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Paul Strand (1890-1976)

Boy, Uruapan, 1933

IN THE EARLY 1930S, AMERICAN PHOTOGRAPHER Paul Strand spent several summers in Mexico, gathering images of men and women who worked the rough land and of their children. He found the young *niño* on this month's cover of the *Archives* in the south central Mexican town of Uruapan. Yet, the boy who posed for Strand's photographic portrait might never have lived at all had it not been for a bold humanitarian mission a century earlier in which 22 children about his age had played a vital role.

Besides superior arms and military tactics, the Spanish conquistadores and their followers brought to the New World a host of infectious diseases that decimated the native population. For the next 3 centuries, smallpox epidemics recurred in the Spanish colonies about every 15 to 20 years, often wiping out half the population of affected areas. Finally, in 1798, British physician Edward Jenner, FRS, showed that vaccination with cowpox virus could confer immunity to smallpox. Immunization against smallpox soon spread through Europe. Unfortunately, native cowpox could not be found in the Americas and attempts to transport the virus in vitro across the Atlantic Ocean without refrigeration failed repeatedly.

In 1803, King Carlos IV of Spain commissioned the Royal Maritime Vaccination Expedition to combat the scourge of smallpox in the Spanish colonies.¹ The most important passengers aboard the expedition vessel *Maria Pita* were 22 nonimmune boys, aged 3 to 9 years, from a foundling home in Santiago de Compostela. The full or partial names of all but 1 of them were recorded:

- Vicente Ferrer, aged 7 years
- Juan Francisco, aged 9 years
- Jose Jorge Nicolás de los Dolores, aged 3 years
- Clemente, aged 6 years
- Domingo Naya, aged 6 years
- Vicente Maria Sale y Vellido, aged 3 years
- Gerónimo Maria, aged 7 years
- Pascual Aniceto, aged 3 years
- Tomás Metiton, aged 3 years
- Antonio Veredia, aged 7 years
- Manuel Maria, aged 6 years
- Andrés Naya, aged 8 years
- Cándido, aged 7 years
- Jacinto, aged 6 years
- Martín, aged 3 years
- Juan Antonio, aged 5 years
- Francisco Antonio, aged 9 years
- José Manuel Maria, aged 6 years
- José, aged 3 years
- Francisco Florencio, aged 5 years
- Benito Vélez, age unknown

Two of the boys were vaccinated just before departure. Then, when vesicles at their inoculation sites matured 9 to 10 days later at sea, lymph from those vesicles was used to vaccinate another 2 boys, beginning a new cycle. Thus, these boys formed a chain of children transporting live cowpox virus across the Atlantic, with a new link added every 9 to 10 days.

There were risks with this plan. A vaccinated boy could scratch at the itchy inoculation site, destroying the vesicles. Accidental contact between a vaccinated boy and a susceptible boy could result in premature transmission. To guard against these possibilities, 3 male nurses accompanied the boys and kept them under close watch day and night. Still, to be safe, 2 boys were vaccinated at each cycle in case something went wrong with 1 of them.

The *Maria Pita* left Spain on November 30, 1803. She made intermediate stops in Tenerife and Puerto Rico before arriving at last in Venezuela on March 20, 1804, just as the last boy's vesicles were ripe with virus. Twenty-eight Venezuelan children were vaccinated immediately. When they developed the desired immune reaction, the mission's main goal was achieved. Before departing, the expedition staff organized and trained a local vaccination board to perpetuate the vaccine and arrange for its orderly dissemination. Eventually, expedition staff vaccinated tens of thousands of people and set up vaccination boards in several cities in central and northern South America.

The 22 Spanish boys disembarked at Veracruz, Mexico, and then proceeded inland to Mexico City. King Carlos IV had promised that the royal treasury would cover their maintenance and education until they were old enough to support themselves. At first they were housed at a public hospital, then at a new boarding school. (Their teachers complained about the difficulty of breaking their use of profanity, which they had picked up from the sailors.) By 1808, 2 of the boys had died and 4 were still at the boarding school, but the other 16 had all been placed in private homes, including 1 with a physician. And so they became Mexicans.

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1. Smith MM. The "Real Expedición Marítima de la Vacuna" in New Spain and Guatemala. *Trans Am Philosoph Soc.* 1974;64:1-74.