life. She carried on conversations or correspondences about it, even two decades after her original intervention, with a far-flung assortment of scientists and philanthropists: with John Hough, Bishop of Worcester; with Cudworth Bruch, an apothecary practising in Abingdon; and with Bartolomeo Dominiceti, a fashionable physician who was successful in Italy and later even more successful in England. Only the merest chance has caused the records of these relationships to survive; no doubt many others are unknown. Tantalizingly incomplete chains of evidence also connect her with inoculations in Salisbury in Wiltshire and with the leading European inoculator Théodore Tronchin.

She contributed just one identified text to the smallpox wars, writing not under her own name but as 'A Turkey Merchant' – a pseudonym that misrepresents her class as well as her gender but makes no claim to medical qualification. No wonder: her essay, published in the *Flying Post* at the height of the controversy, is an outright attack on the medical profession. It is unique as a pro-inoculation argument conducted in tones of outrage, not of rational calm, and as an argument not about whether inoculation should be practised but about how it should be practised.

It addresses an aspect of inoculation in England that I have not yet mentioned. This was escalation, in tune with the old concept of medicine as a heroic struggle to expel the enemy within the body. Where the old woman in Turkey made a tiny scratch with a needle and inserted a tiny quantity of the smallpox virus just under the skin, doctors in the west used knives to insert the virus much deeper and in far larger quantities. They also took to preparing their patients with more and more stringent methods designed to weaken their putative disease – with fasting, purging (by vomits and enemas) and bleeding. Once the inoculation had been performed, they followed up with more of the same.

Montagu's *Flying Post* essay is an anguished protest against this escalation. A procedure that was quite safe in the hands of Turkish women, she argues, is being converted by modern western medicine into an engine of destruction. In this, her essay is unique. Some doctors at the time argued for moderation in purging, bleeding and so on but none suggested doing away with them, and nobody suggested for a moment that science might fail to improve, might even spoil, what it borrowed from folk practice. Her essay is in no way anti-science but it is concerned with the misuse of science. It reads like the first expression of a kind of unease that had become commonplace in the late twentieth century.

Ironies proliferate around most aspects of Lady Mary Wortley Montagu's career but none is more striking than this: this heroine of medical progress is also, it turns out, a heroine of resistance to medical progress. She deserves a large share of the credit for winning the first round in the scientific fight against infectious disease. However, she also deserves credit as one of the first to sound the alarm about the strain of aggression and dominance that mars the record of the Enlightenment. Her Lichfield monument is accurate when it calls her a benefactor of the human race. □