

The Smallpox Journal of Solomon Drown

by Kate Schrire '06

On September 10th, 1772, Solomon Drown boarded a boat in Providence, Rhode Island. It was not his first boat trip, and it would certainly not be his last. Like any nineteen year-old, he was excited at the prospect of adventure, but he was making this trip for a serious reason; Solomon Drown was going to New York to deliberately contract smallpox.

Variola major was one of many diseases brought to the New World by European voyagers in the early sixteenth century. Like a parasite, the virus jumped from one human to another. Those sufferers who did not die were left with lifelong immunity to the disease, forcing the virus to constantly search out new, vulnerable victims. But even those who survived were rarely left unscathed; smallpox often left survivors with disfiguring scars, and even blindness. Native populations, which had never been exposed to and therefore had no resistance to smallpox, were decimated and in some cases wiped out by the virus. White Americans, while not as susceptible as their native counterparts, were repeatedly stricken by epidemics over the next two and a half centuries.

For Americans of that time faced with the threat of smallpox, there were two paths of recourse. The first was avoidance. When Solomon was an infant, a particularly bad epidemic in 1755 resulted in 2,000 of Boston's 15,000 citizens fleeing the epidemic - and the city. In his native Rhode Island, those unfortunate enough to contract smallpox were quarantined on an island off Newport, where they either recovered or died. However, in a populated, urban environment, the threat was always there, and always real. Given the ineffectiveness of this method, the second option was inoculation.

Inoculation in the eighteenth century was not the simple, sterile procedure that vaccination is today. Edward Jenner was still a quarter century away from his revolutionary experiments with cowpox, which would eventually transform the medical field and save thousands of lives. For all but the last years of the eighteenth century, the only way to inoculate against smallpox was to purposefully infect humans with a live strain of the disease, taken from a previous sufferer. While not as life-threatening as contracting the disease in the normal manner, smallpox by inoculation still resulted in fever, pain and the small, scarring pockmarks from which the disease gets its name. Some died, but more did not, establishing the procedure as a risky but viable alternative to catching smallpox directly from a contagious sufferer.

Solomon was born in 1753, to a large Rhode Island family. A curious, thoughtful child, he recorded much of his adolescence in his diaries. It was a life of relative privilege: he received private instruction as a boy, and in 1770, he applied and was accepted to Brown University, or as it was known then, Rhode Island College.

We shall never know the reasons behind this nineteen year-old college student's decision; his journal starts at the beginning of his journey, and ends upon his return home, just over a month later. But we do know that, whatever his reasoning was, his decision was made in a climate of fear and tension. Inoculation was a highly controversial procedure in Western society at the time. Although similar procedures had been practiced in parts of Asia and Africa for centuries, inoculation first entered western history records in the early seventeen hundreds. During the hundred years it was practiced in Europe and America, it remained a divisive issue.

Some felt that it interfered with God's will, and others thought that it was a blasphemous attempt to *usurp* God. More commonly, people were fearful that intentionally introducing smallpox into communities - regardless of method - would instigate epidemics where originally there were none. This division ran along class lines. The working classes, who could not afford the time or costs of the procedure, resented the fact that upper class inoculations might introduce an epidemic into their communities, which were less equipped - economically, medically and nutritionally - to deal with an outbreak. Prominent proponents of inoculation were occasionally attacked, and in 1774, an inoculation hospital established in Massachusetts was razed to the ground by angry protestors. As a result of the controversy and concerns, it was almost impossible to be inoculated against the disease in New England, where most cities had outlawed the practice.

The response of wealthy New Englanders was to travel south to be inoculated. During this period, it became a highly lucrative industry, transporting, inoculating and caring for the recuperating northern patients. While not forbidding the exodus, New England resented the profits being taken out-of-state by locals. Doctors in New York and New Jersey relied on the travelers from the north for income, and their economic communities actively discouraged movements in New England to relax smallpox legislation. So

when he stepped out onto that ship, Solomon was defying the social and legislative norms of his home and his society, by exerting the privilege his class and wealth afforded him. And finally, he wasn't merely leaving his home to undergo a minor medical procedure; he was going to New York in order to be deliberately infected with a deadly disease in a highly controversial procedure. And yet, he left willingly, and stepped aboard the boat in high spirits.

His composure did not last long. Solomon spent most of the voyage being violently sick, "puking overboard merrily", as he wryly describes it. From the first pages of his journal, Solomon established his own, clear voice, discussing his life and experiences with a frankness rarely found in journals of the era. Throughout the voyage, he meticulously notes the exact time of arrival and departure at each port of call, a precision he mixes with rueful humour in describing his seasickness, and an appreciation for the scenery surrounding him as "the vessel gently glided along".

Upon arriving in New York, Solomon and his friends Daniel and Harry found lodgings with Reverend John Gano, whom he paid eight dollars for a month's board. On his first night in New York, Solomon writes, "This evening we concluded to be inoculated in the city of New York, by Dr John Stites." This is the first time he mentions Dr Stites, and he gives no explanation for his choice. There were other doctors performing inoculations in New York at that time. Perhaps the Reverend Gano suggested Dr Stites, who was his brother-in-law. Regardless, he paid Dr Stites four dollars to inoculate and provide him with the necessary treatment during his convalescence.

He grew to trust the judgment and enjoy the company of his doctor, drinking tea and dining with him regularly, and asking his advice about suitable texts for his future medical studies, his interest in medicine already apparent.

The following day, two of Solomon's fellow passengers from Providence were inoculated by another doctor. Solomon seemed bothered that they had gone ahead and been inoculated before him. His anticipation at the prospect continued throughout the day; he was frustrated when inoculation was postponed until after the evening Baptist meeting, and then raced with Harry to be the first to be inoculated. Solomon, speedy in his eagerness to run inside and strip off his coat, won. His excitement did not affect his powers of observation; he carefully described the procedure.

"We are inoculated after the Suttonian Method, which is this, the doctor with his lancet just scratches up the skin so as to fetch blood, then fixes a piece of thread, infected with the matter, into the scratch, upon which, a very tenacious plaister is applied, and a bandage around the arm."

Solomon and his friends were lucky; Robert Sutton, a British doctor, had worked throughout the 1760s to improve both the procedure and outcome of smallpox inoculation. And despite Sutton's best attempts to keep his findings secret (he only published them in 1796, the same year that Edward Jenner's invention of vaccination made inoculation techniques irrelevant), his colleagues disseminated his findings, which were first published in the *New World* in 1771, the year before Solomon arrived in New York. As a result of Sutton's improvements, doctors used shallower incisions to insert the virus into patients' arms, and stopped prepping their patients for inoculation with oral doses of mercury. Modern medical knowledge suggests that these mercury treatments probably weakened patients, if not outright killed them.

An additional recommendation of the Suttonian method was that patients be strictly quarantined for the safety of other's. This, however, was one stricture which was ignored by many doctors and their patients. We know now that inoculees were contagious from the first arrival of symptoms until the last of the smallpox scabs fell off; a period of approximately two weeks, which began two weeks after the inoculation. And yet, much of Solomon's diary details his daily outings while recuperating from his inoculation. Facts like these perhaps explain why there was such resistance to inoculation in New England. We know of no one who became sick after interacting with Solomon, but in a society where people acknowledged the contagious nature of smallpox, the idea of contagious inoculees mingling with urban populations is a terrifying thought.

Solomon did not seem too discomforted by the procedure, describing it as "being no more than the scratch of a pin". Indeed, he spent the rest of the evening paying social calls, running errands, attending a Baptist meeting, and wandering the city, admiring architecture. Little happened over the next six days. Solomon dutifully wrote in his journal, noting the Baptist meetings and religious orations attended, and the people he met for tea. Despite the brevity of his entries, he notes each evening that he had taken a pill. He did not describe what the pill was for, only that he dutifully took one each night. Occasionally, he took medicine in the morning, in the form of "a dose of powders which they mix up with some fluid and call chocolate. It is as nauseous, illtasting stuff, I believe, as ever was contrived, and sets me a puking directly". It is both hard to believe that chocolate was used as a treatment for smallpox, and that Solomon would be unfamiliar with it.

At the same time in Germany, a well-respected medical authority, Christopher Ludwig Hoffmann, had recently written a treatise called 'Potus Chocolate' proposing the food as a treatment for a range of maladies. It is possible that American doctors such as Dr Stites had read or heard of this theory. Chocolate was introduced to America in 1765, seven years before Solomon took it medicinally. Cocoa beans were

imported to Dorchester, Massachusetts, but the chocolate that resulted was first advertised only in 1774, so it is possible that Solomon, living relatively close to America's only chocolate factory, was unaware of the product, which only the very rich could afford. And since he was prescribed with cocoa powder, it very possibly was not sweetened, which would result in a very bitter medication!

Aside from his dislike of his medication, Solomon did not fare too badly in the days directly following his inoculation. He noted that Dr Stites limited his diet to simple, unspiced foods. Doctors of the period each had their own conceptions of how best to see a patient through this risky period, but aside from his use of cocoa, none of Dr Stites' prescriptions were unusual.

Upon taking his sixth and final pill, Solomon noted, "My head aches very much which is a symptom of the approaching smallpox". It was the first time he mentioned his own, impending surrender to smallpox. The next day, his joints were stiff, and he felt pain in his back and head. He wrote, "the doctor concludes the smallpox will break out upon me tomorrow".

Although religion was a routine and natural part of his life, he only wrote about God once, when faced with the inexorable risk, bearing down upon him. His journal, his record, the passing of this important experience in his life, is the context through which he recognizes his powerlessness. "I shall not write any more," he stated, "till I get over the smallpox, if through the tender Mercies of my Father who is in Heaven, my life should be spared, and Health restored me."

He managed to scribble one more entry the following day, of one line: "This day the pock begin to make their appearance upon the skin".

Diarists of this period are known for the regularity with which they wrote, and Solomon was no exception. Twenty years before, another diarist also detailed his experiences with smallpox, this time contracted unintentionally on a trip to Barbados. That man was George Washington. And much like Solomon, he attempted to list his growing symptoms, but in the dark days when smallpox took over his body and threatened his life, George Washington's diary was tellingly silent. And so it is with Solomon, and such silence, in contrast with his usual curiosity, keen perception and his joy for life, such silence is more telling than all his attempts, before and after, to describe the deepest, dark days of his sickness.

Today we understand medically the process which people of the time learnt through bitter experience; the effects of smallpox as it fights to possess its host. Once smallpox is introduced to the body, it takes several days to settle down and start insidiously overwhelming the body.

In the first week to ten days, as Solomon detailed, the victim feels perfectly fine. He wanders around, thankfully not yet contagious, as the virus starts to take root. A week to ten days later, the victim starts to feel the affects of the virus which is multiplying in his body; a slight, almost dismissible weakness, some pain or inflammation in the bones.

This is quickly followed by the first appearance of the pocks. Weaker individuals sometimes skip this stage, going from feverish to dead in a matter of days. Most, like Solomon, cannot escape the all-consuming pocks.

At this point, the virus gains impetus, traveling rapidly through the body, leaving the itchy, evolving rash in its wake. The pocks have a life of their own; they start, as Solomon describes them, "very much resembling flea bites". Within a day, they have grown into small, solid bumps. They inhabit the membranes within the body, but now start pushing through the skin. They cluster on the face, the back, the arms; even the palms of hands and soles of feet.

Over the next ten days or so, these bumps swell, filling with fluid, blistering the skin. They burst, seeping contagious, noxious liquid. This doesn't bring relief; as these wounds start to scab, they catch on clothing, linens, making movement unbearable. Until these scabs shrivel and fall off, the victim is extremely, dangerously contagious.

Solomon was lucky; inoculees typically experience milder versions of a typical smallpox infection. There were rare occasions over the week when he managed to write in his beloved journal. He recorded the number of pocks he estimated covered his body: three or four hundred. He started counting the number on each hand, and his face, but the task was too great.

For once, time does not flow for him in journal entries, or pills, but in the counting of pocks. There is nothing to do but wait.

When he was over the worst, he described how it felt, in the throes of affliction: "We were so sore we could scarce stir about; the pock break out every were without ceremony and are so troublesome that we can sleep but a little for them. We have the smallpox rather worse than we expected, or than is common by inoculation".

The next day, he took his final, horrid dose of medication, and felt well enough to return to sight-seeing, which cheered him up enormously. He was healing, and his journal entries were once more full of his awe at the wealth and size of New York.

Several days later, he noted, "This morning we clean up after the small pox. Harry and myself go down to the kitchen fire where we wash ourselves. This day is just three weeks from the day that we were inoculated".

He would soon be returning to Providence, and spent his last week enjoying the city and running errands, unaware of how contagious he still was. Somewhat ironically, considering his recent survival of one of the most deadly diseases of the time, he bought a bottle of "Daffy's Elixer Salutis" for half a crown. He did not say why he felt he needed it, but Daffy's was a well-known and widely available cure-all in both Europe and America. Its popularity may have unconsciously been a response to what modern chemical analysis now tells us; 'Elixer Salutis' was in fact made mostly from alcohol.

Another task he performed was buying flour. He visited many stores, but could not find the kind he wanted. Nonetheless, "flour is very scarce in Providence. I therefore buy two barrels, at 25 cents York currency".

Solomon also relaxed with his friends, his high spirits a good indication of his returning health. They visited a Jewish synagogue, an exotic and intriguing experience, and in an eighteenth century version of a timeless scenario, ate fried oysters and drank plenty of mead, and stayed out far too late to "get home without letting Mr and Mrs Gano know where we had been". So they went back to the synagogue and then home, "determining to tell them, if they ask where we have been, that we have just left the synagogue, and if they should ask us if we did not want supper, that it is so late we will adjourn it till tomorrow morning. Thus we escape being found out this time."

The day before their departure, Solomon wrote that "the doctor has concluded that Harry is not well enough to go home, having sores about him which he thinks will frighten the N England people". This is the only time Solomon discussed the long term effects - scarring- typical of surviving smallpox. George Washington famously escaped all but the lightest of pock scars. Solomon did not tell us whether he too escaped so lightly; portraits done of him later in life do not show scars, but then portraits probably would not.

Despite the sores, Harry seemed well, and Solomon decided to return to Rhode Island without his friend, who would follow when fully recovered. The next day, Solomon said his farewells to his friends and acquaintances of the past month, and boarded the Sloop Betty to return home. Dr Stites came to the wharf to see him off. Despite a difficult journey home, the sloop frequently becalmed on a windless ocean, he was less seasick than on his previous journey. Frustrated by their laborious progress, Solomon felt strong enough to row to shore with other passengers when in sight of Providence. He finished his journal simply: "Arrived at 9. All well".

At some later point, Solomon added a postscript, a reflection on his experiences, and it gave the greatest insight into why he decided to embark on such a dangerous journey. "The small pox is a terrible disease when taken the natural way," he wrote, "and for the most part is attended with fatal consequences: but when taken by inoculation, and proper prescriptions observed, it is disarmed of its every terror."

Solomon remained safe from that terror. Three years later, fuelled by the mass movement of troops at the beginning of the Revolutionary War, smallpox epidemics broke out across North America. By that point, Solomon had graduated from Rhode Island College, and was studying to become a surgeon at the College of Philadelphia.

In his first year of medical studies, three hundred people died in Philadelphia from smallpox. In fact, the epidemic reached such proportions that in 1776, New England lifted its ban on inoculation. Over five thousand civilians rushed to be inoculated, proving overwhelmingly that inoculation - frightening, blasphemous as ever - was less terrifying than the thought of an agonizing, drawn-out death.

The continental army followed this trend in 1777, when it inoculated most of its troops. It was the first state-sponsored inoculation campaign in American history. If George Washington, who knew intimately what smallpox could do, had not implemented this program, perhaps the Revolutionary War would have ended differently. But these local, if large, campaigns were not enough to stem the tide. Over seven years, 130,000 North Americans lost their lives to smallpox.

Solomon survived the war, in which he served four years as a ship's surgeon, with the same dignity with which he survived smallpox. His relative, Samuel Ward, the Rhode Island delegate to the Continental congress, died of smallpox in 1774, three months before he was due to sign the Declaration of Independence. While Solomon was serving the continental army, Dr John Stites was chased from his home in New Jersey as a loyalist traitor. According to legend, Reverend John Gano, who gave Solomon lodging in New York, baptized George Washington on a snowy riverbank in Pennsylvania during the war.

After the war, Solomon went on to travel extensively in Europe in his thirst for knowledge. He worked as a well-respected surgeon in both Ohio and Rhode Island, serving as a professor in botany and medicine at Brown University in his later years. He was a popular orator, a respected scholar in his field and an expert on farming, a husband and father of nine who never quite quenched his passion for learning. He died in 1834 at the age of eighty, in his home in Rhode Island.

Although the smallpox epidemic ebbed, smallpox remained a threat to mankind for one and a half centuries after Solomon's death. Thanks to vigorous campaigning by the World Health Organization and other international organizations, there have been no documented cases of smallpox since 1979.

Post-9/11, concerns regarding smallpox as a bioterrorist weapon have prompted the US government to reproduce and stockpile vaccinations. The Center for Disease Control currently maintains enough vaccines to immunize every person in America against smallpox. According to the CDC, "One confirmed case of smallpox is considered a public health emergency."

There is still no proven cure for smallpox.

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