Earlier this year, I visited the University of Bergen to give a lecture, and found that the department where I was speaking was in one of Bergen’s former leprosy hospitals. Norway is now very wealthy, so it is a shock to discover that it was one of the poorest countries in Europe until well into the twentieth century, and leprosy was endemic there. Bergen still takes pride in G.H. Armauer Hansen (1841–1912), the local physician who first identified Mycobacterium leprae, and whose name became an eponym for the disease.

Hansen’s achievements in defeating leprosy were prodigious. He began his career with detailed population research, and used it to show that leprosy was neither a hereditary disease nor due to poor living conditions alone, thus disproving two ideas that were common at the time. He then used Norway’s national leprosy register to demonstrate that isolating patients led to a decline in the incidence of the disease, suggesting that leprosy was almost certainly infectious. No-one had previously shown that a chronic disease could be caused by bacteria, but Hansen found bacilli lying within the cells of intact leprous nodules. He proposed that these were indeed the cause.

Eventually he became Norway’s chief medical officer for leprosy, promoting legislation that required the isolation of patients with leprosy, either at home or in hospitals dedicated for that purpose. These days there is controversy about the ethics and the efficacy of such a policy, but Norway’s isolation regime was a relatively humane one, with patients largely free to move around as they wished during the day. It also does seem to have contributed to a decline in incidence rates in Norway, from the time of Hansen until the last in-patient in Bergen with leprosy died in the 1970s. Subsequently, the system of registering infectious diseases and the establishment of isolation hospitals served as models throughout the world.

Two difficult episodes stand out in Hansen’s life. The first arose from his caution as a scientist, the second from incaution. In 1875, he described his discovery of ‘staff-like bodies’ in leprous specimens, but he did so in tentative and somewhat convoluted terms. ‘Though unable to discover any difference between these bodies and true bacteria’, he wrote, ‘I will not venture to declare them to be actually identical’. Four years after publishing this description, Hansen received a visit from Albert Neisser, a pupil of Koch. Together they tried to stain the bacilli to make them more visible, but failed. Neisser then took some of Hansen’s material back home to Germany, where he succeeded in staining M. leprae and claimed precedence as its true discoverer. An unseemly and nationalistic public controversy followed. In time, Hansen’s role was acknowledged, while Neisser lent his name to an even less glamorous bacterium. But the fight took its toll on Hansen.

The second episode took place soon afterwards. Hansen knew that the best way to prove conclusively that M. leprae was really the cause of leprosy was to induce the disease in other mammals by inoculating them with leprous material. This proved to be notoriously difficult. (Indeed, it was only achieved in 1960.) Hansen’s own father-in-law, D.C. Daniellsen, had previously injected leprous nodules into himself, members of his medical staff and patients with other diseases, in order to see what would happen, but with no result. Hansen too injected himself, and made several attempts to inoculate it into human volunteers and rabbits as well. Eventually, after an exchange of letters with Koch, he decided to take tissue from a patient with lepromatous leprosy and inject it into the skin and conjunctivae of two patients with tuberculoid leprosy to see if the different variant of the disease would appear in them.

Nothing serious happened to the patients. However, Hansen was arraigned on a criminal charge of having carried out an operation on one of them without her consent, causing her ‘much anxiety and not inconsiderable pain.’
There was a debate about whether the case should proceed, presumably because Hansen was already a physician of considerable distinction. Nevertheless, the trial took place. In 1880, Hansen was sentenced to lose his hospital post, while being allowed to remain in his role as chief medical officer. He continued his experiments, but only on animals. He did not mention the trial or sentence in his memoirs.

A century and a half later, it is hard to know how harshly to judge Hansen. Looked at in historical terms, he had a precedent for what he did, a credible and humane underlying motive, and possibly the encouragement of the greatest bacteriologist of his time. His crime certainly looks petty by the standards of the twentieth century, when physicians undertook experimentation on psychiatric patients, prisoners and ethnic minorities on a far more horrific scale. Yet at the time, his own countrymen saw him as culpable for what he did. Historians have sustained that verdict since then, by examining the standards of consent that were already current in his home country at the time. Norway seems to have provided the world with a model of medical ethics, as well as public health.

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References