

From Vaccine (The Controversial Story of Medicine's Greatest Lifesaver) by Arthur Allen, pages 67 (bottom) to 69, closing out his chapter, The Peculiar History of Vaccinia. (Footnotes given at the end of this extract.)

.... Lord Alfred Russel Wallace, the naturalist who helped discover evolution, employed a series of arguments that would become the model for antivaccine arguments over decades to come.<sup>39</sup>

Wallace led the reader down a path of half-truths, each of which appeared to steal away a bit of the rationale for vaccination. At the end of the path, if you traveled without blinking, was the rejection of smallpox vaccination. He started with a competing philosophy of health. The medical profession, he argued, exaggerated the gravity of smallpox, which wasn't such a bad disease when contracted by an otherwise healthy person. Smallpox, in Wallace's view, was like all other "filth diseases"-it would disappear when nations and cities did away with "foul air and water, decaying organic matter, overcrowding and other unwholesome surroundings."<sup>40</sup> Vaccination's failures, Wallace went on, had been obscured by the fact that public vaccinators did not care for vaccinated patients who subsequently became ill.<sup>41</sup> Further, there had been no controlled experiments comparing populations of vaccinated and unvaccinated people-true enough. In short, Wallace argued, vaccination did not protect against smallpox and weakened, rather than strengthened, the constitution. For proof one need only examine the poor health of the city of London, where vaccination was widespread and the authorities, he claimed, concealed the death and destruction it caused.<sup>42</sup> Vaccine, he concluded, actually *caused* smallpox. Witness the prevalence of smallpox in areas where authorities vaccinated the most. In Ireland there was less smallpox than in Scotland, although Ireland was undervaccinated and Scotland among the most vaccinated areas of the UK. Leicester, which did away with compulsory vaccination in 1873, had only one smallpox death per 10,000 population in 1894, while heavily vaccinated Birmingham suffered 63 cases and 5 deaths per 10,000.

Wallace's claims were eloquently argued, but they ignored inconvenient facts. Vaccination was of course most frequent in areas where smallpox was greatest, because people generally did not vaccinate until an epidemic threatened. And while it was true that overcrowding and poor general health contributed to the spread and mortality of smallpox, there was an important caveat: while smallpox fatality had diminished over the nineteenth century, the death rate from other infectious diseases had risen. It was true that Leicester for a time controlled smallpox without vaccination, but only through rigorous isolation and quarantine practices.<sup>41</sup>

Wallace typified the scientists who would battle vaccination over the years-mavericks who had made their names by overturning established theories,

and who as a result identified strongly with antiestablishment points of view. The writer Michael Shermer calls this the "heretic personality" type. Wallace was also a dabbler in spiritualism and other controversial beliefs; he strayed into bad science, in Schermer's view, because of a personality flaw that made him a little too open-minded. The eighth of nine children, the son of a disgraced small-town lawyer, Wallace had drifted through his early years learning various trades. He was never fully accepted in the aristocratic class to which Darwin belonged.<sup>44</sup> Having dismissed the authorities in his own field, Wallace assumed that the dons of public health were just as unreliable.

George Bernard Shaw was another famous heretic who joined the antivaccination side, though Shaw's attacks were closer to the mark, drawing power from the genuine problems of vaccination and medicine's defensive refusal to admit them. Shaw's most important writing on the subject is in the preface to *The Doctor's Dilemma*, a satirical play about medicine whose protagonist is modeled on Shaw's friend Almroth Wright, the creator of the first typhoid fever vaccine.<sup>45</sup> Shaw was quite rightly skeptical of medical science, which had not yet turned the corner past which the average patient received a net benefit by consulting with the average physician.<sup>46</sup> Medicine was still "very imperfectly differentiated from common cure-mongering witchcraft," he wrote, and people only went to doctors under "the old rule that if you cannot have what you believe in you must believe in what you have."<sup>47</sup> Like many a Brit, Shaw was also sentimental about animals. Experiments on beasts were cruel, morally groundless—"you may not torture my dog, but you may torture dogs"—and largely a waste of time—"burning down London to test a patent fire extinguisher." He felt that vaccination had become a cult, with doctors circling the wagons to defend it despite all flaws. "The Radicals who used to advocate as an indispensable social reform the strangling of the last king with the entrails of the last priest, substitute compulsory vaccination for compulsory baptism without a murmur." And like Wallace, Shaw argued that vaccination supporters "steal credit" from sanitary reforms that had diminished the threat of cholera, typhus, plague, and to a lesser extent tuberculosis. As for Pasteur's rabies vaccine, "the vaccinated people mostly survived, but so do most victims of dog bites."

In 1898, Parliament, following the Royal Commission's recommendation, passed a law allowing "conscientious objectors" to avoid vaccination. The Anti-Vaccination League made wide use of the new clause, signing up objectors with door-to-door campaigns. Vaccination rates, which stood at 80 percent in 1898, fell to 50 percent in 1914 and 18 percent in 1948. That year Britain ended compulsory vaccination. When smallpox broke out, the authorities vaccinated contacts of the patients and

quarantined those who would not be vaccinated. This was surprisingly effective. By 1960, four times as many Brits were dying of vaccination side effects than of smallpox.<sup>48</sup>

Having struggled for half a century with compulsory vaccination, Britain made peace with the antivaccinators by essentially surrendering to them. In the United States, compulsory vaccination was only beginning, and so was the struggle over it. There was no federal vaccination law, but as the public health movement grew, state laws tightened, and many cities began excluding unvaccinated pupils from schools. These laws and practices galvanized the previously passive resistance to immunization. The more the public resisted, the more stridently the newly empowered public health officials defended the vaccine. The smarter among them understood the need for improvement in smallpox vaccination. Vaccines were unreliably available, of uncertain origin, and difficult to make safe. They did not always offer good protection. But medicine was not powerful enough to be self-critical, so it persisted in its blinkered unanimity: whatever the dangers and drawbacks of vaccinating, it had to be done, unquestioningly. With a single voice, public health cried, "Vaccinate! Vaccinate!"

39. Alfred Russel Wallace, *Vaccination a Delusion; Its Penal Enforcement a Crime* (London: Anti-Vaccination League, 1901).
40. *Ibid.*, 267–68.
41. *Ibid.*, 223.
42. *Ibid.*, 242–74.
43. Scott Edward Roney, *Trial and Error in the Pursuit of Public Health: Leicester, 1849–1891*, doctoral dissertation at the National Library of Medicine, 2002.
44. Michael Shermer, *The Borderlands of Science* (Oxford University Press, 2001): 162–64.
45. This comes from Steven Lehrer, *Explorers of the Body* (New York: Doubleday, 1979).
46. William G. Rothstein, "When Did a Random Patient Benefit from a Random Physician: Introduction and Historical Background," *Caduceus* 12 (3) (1996): 3, cited in Bert Hansen, "New Images of a New Medicine: Visual Evidence for the Widespread Popularity of Therapeutic Discoveries in America after 1885," *Bulletin of the History of Medicine* 73 (1999): 629–78.
47. George Bernard Shaw, *The Doctor's Dilemma, with a Preface on Doctors* (New York: Brentano's, 1913): vi–xc.
48. Cyril M. Dixon, *Smallpox* (London: Churchill, 1962): 452–69. According to Dixon's data, from 1953 to 1957 there were 34 cases of smallpox and 10 deaths in England and Wales. From 1951–1958 there were 243 serious reactions, including 42 deaths, attributed to vaccine.