



MAY 14, 1796

AS A CHILD IN GLOUCESTERSHIRE, ENGLAND IN the 1760s, Edward Jenner, creator of the first widely used vaccine, overheard a dairy maid say, “I shall never have smallpox because I have had cowpox. I shall never have an ugly pockmarked face.”

Smallpox had been a scourge for all of recorded history. No treatment was ever developed. For infants, it was nearly always fatal. Upwards of 20 percent of sickened adults died. Each year in 18th century Europe, the disease killed an estimated 400,000. Those who lived bore scars and a third were left blind.

But survivors never got sick from it again. Even a mild case could grant immunity. Various cultures seized on this and found crude ways to induce mild infection, using material from the sores of smallpox victims. In China, scabs were ground to a powder and inhaled. In Africa, they were bandaged into a cut on the skin. In Turkey, small scratches were touched with needle tips carrying droplets from the sores.

The round sores gave the disease its Latin name, “variola” or “spots,” so inoculation was termed “variolation.” It wasn’t foolproof, but it typically didn’t leave scars and far fewer people died. Variolation was

Mothers have their babies vaccinated in this 19th century painting. As many as 90 percent of infants who contracted smallpox died. For everyone else, death rates ranged from 20 to 60 percent.

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widely used first in Africa, India and China. Slaves kidnapped from Africa introduced it to the Americas. English society saw it being used in Turkey in the mid-18th century and brought it home.

Jenner himself had been variolated at age 8, a few years before he overheard the dairy maid’s remark. When he later became a village doctor, he saw the young woman’s bold claim borne out: An infection of the mild disease of cowpox left people immune to smallpox. On May 14, 1796, he injected a boy with the cowpox virus. Later the boy was variolated and showed no symptom of smallpox—he was immune. Jenner called it “vaccination,” from the Latin for cowpox, “variola vaccinia” (from “vacca” or “cow”).

Jenner’s invention eventually made smallpox the first disease to be eradicated, in 1977. Meanwhile, vaccine science has turned polio, diphtheria, tetanus, measles, flu and a score of other diseases into largely historic threats.

All of which brings us to today, to this moment, when a widely available vaccine to defeat COVID-19 is the hoped breakthrough for which nearly all the world is holding its breath. ♦