

Dr. Alex Kanarek, PhD

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“As a young man, Alex lived in the United Kingdom and played a significant role in the eradication of the polio virus. Alex earned his PhD in Virology from the University of Cambridge. In 1954, at the age of 24, he was hired by the Burroughs Wellcome company to develop an effective and efficient method of mass producing the polio vaccine.” (1)(3)

“Sixty years after he helped mass produce the polio vaccine in England, a Rockwood, Ont. man is celebrating news from the World Health Organization that the disease could soon be a thing of the past.” (2)

In February, 2018, Alex Kanarek “came across a WHO statement that said we are ‘closer to polio eradication than ever before.’” As a result, he wrote the following message:

“The WHO announced that polio is (soon to be) eradicated from the world, just like smallpox. Why it means a lot to me is that in 1958, the British government started vaccinations against polio with vaccine manufactured by two British companies, Glaxo and Burroughs Wellcome. I was a member of the Wellcome team that developed and produced that vaccine.

That year I moved into a brand new laboratory to take charge of the chemical processing that ensured that the polio viruses were completely killed and made safe for the vaccine. For me, that was the most important job I had in the whole of my career. We changed over to the sugar-lump live vaccine in 1961, but in those three years I made enough vaccine to prevent polio in about 3 million kids. Nothing I have done since can match that in terms of my direct effect on children's health.” (4)

Kanarek's story began in 1954, when he was hired by Burroughs Wellcome to find a way to produce enough polio vaccine to vaccinate all the children in the United Kingdom.

American medical researcher Jonas Salk had just announced that his vaccine against polio worked, but no one knew how to make the vaccine on a large scale. It soon became obvious that the methods that we were using were not going to be adequate,” Kanarek told CBC News. “Until then, people had been working with test tubes and little bottles, you see what I mean? We were now talking about 100 litres (26+ gallon) tanks.”

What needed to happen, Kanarek said, is that the process of manufacturing vaccines needed to be industrialized, and it fell to him and his small team of scientists and technicians to sort out what that would look like. “We were learning on the job,” he said. “Every day we had another problem to solve, and that was the exciting part.” (2)

“The live polio virus used for the vaccine came from Connaught Laboratories in Toronto, Kanarek said, and while that formula was shared with British laboratories, scientists were left on their own to develop the actual vaccine. ‘There was a lot of trade secrets in it,’ Kanarek said. He was hired by Burroughs, Wellcome Laboratory and got to work with two other scientists and six laboratory assistants to develop a safe and effective inactivated vaccine.

‘We split the job into three parts,’ Kanarek said. ‘Grow the virus, process it to make vaccine and test it.’ He was in charge of processing the vaccine.

‘What I had to do was take ... (a blood bottle), I had hundreds of these, and I would put 500 ml of virus in a bottle, I would add chemicals, I would warm it up and I would take samples to see how ... the virus was being killed and we would test those samples for live virus, residual virus and we would test them when they were all gone for how it would immunize,’ he said. It took three years before the three scientists found a vaccine that would produce the antibodies that would kill the polio virus.

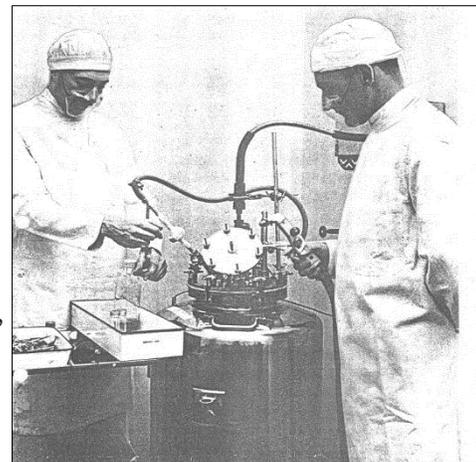
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In the end, Kanarek helped to design a three-story building on the Burroughs Wellcome campus in Beckenham, just south of London, where the polio vaccine was produced.

When the building opened in 1958, a local newspaper ran this photo of Kanarek and one of his technicians standing beside one of the stainless-steel mixing tanks he designed.

When the reporters left the building, Kanarek said the real work began. They closed the doors, fired up the system and started producing the vaccine.” (3)

“In those tanks I processed 138 lots successfully of polio virus, he said.” “138 lots were grown and ... purified, inactivated and used to make vaccine. Out of that we made three million doses of vaccine.”



Kanarek said there were two elements the scientists needed to be sure of when creating the vaccine. “One, that we had finally killed the stuff and secondly, that it was still capable of producing immunity in children.” “He said that they had a process that worked for killing polio, so as long as the conditions were consistent the virus would always be killed. ‘Then came the critical thing, which was the testing,’ he said.

We had trials in Britain and in Northern Ireland and I suppose the really gratifying part was the results of the trials came back and the kids had antibodies. And then the government gave us the license to manufacture.”

Kanarek said they produced 3 million doses of polio vaccine over the next three or four years - 3 million doses that protected children from a deadly disease. "That was a wonderful achievement, not just for me, of course, but for the whole team that did that job," he said. (2)

But then, in 1961, another American researcher - Albert Sabin - created a new vaccine, one that was much easier to produce and administer. Burroughs Wellcome phased out its production of the Salk vaccine and started producing the new Sabin one instead.

Kanarek was still working for the company, but had moved on to other viruses and vaccines. So, when he thinks about polio, it's the early days that he remembers.

"What I remember most is that we were young, we were so enthusiastic," he said. "We were right at the beginning of this enormous achievement, which now – 60+ years later - it's just something everybody expects.

"We have vaccines against all these different virus diseases and they work and they're safe, but back then we were right at the beginning of it and that was very exciting.“ (2)

Sources:

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3. <https://www.wellingtonadvertiser.com/rockwood-man-had-lead-role-in-development-of-polio-vaccine-in-england-60-years-ago/>
4. Alex Kararek, February 2018