



Dr. Henry writes about "You Were There"

Do you remember the popular TV show of the 1960s entitled "You Are There" narrated by Walter Cronkite? The show would typically allow the viewer to be an eyewitness to a significant time in history. Let me take you back to March 1954. Summer Polio epidemics had been spreading fear and terror across America and much of the world for several decades. In 1952, only two years previous, a record 60,000 cases of polio had been reported in the USA. Another summer was approaching, but finally, as reported in the news, there was hope for a successful vaccine. Much of the hope ironically depended on monkeys.

The Rhesus monkey (weight 4 to 8 lb.) was in great demand. A world monkey hunt was underway. In northern India, Moslem trappers went about catching live monkeys. Hindu believers would not participate in this hunt because of religious convictions. Once captured, the monkeys would be carried in bamboo cages on shoulder poles to the nearest railway station and from there to New Delhi. After some health screening, 1000 monkeys would be flown 4000 miles to London. From London, these monkeys would fly the 3000 miles to New York's Idlewild Airport. From New York, these same monkeys would travel by trucks to Okatie Farms, South Carolina. Monkeys from the Philippines were also brought to Okatie Farms. An average of 5000 monkeys per month passed through Okatie Farms. Even so, the demand for monkeys exceeded the supply. After more health screening these monkeys were dispersed to four laboratories in Toronto, Pittsburgh, Detroit, and Berkeley. What happened to these monkeys? If you love monkeys, skip the next paragraph.

The monkeys were anesthetized and their kidneys were removed. The monkeys were then sacrificed with medication. The kidneys were sliced up, placed in a viable solution and rocked gently in an incubator for about six days. This process promoted monkey kidney cell growth.

One cubic centimeter of a fluid containing live polio virus was introduced into each quart of kidney cell tissue fluid. This solution was gently rocked for four days in which time the polio virus multiplied a thousand fold. Now the polio virus was ready for harvest. The resultant virus laden solution was chilled and carefully placed in 2.5 gallon containers and shipped to pharmaceutical laboratories for vaccine production.

Five American pharmaceutical companies agreed to produce the vaccine on a non profit basis. Those companies were Parke, Davis and Co. in Detroit, Pitman-Moore and Eli Lilly and Co. in Indianapolis, Wyeth Inc. in Philadelphia, and Cutter Laboratory in Berkeley California. When these companies received the 2.5 gallon containers of live virus, the solution was filtered to eliminate the kidney cells and combined into 12.5 gallon lots stored in steel tanks. A diluted formaldehyde solution was added to the tanks to kill the polio virus and the killed virus vaccine was the final product. Before the resultant vaccine was injected into humans, the vaccine was injected into monkeys, guinea pigs, rabbits, and mice to determine safety in mammals. All three strains of killed polio virus were contained in the vaccine. Each vaccine injection was only one cubic centimeter.

A major breakthrough in the quest to find an effective vaccine occurred in 1949 when Harvard virologist Dr. John F. Enders reported in Science journal that the polio virus could be cultured in non nervous tissue (monkey kidney cells). As a result, a great demand for monkey kidney cells occurred. This was the impetus that determined Dr. Jonas Salk needed.

Salk was born in Manhattan in 1914. He graduated from a public high school at the age of 16 and finished the College of the City of New York at age 19. He graduated from NYU Medical School, did his internship in Manhattan and immediately entered the field of medical research. He initially worked at the University of Michigan Medical Center and came to the University of Pittsburgh in 1947. It was at Pittsburgh that Salk directed his energies in his deliberate, organized style to develop a vaccine to prevent polio.

Also, in 1949, Dr. David Bodian and Dr. Howard Howe at John Hopkins Medical Center in Baltimore had concluded that all known strains of polio virus belonged to three types. Thus, any vaccine developed would have to grant protection for all three types of polio.

By March of 1954, Salk had already vaccinated 5000 first, second, and third graders in Pittsburgh. Eighty to ninety-five per cent of parents had consented to the experimental vaccine despite reservations expressed by health officials. Results indicated that a polio antibody response had occurred in these children.

Statistical predictions in 1954 indicated that among one million children, 700 would contract polio, 483 would recover without paralysis, 175 would have some permanent paralysis, and 42 would die. In 1954, twenty-two per cent of polio victims were over age twenty. Under age twenty, more boys were infected more than girls, but over age twenty, more women were infected than men.

Countless parents and polio caretakers now had some real hope that victory over polio was possible. Eighty-one million of the three billion dimes donated to the March of Dimes had been appropriated to Salk and his colleagues for his promising research. This large financial investment seemed on the brink of a major positive return.

Here was the plan to determine if the vaccine was really effective: Dr. Thomas Francis at the University of Michigan was selected by the National Foundation for Infantile Paralysis to do a large scale double blind study on the Salk vaccine. In a one month period, 500,000 to 1,000,000 first, second, and third graders would receive the Salk vaccine in 200 chosen test areas, beginning in the warmer Southern USA and moving to the North. One half of these children would be given the Salk vaccine and one half would be given a placebo injection. From ten per cent of the children involved, blood samples would be taken to determine what percentage already had a natural immunity for polio. One year later, the double blind would be broken and the verdict on the new vaccine would be known. The National Foundation was taking a major gamble on this study. What would the results be in one year? You were there. You know what happened on April 12, 1955.

Forty-five years have passed since March 1954. The natural live polio virus has been greatly reduced around the world. Thanks be to God for the courage and determination of the human spirit.

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Reference: Time Magazine, March 29, 1954, "Polio Fighter Salk, Is This the Year?" pages 56 - 66. (25 cents)

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