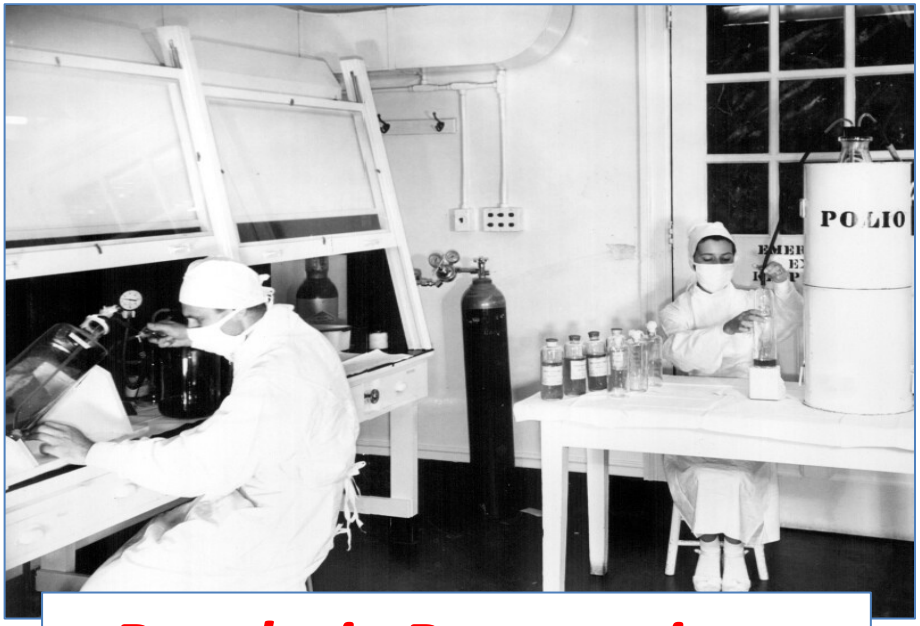


Paralytic Perspectives:
Canada, The Polio Years & COVID-19 Connections

By Christopher J. Rutty, Ph.D.
Professional Medical/Public Health Historian
Health Heritage Research Services
http://healthheritageresearch.com
& Adjunct Professor,
Dalla Lana School of Public Health,
University of Toronto

March of Dimes Canada, Polio Virtual Support Group
Via ZOOM, July 29, 2020

Survivors who missed out on polio vaccine hope for breakthrough against COVID-19

Young girls are shown in the Polio girls' ward at Sick Kids Hospital in a 1937 handout photo in Toronto. The mystery illness that paralyzed and killed mostly children across Canada came in waves that built for nearly four decades before a vaccine introduced in 1955 put an end to the suffering. That was too late for 14-year-old Miki Boleen who contracted polio for a second time in 1953, perplexing doctors who believed "the crippler" could not strike the same patient twice. Boleen, now 80, is hoping for a vaccine for COVID-19 as she reflects on the fear that spread with outbreaks of polio. *HO / THE CANADIAN PRESS*

Linking the Polio Years to COVID-19 Pandemic & Beyond

- As the COVID-19 pandemic has grown, I've been asked by various media organizations to provide some historical perspectives
- Initial interest in comparing the great 1918 "Spanish" influenza pandemic with COVID-19
- But, as I'll highlight here, the closer comparison is with the polio epidemic years of the 1910s through 1950s, particularly in Canada

CORONAVIRUS | News

Looking back at Canada's polio epidemic through a COVID-19 lens

Alexandra Mae Jones CTVNews.ca writer
@AlexandraMaeJ | Contact

Published Friday, April 17, 2020 10:12PM EDT

Preparing poliovirus fluids in "Medium 199," Connaught Laboratories, 1953-54. (Sanofi Pasteur Canada / Museum of Healthcare)

SHARE 2K

TORONTO -- As COVID-19 spreads across the world, causing shutdowns, economic strife and widespread fear, many are looking back at how Canada handled a similar crisis: waves of polio outbreaks that peaked in the mid-20th century.

Although polio is significantly different from the novel coronavirus, some of the similarities between the two outbreaks, especially when looking at the height of the polio issue in Canada, are striking.

Polio was thought to only affect a specific age group at first, but then spread to infect patients of all ages.

LIVE COVERAGE
CTV NEWS.CA
WATCH LIVE UPDATES

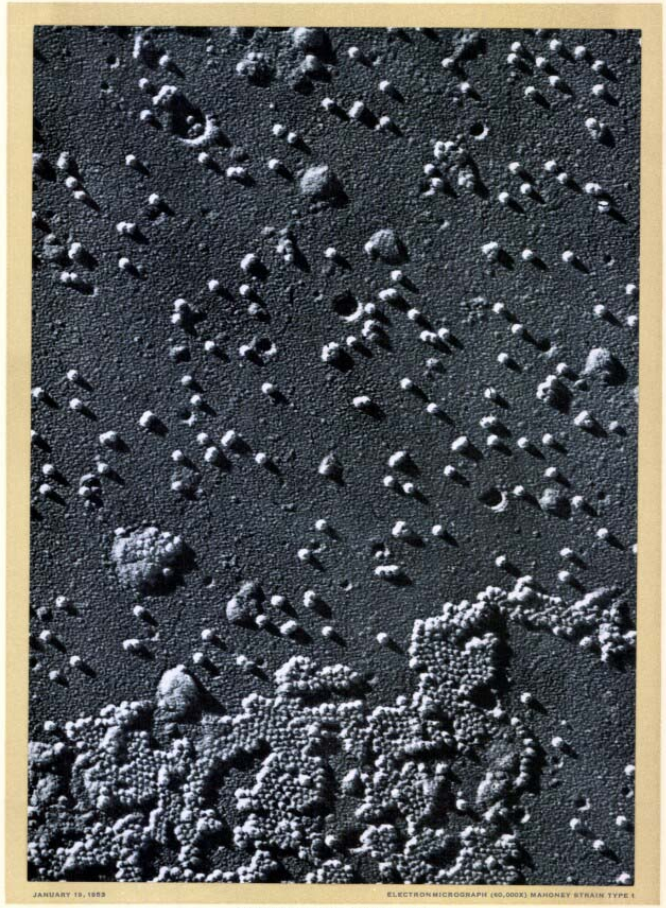
COMING UP on July 22
11:30 a.m. ET: Ont. NDP Leader Horwath speaks
2:00 p.m. ET: Toronto health officials give COVID-19 update
3:30 p.m. ET: B.C. announces new child care spaces

CTV News' 24-hour news channels, CTV News Channel and CP24, are now available for a limited time through participating TV service providers.
CTV News is also making our live local newscasts widely available online for a limited time.

- There are also close echoes between the polio vaccine development story and the urgent efforts to develop COVID-19 vaccines

Polio: “The Middle-Class Plague”

- Polio caused by one of the smallest known viruses that can damage the motor-neurons in the spinal cord, leading to muscle weakness or paralysis
- No two cases of paralytic polio alike; virus could cause weakness/ paralysis of a finger, to a leg, arms, or chest muscles (requiring an “iron lung”)
- Polio’s clinical variability a common feature with COVID-19
- Prior to late 19th century the poliovirus was endemic, primarily spreading oral-fecally and infecting almost all very young children with a harmless & immunizing gastro-intestinal ‘flu-like illness



Sanofi Pasteur Canada Archives

Polio: "The Middle-Class Plague"

- As public health/ hygiene standards improved, exposure to the poliovirus became increasingly delayed and less universal, or endemic

- Over time, more children, and increasingly older age groups, thus grew vulnerable to paralytic infection if the virus was able to invade the nervous system; "infantile paralysis" common name of disease

- Polio outbreaks and epidemics increased until polio vaccines were available; the middle class was particularly vulnerable

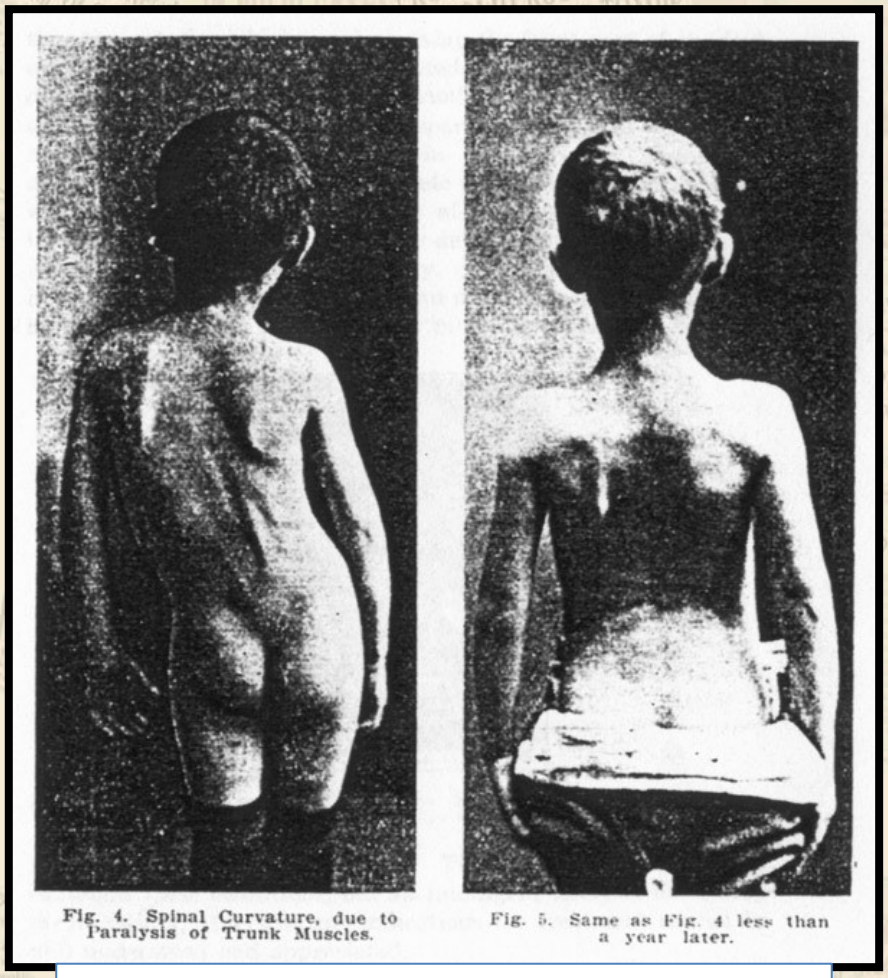


Fig. 4. Spinal Curvature, due to Paralysis of Trunk Muscles.

Fig. 5. Same as Fig. 4 less than a year later.

Canadian Journal of Medicine & Surgery, Jan 1911, p. 9

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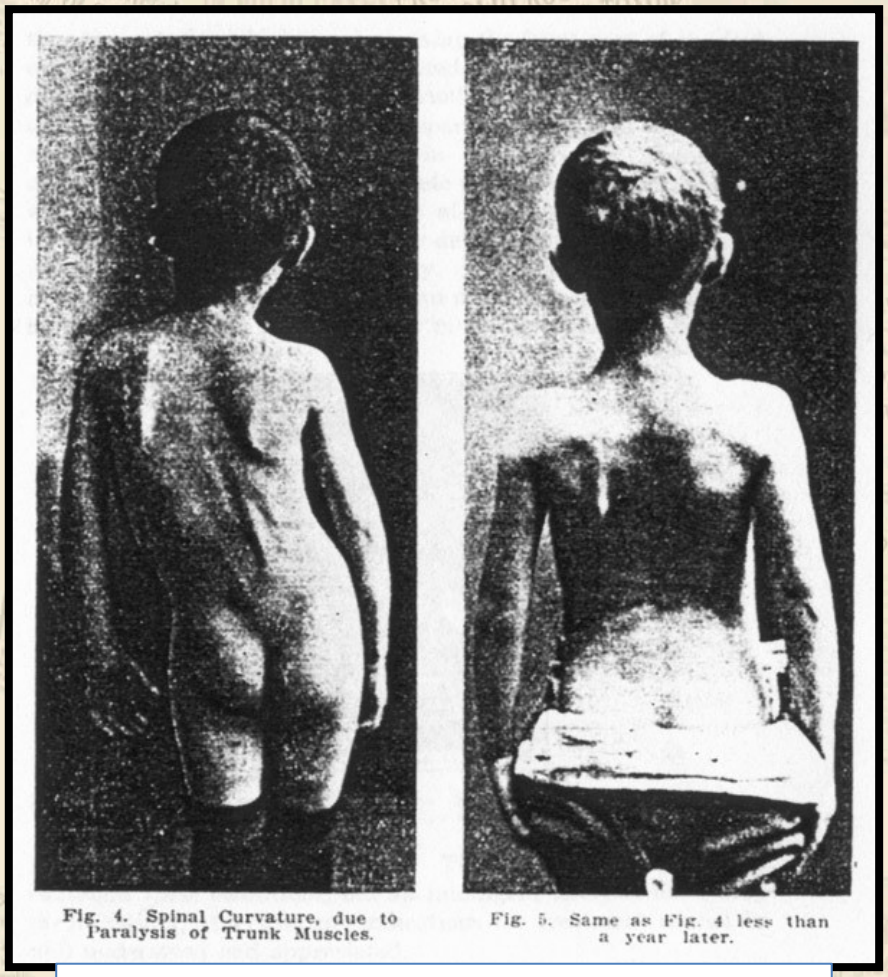


Fig. 4. Spinal Curvature, due to Paralysis of Trunk Muscles.

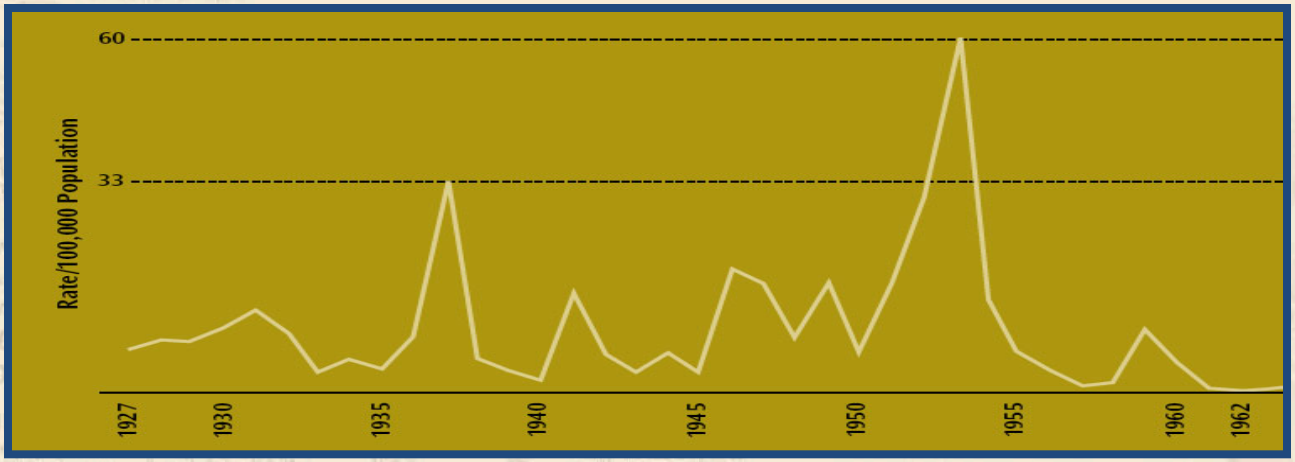
Fig. 5. Same as Fig. 4 less than a year later.

Canadian Journal of Medicine & Surgery, Jan 1911, p. 9

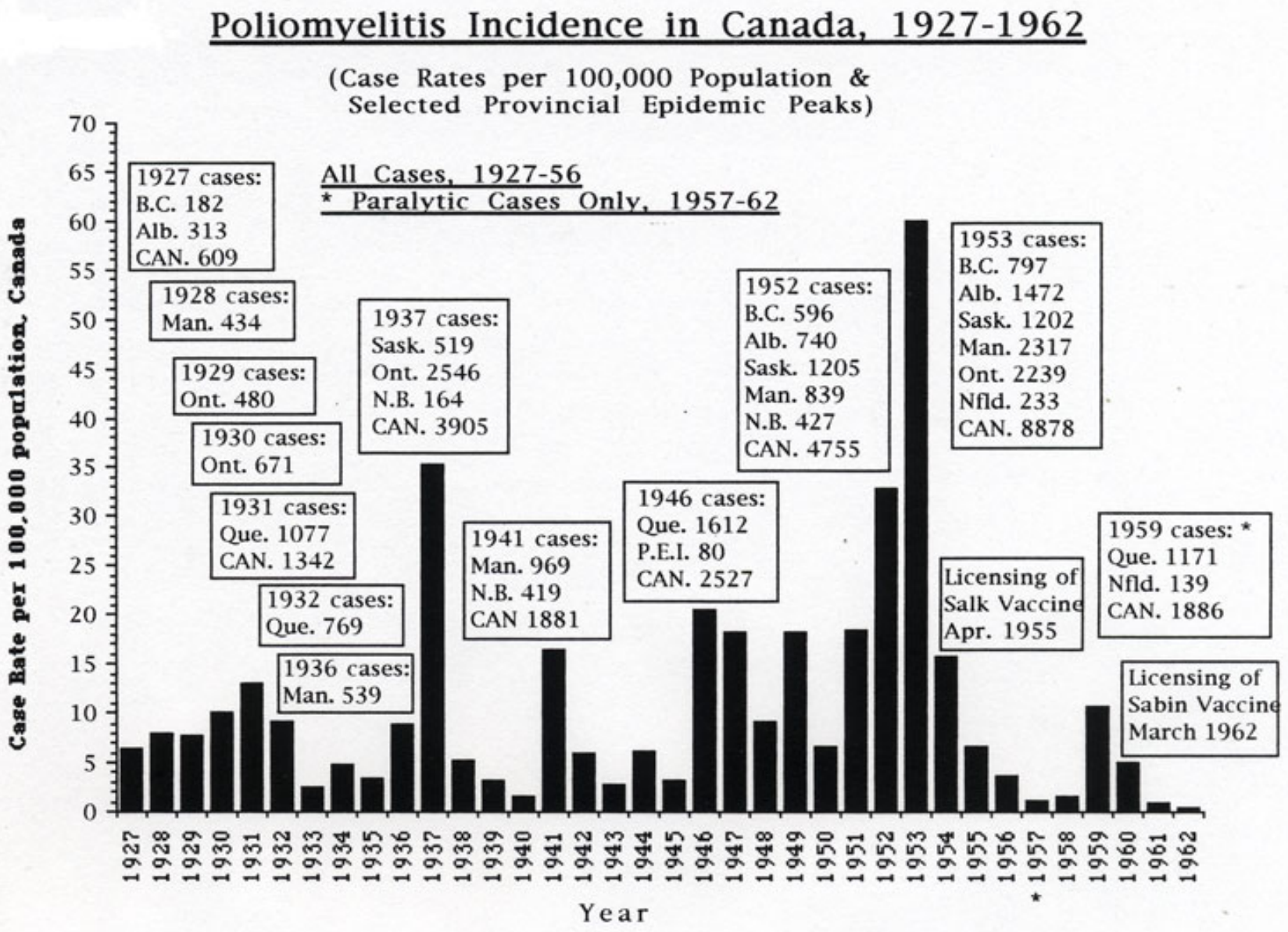
- The global experience with the COVID-19 pandemic over the past 6 months echoes a variety of the public health and clinical challenges of polio that unfolded, particularly in Canada, over some 50 years of worsening epidemics

Polio: “The Middle-Class Plague”

- Canada was among the nations hardest hit by major polio epidemics
- Some 50,000 Canadians, mostly children, were affected by paralytic polio between 1927 and 1962
- Canada suffered through 4 major epidemic waves which resulted in 4,000 deaths



Rutty, C.J., *Poliomyelitis in Canada, 1927-1962,* Ph.D. Thesis, University of Toronto, 1995), p. 395



Polio: The New Epidemic

- **1860s-80s** – First reports of "infantile paralysis" outbreaks in Europe; not clear if disease contagious
- **1874** – "Poliomyelitis" scientific name given (inflammation of grey matter in spinal cord)
- **1880s-90s** – First polio outbreaks in North America
- **1908** – Isolation of poliovirus in laboratory monkeys

Journal of Experimental Medicine, March 1910

EXPERIMENTAL EPIDEMIC POLIOMYELITIS IN MONKEYS.[1]

By SIMON FLEXNER and PAUL A. LEWIS.

(*From the Laboratories of the Rockefeller Institute for Medical Research, New York.*)

PLATES XVIII AND XIX.

INTRODUCTION.

Epidemic poliomyelitis has become, in the past decade, a world-wide disease. The present state of our knowledge of the epidemic spread of poliomyelitis, up to the outbreaks in Europe and America since 1907, is well given in Wickman's[2] monograph. That epidemic poliomyelitis is an infectious disease is clearly pointed out by Medin,[3] although, at an earlier date, Cordier[4] gave it as his belief that it is a contagious disease. The most convincing evidence of the contagiousness of epidemic poliomyelitis is supplied by Wickman's[5] studies of several Swedish epidemics.

Up to the present time there has existed no convincing knowledge of the nature of the agent causing epidemic poliomyelitis. Various bacteria and especially certain cocci[6] have from time to time been isolated in cultures from fluids obtained by lumbar puncture from patients suffering from epidemic poliomyelitis, or from specimens of the central nervous system removed at autopsy. These bacteria did not conform to one species or group of microörganisms and did not suffice to set up poliomyelitis in animals. They can be accounted for more satisfactorily as contaminations or secondarily invading bacteria than as the cause of the disease.

[1] Received for publication January 3, 1910.

[2] Wickman, Beiträge zur Kenntniss der Heine-Medinschen Krankheit, Berlin, 1907.

[3] Medin, Verhand. des x Internat. Med. Congresses, Berlin, 1890, ii, 37.

[4] Cordier, cited by Medin, *Lyon médical*, 1888, lvii, 5, 48.

[5] Wickman, *op. cit.*

[6] Geirsvold, *Norsk Magazin f. Laegevid*, 1905, iii, 1280 (cited by Harbitz and Scheel).

Polio: The New Epidemic

- **Aug 1910** –the first widespread appearance in Canada of the "strange" and often deadly "new disease" of "infantile paralysis" sparked a wave of public and medical concern

- Initially concentrated in the Hamilton area, the outbreak began with a young girl originally thought to be suffering from rabies, who then died, however "poliomyelitis" proved to be the cause of death

Toronto Star, Aug 17, 1910, p. 1

CHILDREN ARE ATTACKED BY STRANGE EPIDEMIC

Twenty Cases of Fever and Infantile Paralysis—Once Swept Over the States.

Special to The Star.

Hamilton, Ont., Aug. 17.—An epidemic of poliomyelitis, or infantile paralysis, a comparatively new disease, which is attracting much interest among medical men the world over, has broken out here.

A score of cases have been reported to the Health Department, and the disease seems to be spreading. It was first noticed three or four weeks ago when a little girl, supposed to be suffering from hydrophobia, was taken to the hospital, where she died. It was later discovered she was a victim of infantile paralysis.

The disease generally begins with a high fever and then the patient is suddenly stricken with paralysis.

While most of the cases here are children under four years of age, two or three adults are victims.

Some years ago the disease swept over a portion of the States, claiming victims by the hundreds.

Polio: The New Epidemic

- While most cases were children under 4, there were several adult victims, and it was not a "new disease" at all
- Large outbreaks and epidemics of "infantile paralysis" were new, including in the U.S. and in Europe

Toronto Star, Aug 17, 1910, p. 1

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ANTERIOR POLIOMYELITIS!

INFANTILE PARALYSIS

"Act of Assembly approved May 14, 1909, provides that anyone violating the provisions of this Act, upon conviction thereof may be sentenced to pay a fine of not less than $10.00 or more than $100.00, to be paid to the use of said county, or to be imprisoned in the county jail for a period of not less than ten days or more than thirty days, or both, at the discretion of the court."

BY ORDER OF THE BOARD OF HEALTH.

_____
Health Officer.

_____
Address.

Polio: The New Epidemic

- "1910 was in a terrible sense a 'wonder year' for epidemic poliomyelitis. In that year it appeared all over the world…" as was stressed in a 1912 *Maclean's* article

- It was also clear that most polio victims were "not among the poor, or delicate," and yet its cause was very much unclear

Maclean's, Nov 1912

Paralysis: The New Epidemic

By Helen MacMurchy, M.D.

Infantile Paralysis is epidemic in some parts of Canada. The germ attacks rich as well as poor, adults as well as children. In Ontario last month half the cases were fatal. Dr. MacMurchy is able to give our readers the latest developments concerning this dread disease direct from the great specialists, having recently attended a medical congress where the question was discussed. It is now thought that the germ is carried mainly by the stable fly. Dr. MacMurchy says, Never let a fly rest on an infant.

Polio: The New Epidemic

- Charles Hodgetts, federal medical advisor, investigated the 1910 polio outbreak, his survey of physicians across the country revealing 658 cases and 46 deaths

- Ontario was hardest hit with 354 cases, half of which were fatal

Dominion of Canada:

Ontario	354
Quebec	187
British Columbia	48
Alberta	27
Manitoba	17
New Brunswick	12
Saskatchewan	6
Nova Scotia	6
Prince Edward Island	1
	658

Maclean's, Nov 1912

INFANTILE PARALYSIS.

TWO ADULTS IN TORONTO DIE FROM DISEASE.

Dr. Sheard Says It Is Not Contagious and No Danger of Epidemic Exists, but American Authorities Say Different.

Two adults are reported to have died in Toronto in about a week from what is known as infantile paralysis. Mr. Archibald Kennedy, 47 Sullivan street, a street railway motorman, was the first victim, and he lived only 34 hours after his case was regarded as serious. Mr. R. W. G. Milliken was the second. Mr. Milliken was in his office only a few days ago, and died on Wednesday. He was 29 years of age, and left a widow and one child.

Dr. J. T. Fotheringham was called in just as Mr. Kennedy died. He also saw Mr. Milliken, who was attended by Dr. Charles R. Sneath. Dr. Fotheringham has no doubt both deaths were due to infantile paralysis. He says the disease is not infectious. He says its contributing causes are exposure to heat or over-exertion. Dr. Sheard, City Medical Health Officer, says no medical authority has yet definitely stated that the disease is infectious. He is satisfied that there is no danger of an epidemic in Toronto.

There are two rather severe cases of the disease in the Hospital for Sick Children. Both are cases of children of about three years of age, but they are likely to recover. Two suspected cases of the disease are in the General Hospital.

A Washington despatch says:—Dr. Lucian Stark of Nebraska, appointed by Governor Shallenberger to investigate infantile paralysis in the eastern cities, pronounces the disease contagious, dangerous and difficult to cure, and advises isolation in every case.

"A great many physicians," says Dr. Stark, "confuse this infant disease with spinal meningitis in their diagnosis. It is even worse than meningitis. It is worse than smallpox. It is more contagious than any other plague on the earth except cholera, yellow fever or the bubonic plague. Absolute quarantine is the only method of handling the disease."

The Globe, Sept. 9, 1910, p. 9

Polio: The New Epidemic

- **Summer – Fall 1916** – The fearsome power of polio reached a level rarely surpassed, hitting the Northeastern US with a devastating fury; some 27,000 cases and 6,000 deaths were reported, with New York City bearing the brunt of the epidemic with 9,000 cases

- Amidst the crisis, protecting borders became a critical issue, starting with New York City imposing strict travel restrictions on all children under 16; they couldn't leave the city without official certification that they were "polio free"

- In Canada, the US polio epidemic crisis raised concerns that something similar could develop north of the border, especially when cases began to occur in Windsor

THE GLOBE, TORONTO, FRIDAY, JULY 14, 1916.

INFANTILE PARALYSIS ROUSES PROVINCE

Dr. McCullough Advises Prompt Precautionary Measures

WARNING BULLETIN ISSUED

Several Cases Reported From One Town in Ontario, While Others Are Suspected—Methods Suggested to Avoid an Epidemic.

INFANTILE PARALYSIS SPREADS IN STATES

Deaths and New Cases Decrease in New York, but Develop Elsewhere

(Special Despatch to The Globe.)

New York, July 7.—A decrease of deaths and new cases in this city, but a large increase in other cities and States, was reported to-day in the epidemic of infantile paralysis.

In the five boroughs twenty-two deaths and eighty-seven new verified cases were reported by the Health Department. Simultaneously, however, the State authorities reported forty-five cases in the State of New York. Similarly, the United States Government received reports of the spreading of the plague over eight States. The "plague" belt now extends as far east as Boston, as far west as Chicago, and as far south as Baltimore.

"The apparent decrease in this city as shown by to-day's figures means practically nothing," asserted Health Commissioner Haven Emerson to-night. "You must remember that there has been a great exodus of parents and children from the city. This is

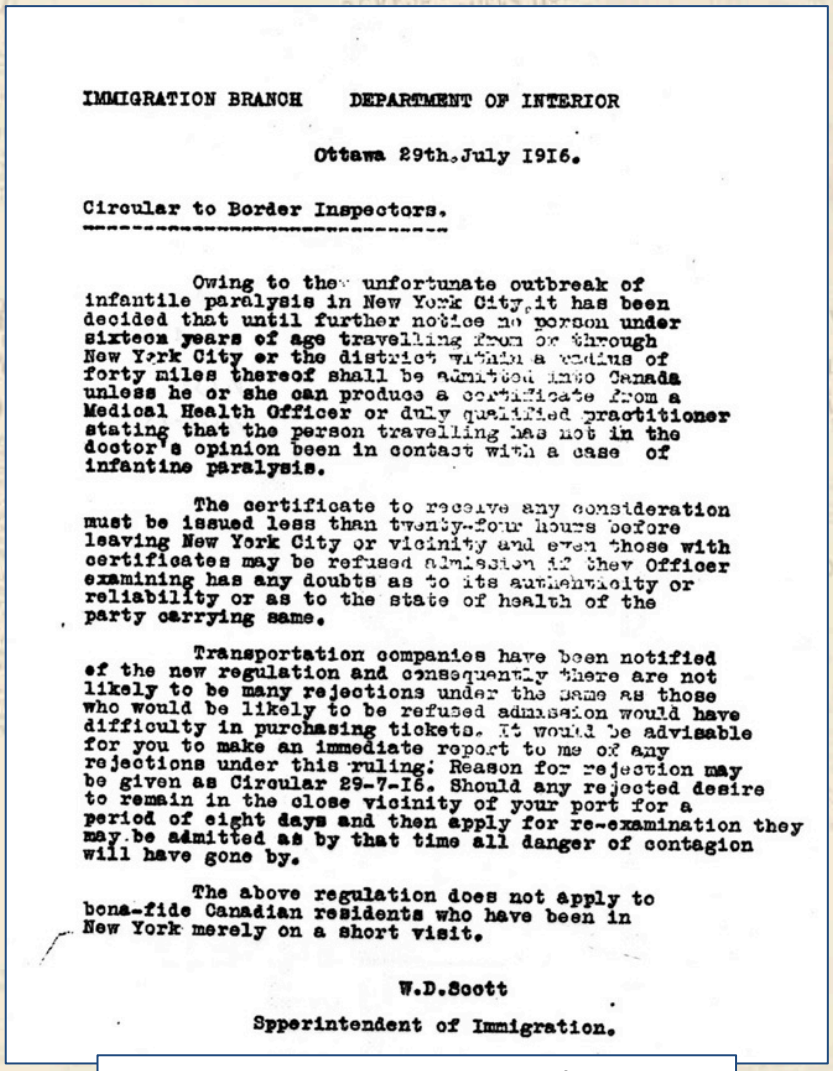
The Globe, July 8, 1916, p. 24

Polio: The New Epidemic

- **July 1916** – Federal frontier regulations required that children under 16-years-of-age had to produce a medical certificate, dated within 24 hours of departure, that they had no contact with cases of polio

- Border crossings in Nova Scotia and Kingston were also of concern, since it appeared that there were many families "fleeing the scourge" in the northeastern US and hoping to seek refuge in Canada

- **Aug-Sept 1916** – Canadian border restrictions were expanded to control the entry of anyone entering the country from or through New York, Pennsylvania, Connecticut, Rhode Island, New Jersey, Vermont and Massachusetts



IMMIGRATION BRANCH DEPARTMENT OF INTERIOR

Ottawa 29th.July 1916.

Circular to Border Inspectors.

Owing to the unfortunate outbreak of infantile paralysis in New York City,it has been decided that until further notice no person under sixteen years of age travelling from or through New York City or the district within a radius of forty miles thereof shall be admitted into Canada unless he or she can produce a certificate from a Medical Health Officer or duly qualified practitioner stating that the person travelling has not in the doctor's opinion been in contact with a case of infantine paralysis.

The certificate to receive any consideration must be issued less than twenty-four hours before leaving New York City or vicinity and even those with certificates may be refused admission if the Officer examining has any doubts as to its authenticity or reliability or as to the state of health of the party carrying same.

Transportation companies have been notified of the new regulation and consequently there are not likely to be many rejections under the same as those who would be likely to be refused admission would have difficulty in purchasing tickets. It would be advisable for you to make an immediate report to me of any rejections under this ruling. Reason for rejection may be given as Circular 29-7-16. Should any rejected desire to remain in the close vicinity of your port for a period of eight days and then apply for re-examination they may be admitted as by that time all danger of contagion will have gone by.

The above regulation does not apply to bona-fide Canadian residents who have been in New York merely on a short visit.

W.D.Scott

Spperintendent of Immigration.

Library & Archives Canada, RG29-vol300-file416-12-13

Polio: The New Epidemic

- **Late-Oct. 1916** – As the US polio epidemic seemed to be easing and New York City lifted its travel restrictions, an alarming polio outbreak began in Montreal, preventing the relaxing Canadian border restrictions

- Of further concern was the imposition by the Ontario government of a requirement of medical certificates for anyone under 16-years–of-age travelling from Quebec into Ontario, testifying to having had no exposure to polio

- **Nov. 30, 1916** – All Canadian border restrictions were lifted

GUARDING ONTARIO AGAINST PARALYSIS

Children Cannot Leave Quebec Without Permit

NOTICE TO RAILWAYS

Department of Health Takes Precautionary Measures to Avoid the Spreading of Disease — Death in Toronto.

To counteract the spread of infantile paralysis, more particularly in consequence of the outbreaks in Westmount and Montreal, the Ontario Board of Health has taken steps to prevent persons under sixteen years of age entering the Province from Quebec unless possessed of a medical certificate, dated within twenty-four hours of departure, that they are in good health and have not been exposed to the disease.

Dr. J. W. S. McCullough, Chief Officer of Health, yesterday sent the following telegram to all general transportation agents of the Canadian Pacific, Grand Trunk, Grand Trunk Pacific and Canadian Northern Railways, advising them of the new regulations being put in force against Quebec Province:

The Globe, Oct. 28, 1916, p. 5

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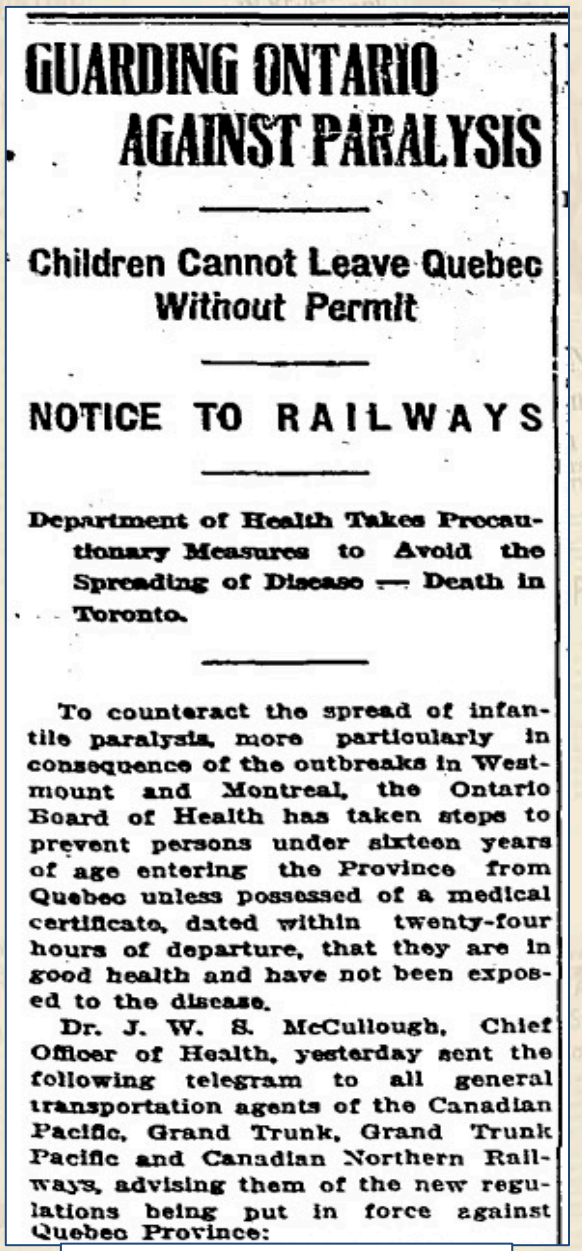
- Border restrictions/closures have very much defined the COVID-19 pandemic, but other than in 1916, polio epidemics have not affected the US-Canada border



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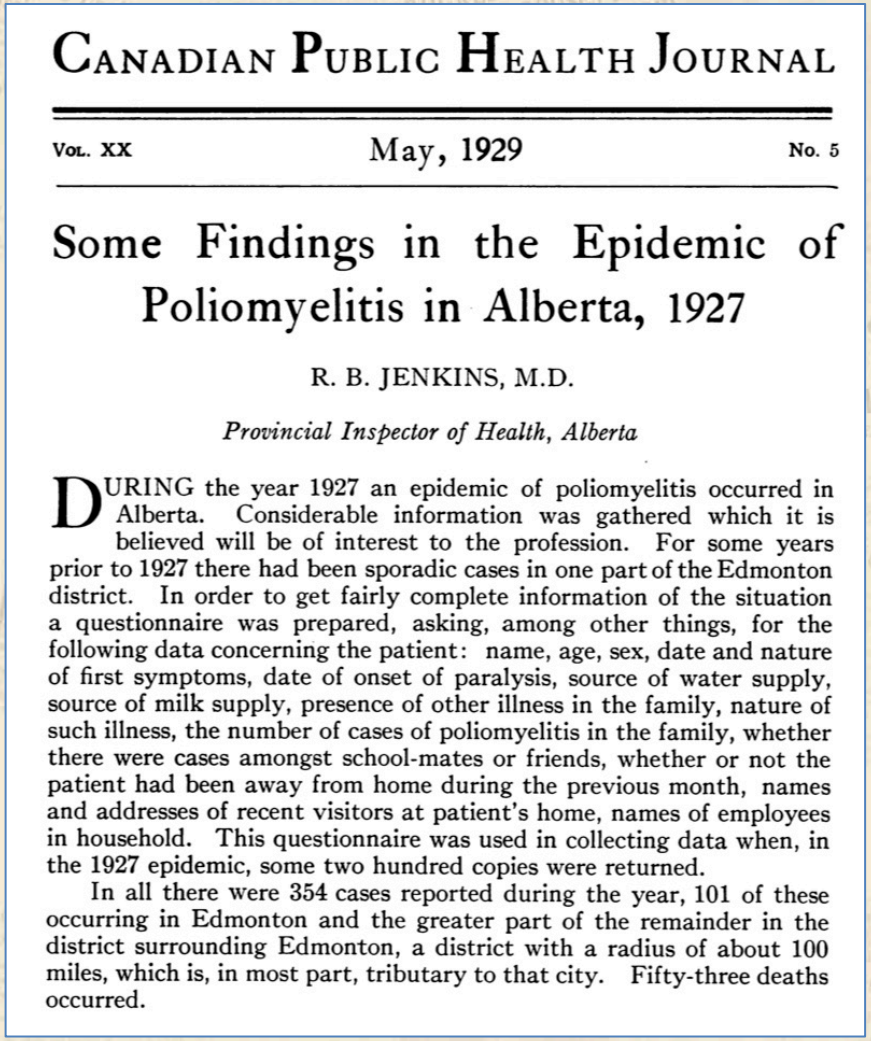
The Globe, Oct. 28, 1916, p. 5

Polio Rising, 1927-1932

- **1927-32 -** A new wave of polio outbreaks became more provincial in scale and grew in severity over the next decade as each province, almost in turn from west to east, was struck

- **1927** – British Columbia (182 cases and 37 deaths)
- **1927** - Alberta (313 cases and 65 deaths)



CANADIAN PUBLIC HEALTH JOURNAL

VOL. XX May, 1929 No. 5

Some Findings in the Epidemic of Poliomyelitis in Alberta, 1927

R. B. JENKINS, M.D.

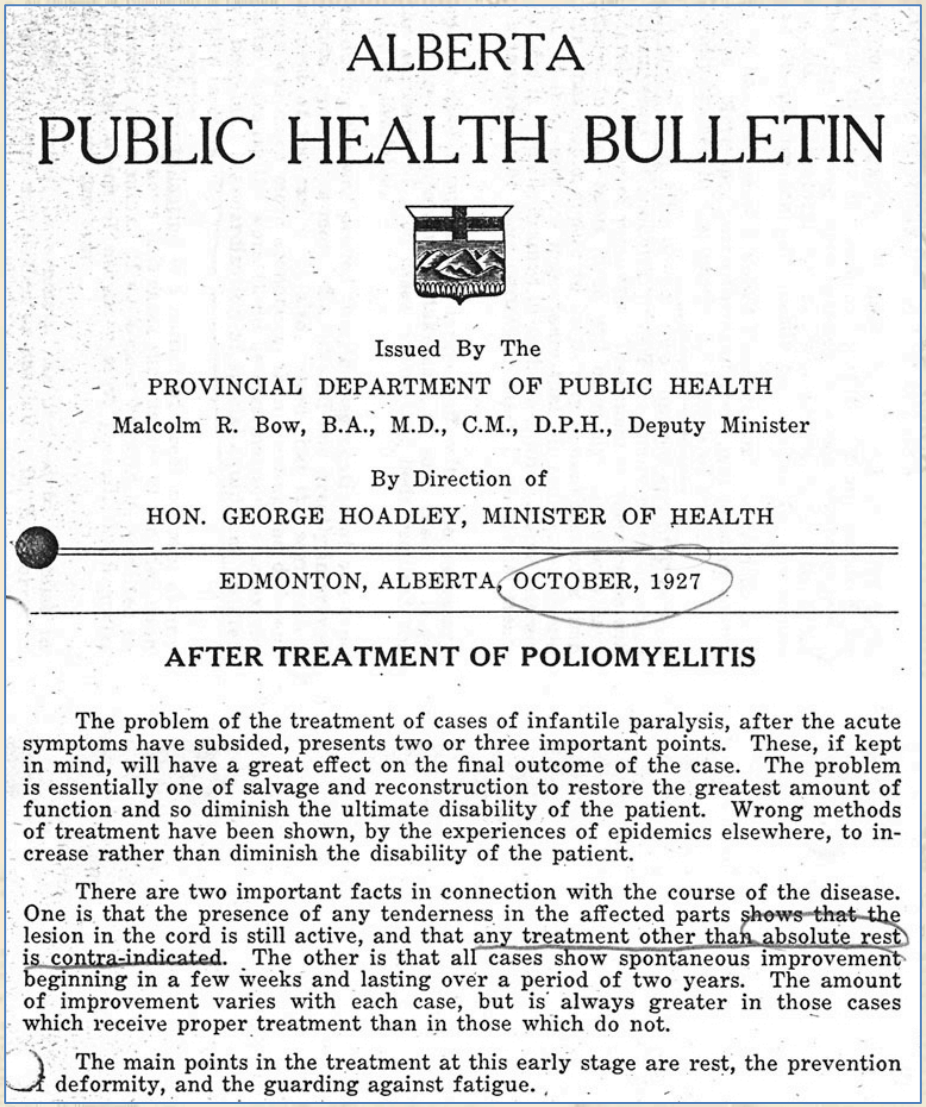
Provincial Inspector of Health, Alberta

DURING the year 1927 an epidemic of poliomyelitis occurred in Alberta. Considerable information was gathered which it is believed will be of interest to the profession. For some years prior to 1927 there had been sporadic cases in one part of the Edmonton district. In order to get fairly complete information of the situation a questionnaire was prepared, asking, among other things, for the following data concerning the patient: name, age, sex, date and nature of first symptoms, date of onset of paralysis, source of water supply, source of milk supply, presence of other illness in the family, nature of such illness, the number of cases of poliomyelitis in the family, whether there were cases amongst school-mates or friends, whether or not the patient had been away from home during the previous month, names and addresses of recent visitors at patient's home, names of employees in household. This questionnaire was used in collecting data when, in the 1927 epidemic, some two hundred copies were returned.

In all there were 354 cases reported during the year, 101 of these occurring in Edmonton and the greater part of the remainder in the district surrounding Edmonton, a district with a radius of about 100 miles, which is, in most part, tributary to that city. Fifty-three deaths occurred.

Polio Rising, 1927-1932

- While managing the acute crisis of a polio epidemic echoed that of the great influenza pandemic of 1918, with similar public health helplessness, the unique personal, economic and political challenges of paralytic polio continued long after the epidemic emergency passed



ALBERTA

PUBLIC HEALTH BULLETIN

Issued By The

PROVINCIAL DEPARTMENT OF PUBLIC HEALTH

Malcolm R. Bow, B.A., M.D., C.M., D.P.H., Deputy Minister

By Direction of

HON. GEORGE HOADLEY, MINISTER OF HEALTH

EDMONTON, ALBERTA, OCTOBER, 1927

AFTER TREATMENT OF POLIOMYELITIS

The problem of the treatment of cases of infantile paralysis, after the acute symptoms have subsided, presents two or three important points. These, if kept in mind, will have a great effect on the final outcome of the case. The problem is essentially one of salvage and reconstruction to restore the greatest amount of function and so diminish the ultimate disability of the patient. Wrong methods of treatment have been shown, by the experiences of epidemics elsewhere, to increase rather than diminish the disability of the patient.

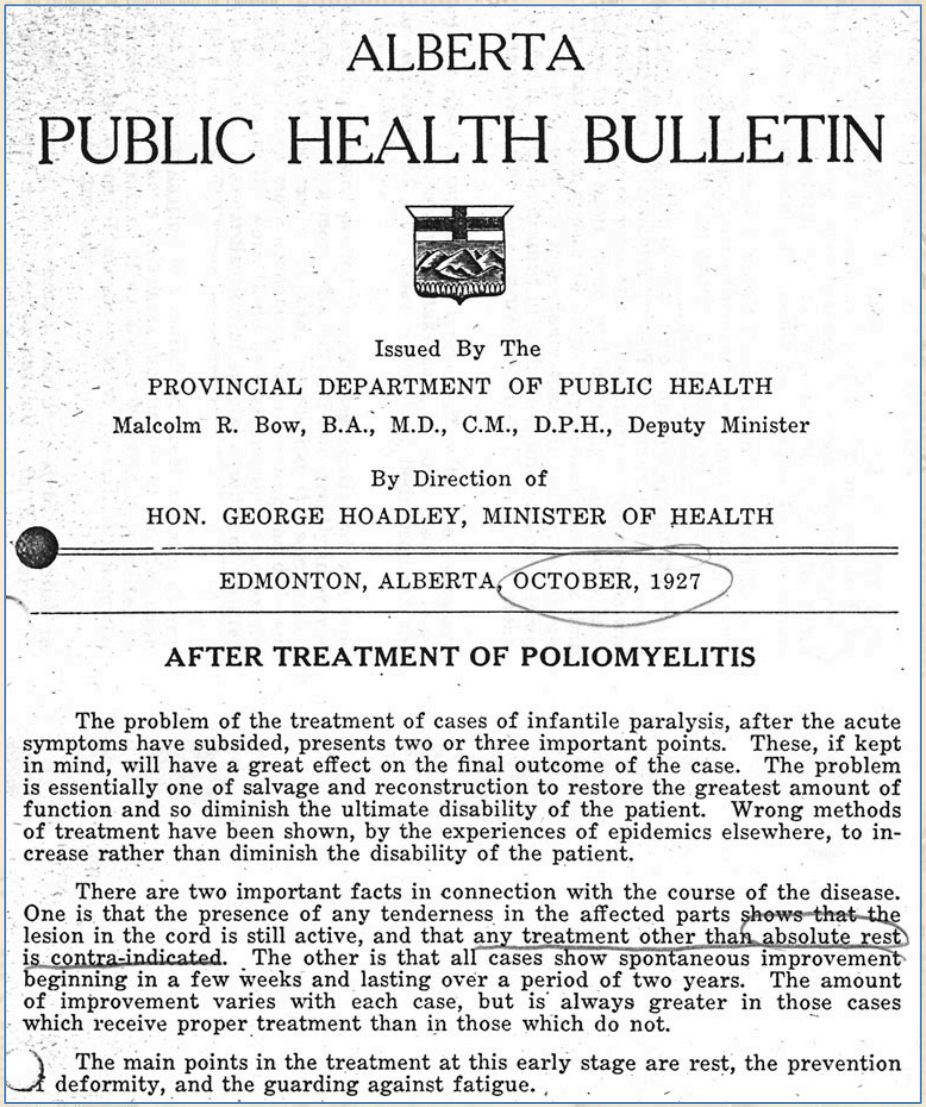
There are two important facts in connection with the course of the disease. One is that the presence of any tenderness in the affected parts shows that the lesion in the cord is still active, and that any treatment other than absolute rest is contra-indicated. The other is that all cases show spontaneous improvement beginning in a few weeks and lasting over a period of two years. The amount of improvement varies with each case, but is always greater in those cases which receive proper treatment than in those which do not.

The main points in the treatment at this early stage are rest, the prevention of deformity, and the guarding against fatigue.

Polio Rising, 1927-1932

- While managing the acute crisis of a polio epidemic echoed that of the great influenza pandemic of 1918, with similar public health helplessness, the unique personal, economic and political challenges of paralytic polio continued long after the epidemic emergency passed

- As the COVID-19 pandemic has spread globally, the varied and likely long-term clinical effects have become more apparent



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Polio Rising, 1927-1932

- **1928** – In the wake of the epidemic, the Alberta Department of Health established a "Provincial Special Hospital" in Edmonton, where specialized orthopedic treatment was provided at cost

Polio Rising, 1927-1932

- **1928** – Marching eastward, polio next struck Manitoba, leaving 434 cases and 37 deaths

- The primary focus of public health attention was on studying the early use of "convalescent serum" to hopefully minimize, or perhaps prevent, the onset and severity of muscle weakness or paralysis

- The serum prepared from blood donated from people who had "convalesced" from polio and were thought to have immunity to the poliovirus

Résumé of the Report on the Poliomyelitis Epidemic in Manitoba, 1928

THIS report was prepared by the Medical Research Committee of the University of Manitoba, with appendices on the Method of Control Employed by Dr. A. J. Douglas, Medical Officer of Health of Winnipeg, and Dr. T. A. Pincock, Deputy Minister, Department of Health and Public Welfare of the Province. It has been published for the Department of Health and Public Welfare by the Great-West Life Assurance Company.

Full of information obtained directly from the experience of this epidemic, the report is of probably the greatest significance in that section dealing with the use of convalescent serum, which is reproduced in full on pages 235 to 240. The other sections,—on organization; on the preparation of convalescent serum; on the epidemiology of the disease as shown in Manitoba, the extent in time and place, the age groups involved, the multiple of cases in families, the apparent incubation period; the symptoms and physical signs as found on careful examination; and the control methods employed—all these add much to our knowledge. The main features are shown in the extracts which comprise this review, chosen freely from the various sections.

The Chairman of the Committee was C. R. Gilmour, M. D., and the Secretary, A. T. Cameron, D.Sc.

Canadian Public Health Journal, May 1929, p. 225

- However, the lack of a clear polio diagnostic test prior to the onset of muscle weakness or paralysis, and patients often recovering with no treatment, made scientifically assessing the serum difficult

Polio Rising, 1927-1932

- **1928** – Marching eastward, polio next struck Manitoba, leaving 434 cases and 37 deaths

- The primary focus of public health attention was on studying the early use of "convalescent serum" to hopefully minimize, or perhaps prevent, the onset and severity of muscle weakness or paralysis

- The serum prepared from blood donated from people who had "convalesced" from polio and were thought to have immunity to the poliovirus

- Convalescent serum has proven to be more than a hopeful COVID-19 treatment

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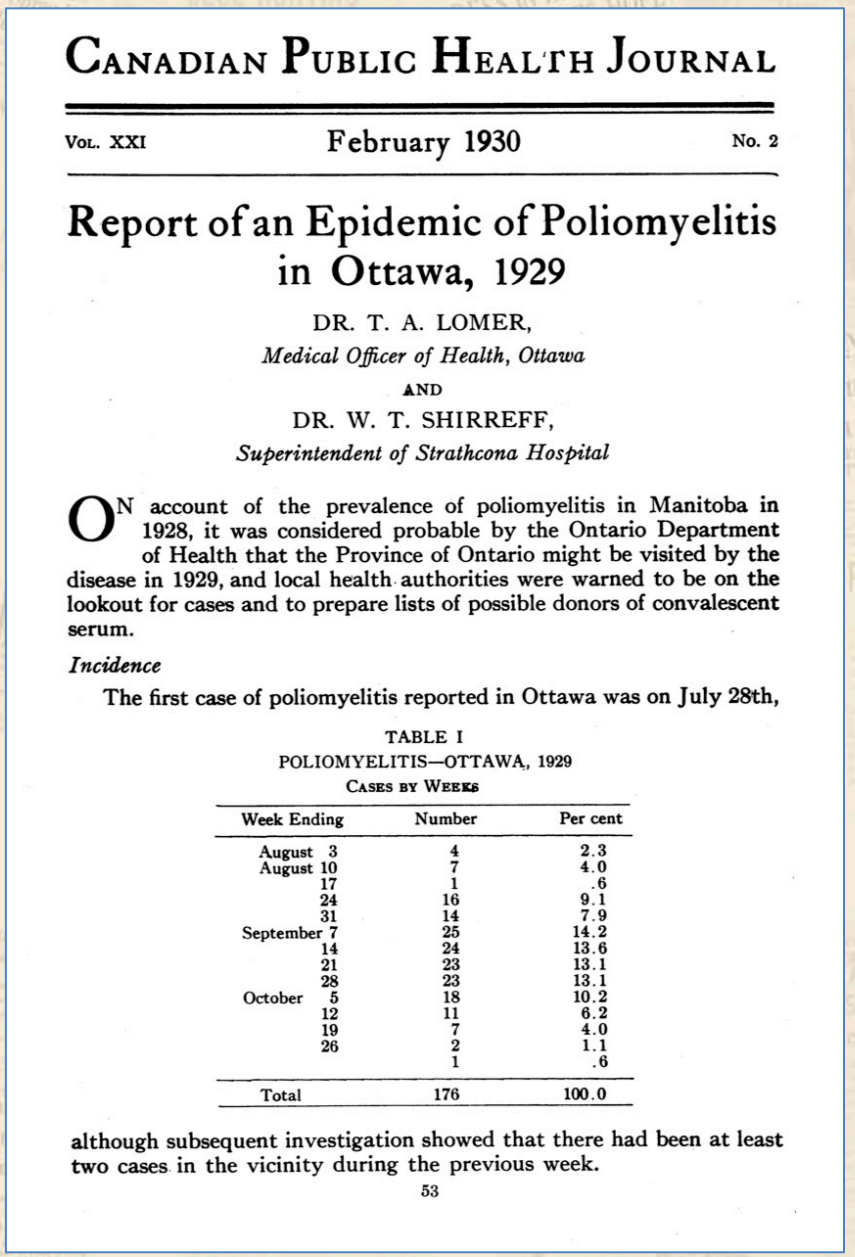
Polio Rising, 1927-1932

- **1929-30** – Epidemic polio next struck in Ontario, with 558 cases and 26 deaths in 1929, and then in 1930, with 671 cases and 71 deaths

- Ontario Department of Health followed the prevailing public health approach during polio outbreaks, with a reliance on providing convalescent serum for free to all reported cases

- **1931-32** – Major polio epidemics next struck in Quebec



CANADIAN PUBLIC HEALTH JOURNAL

VOL. XXI February 1930 No. 2

Report of an Epidemic of Poliomyelitis in Ottawa, 1929

DR. T. A. LOMER,
Medical Officer of Health, Ottawa
AND
DR. W. T. SHIRREFF,
Superintendent of Strathcona Hospital

ON account of the prevalence of poliomyelitis in Manitoba in 1928, it was considered probable by the Ontario Department of Health that the Province of Ontario might be visited by the disease in 1929, and local health authorities were warned to be on the lookout for cases and to prepare lists of possible donors of convalescent serum.

Incidence

The first case of poliomyelitis reported in Ottawa was on July 28th,

TABLE I
POLIOMYELITIS—OTTAWA, 1929
CASES BY WEEKS

Week Ending	Number	Per cent
August 3	4	2.3
August 10	7	4.0
17	1	.6
24	16	9.1
31	14	7.9
September 7	25	14.2
14	24	13.6
21	23	13.1
28	23	13.1
October 5	18	10.2
12	11	6.2
19	7	4.0
26	2	1.1
	1	.6
Total	176	100.0

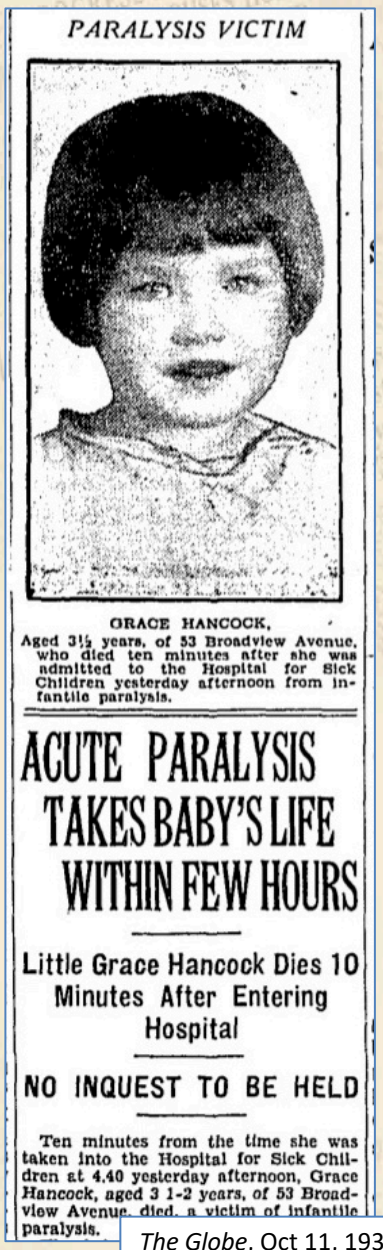
although subsequent investigation showed that there had been at least two cases in the vicinity during the previous week.

53

Polio Rising, 1927-1932

- Alarming were tragic stories of deaths due to polio, such as a 3-year-old Toronto girl dying of polio 10 minutes after arriving at the Hospital for Sick Children, most likely of paralysis of the chest muscles, fatally impairing breathing

- The hospital would get an iron lung in 1930 (the first in the country), but there was no time for this young girl to get to it



PARALYSIS VICTIM

GRACE HANCOCK,
Aged 3½ years, of 53 Broadview Avenue, who died ten minutes after she was admitted to the Hospital for Sick Children yesterday afternoon from infantile paralysis.

ACUTE PARALYSIS TAKES BABY'S LIFE WITHIN FEW HOURS

Little Grace Hancock Dies 10 Minutes After Entering Hospital

NO INQUEST TO BE HELD

Ten minutes from the time she was taken into the Hospital for Sick Children at 4.40 yesterday afternoon, Grace Hancock, aged 3 1-2 years, of 53 Broadview Avenue, died, a victim of infantile paralysis.

The Globe, Oct 11, 1930, p. 13

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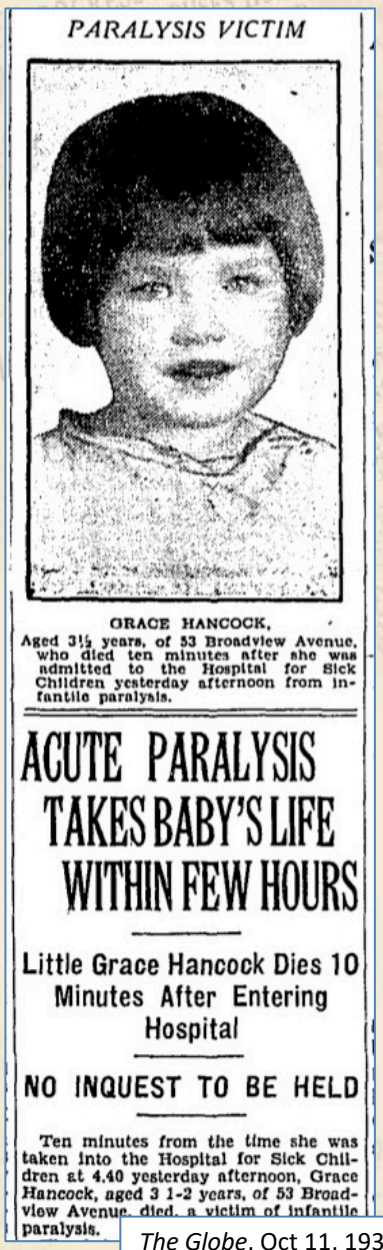
- Impairment of breathing causing death is a common feature between polio and COVID-19, although the age of the principle victim of each disease was at opposite ends of the age spectrum; over time polio victims shifted to older ages, while COVID-19 victims have shifted to younger ages



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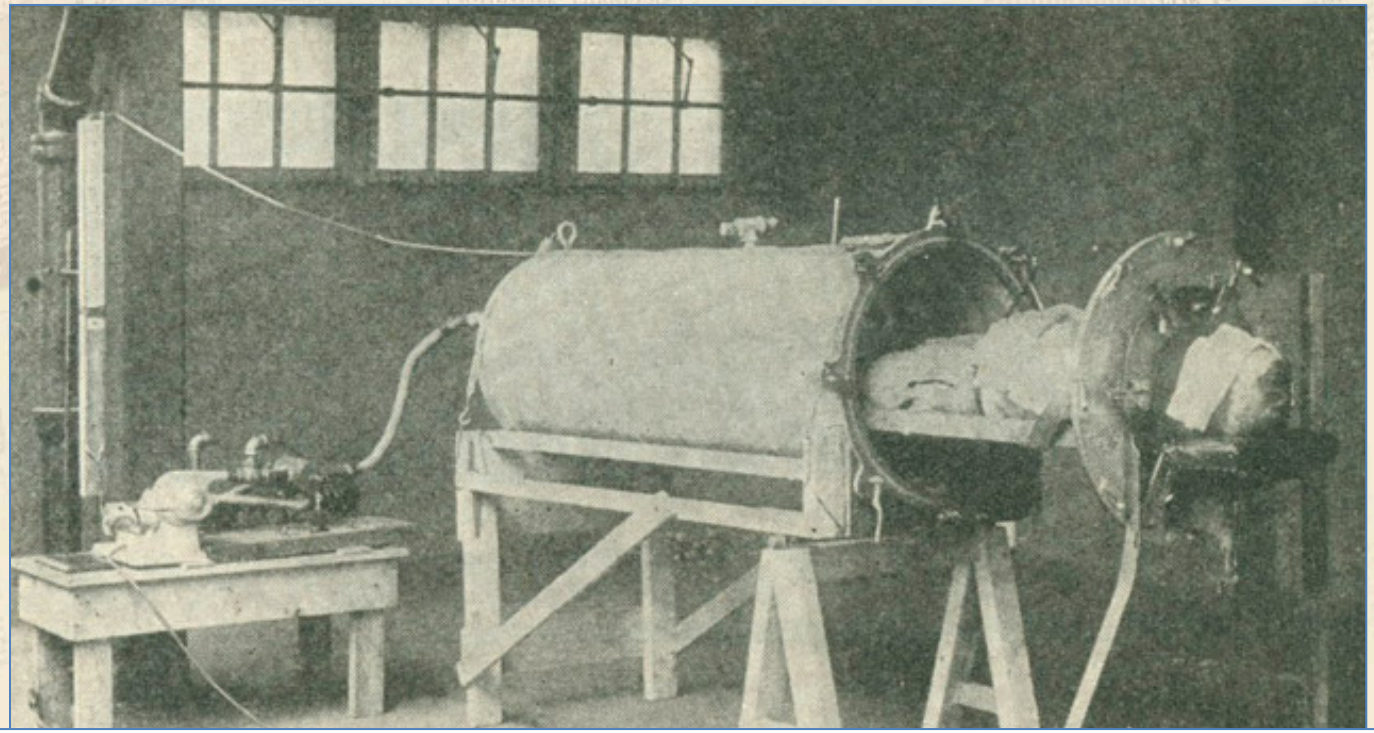

- **1928** - The first “iron lung” for polio treatment developed at Harvard University

- Essentially a metal tank into which all but the head of the patient was sealed. A motor, or hand crank, operated a set of bellows and the negative and positive pressure inside the iron lung forced the patient’s lungs to expand and contract to enable breathing

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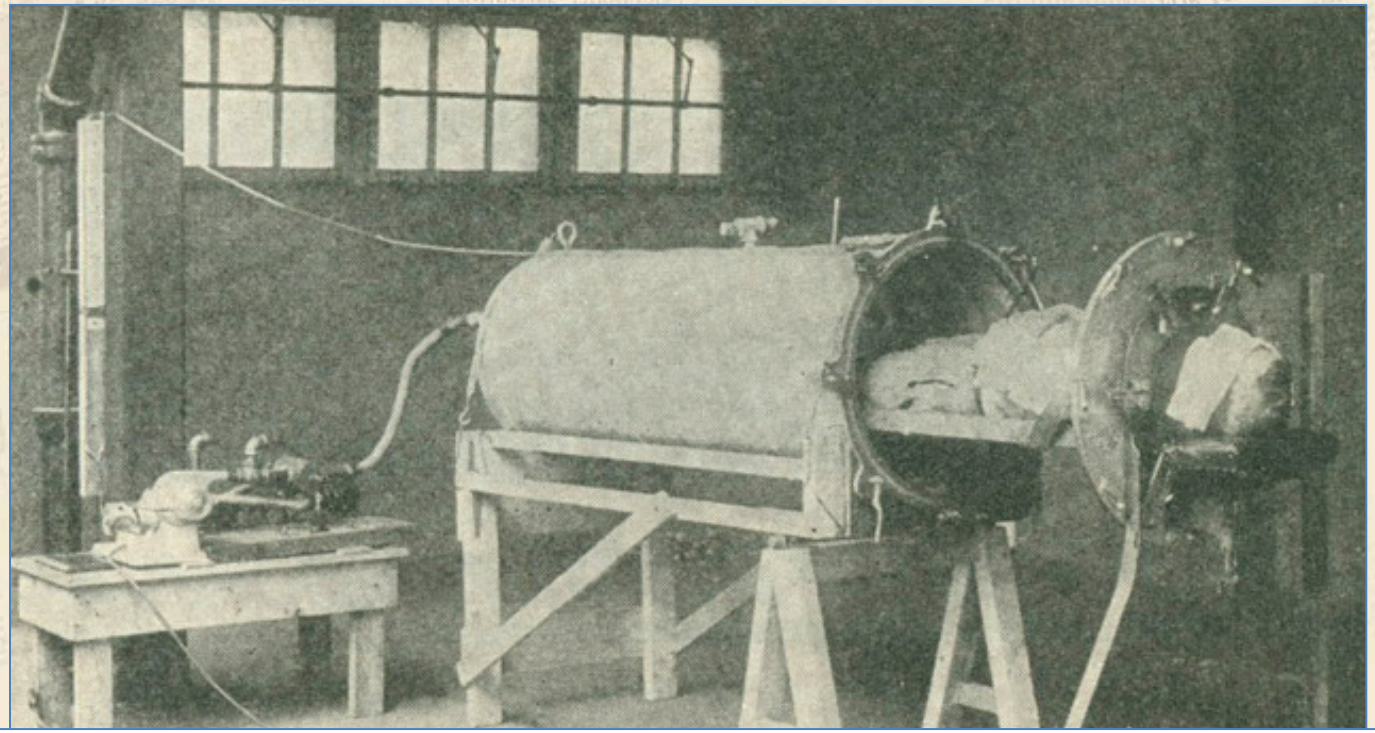

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- In contrast, in severe COVID-19 cases in which the virus attacks the lungs to impair breathing, the ventilator provides oxygen directly into the lungs

Polio Rising, Dramatically, 1937

- **1937** – Polio incidence reached an alarming new peak in Canada with 4,000 cases; more than half in Ontario:
- 2,546 cases (750 in Toronto)
- 119 deaths (31 in Toronto)

Globe & Mail, Aug 25, 1937, p. 13

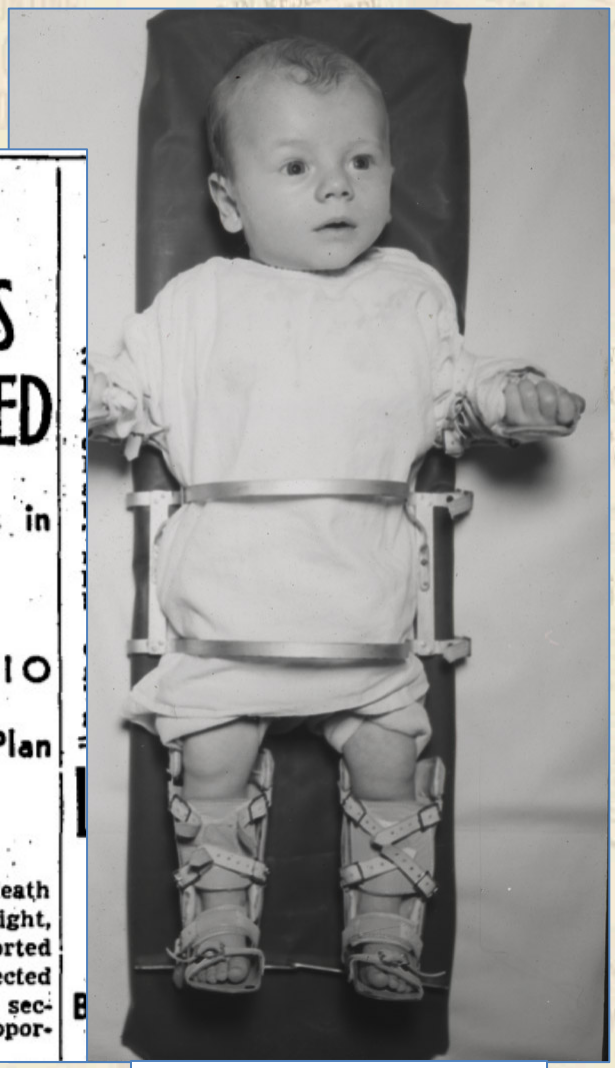
DEATH TOLL OF PARALYSIS NOT BOOSTED

But Twenty New Cases in Toronto and London

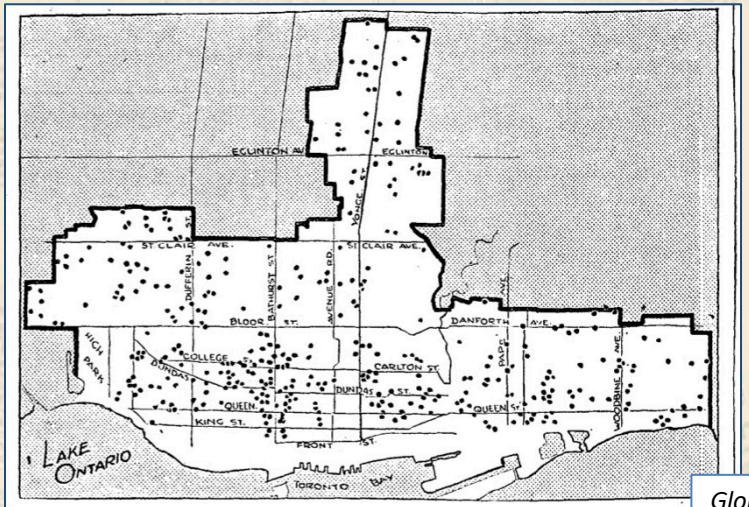
300 IN ONTARIO

Small Centres Also Plan to Postpone School Reopening

Ontario's infantile paralysis death toll remained at sixteen last night, no additional deaths being reported from the widespread areas affected by the disease, which, in some sections, has reached epidemic proportions.



Hospital for Sick Children Archives



Globe & Mail, Sept. 15, 1937, p. 22

SOUTHWESTERN PART OF CITY SHOWS MOST "POLIO" CASES

Every time a case of infantile paralysis is reported in Toronto a pin is pushed into a city map in the health department office, enabling officials to trace the course of the epidemic day by day. On June 10 there were only three or four pins. To-day, with nearly 500 cases, it is hard to see the map. The map indicates that the disease is pretty general south of Bloor St. from Sunnyside to the eastern limits, with the most heavily stricken area the section bounded by Wellington St., Ossington Ave., Harbord St. and Spadina. Only three cases are indicated on the island. The epidemic started in the Earlscourt area, and officials said to-day that as it declines it has been working north and east. The map shows the section north of Bloor St. and east to the city limits only lightly affected.

Polio Rising, Dramatically, 1937

- Ontario Department of Health in crisis mode
- Convalescent serum & standardized splints provided at no cost to all cases

Hospital for Sick Children Archives

ONTARIO

Department of Health of Ontario

"INFANTILE PARALYSIS"

(POLIOMYELITIS)

The Department of Health has a sufficient supply of Convalescent Serum for present demands. This serum is obtained from persons who have previously suffered from an attack of "infantile paralysis".

In anticipation of further requirements the Department now requests that persons who are willing to provide blood for this purpose (donors) register with the medical officer of health in their district.

The Department remunerates donors on the basis of Ten Dollars for 100 cubic centimeters; the usual amount withdrawn from one donor is 200 cubic centimeters. This can be readily obtained without discomfort or ill effects to the donor.

Children under fourteen years of age are not eligible. Persons who have suffered an attack of the disease during the present year are also not eligible. Those persons fourteen years of age and over who have suffered an attack within the past twenty-five years and who show some definite evidence of resulting paralysis, are requested to provide the medical officer of health with their name and address.

Those who have already acted as donors need not register again.

When a clinic is to be held, donors will be notified through their medical officer of health.

MINISTER OF HEALTH

(Ontario Newspapers), Sept. 3, 1937

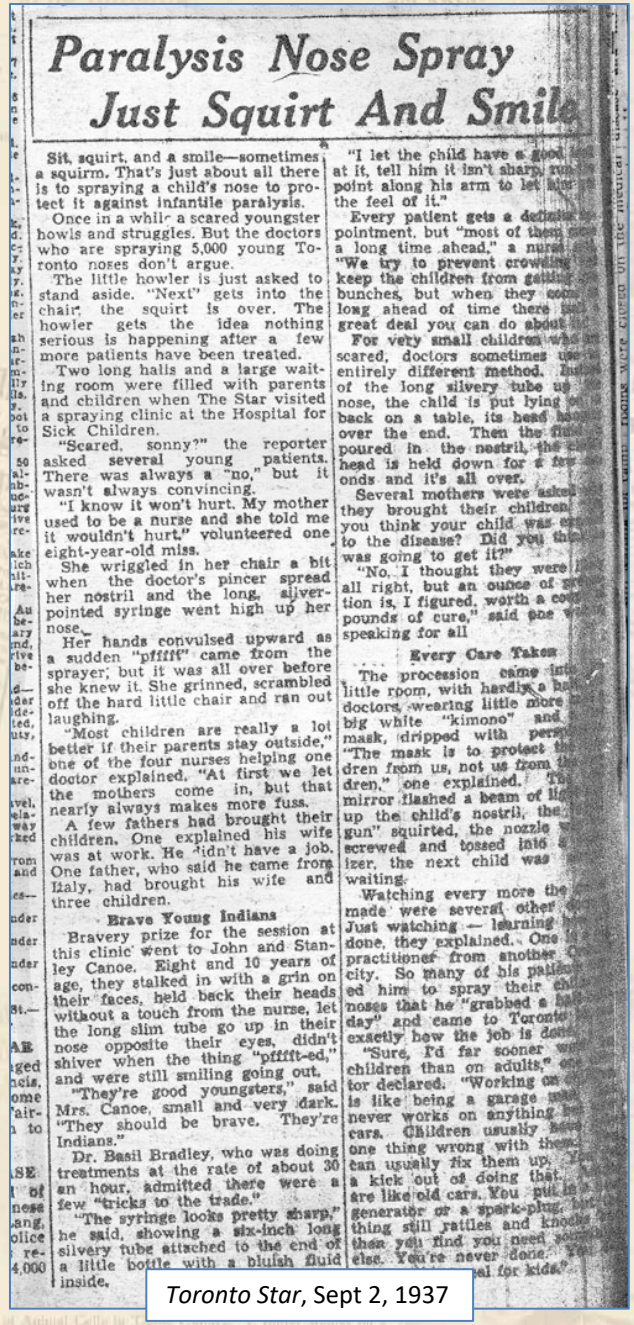
Polio Rising, Dramatically, 1937

- Based on the olfactory nerve as a possible poliovirus portal to nervous system, a careful study of a hopeful preventive zinc-sulphate nasal spray undertaken in Toronto proved definitive
- Clear results of the trial showed that spray had no effect on preventing polio, it damaged the sense of smell, and undercut the validity of prevailing neurotropic view of polio etiology

Nasal Spray Hoped To Prevent Infantile Paralysis

High hopes are held by many Toronto doctors that the zinc sulphate nasal spray, which has proved a definite preventative of poliomyelitis in monkeys and other animals, may ward off the same danger from Toronto children. Dr. Max Minor Peet, professor of surgery at the University of Michigan, who developed the spray, has offered to come to Toronto to aid health authorities in administering it. Shown above is one of the first children in Toronto to have the spray injected at the Hospital for Sick Children. The injection is made at a certain point well within the nostril, and is said to cause little discomfort.

London Free Press, Sept 2, 1937



Paralysis Nose Spray Just Squirt And Smile

Sit, squirt, and a smile—sometimes a squirm. That's just about all there is to spraying a child's nose to protect it against infantile paralysis.

Once in a while a scared youngster howls and struggles. But the doctors who are spraying 5,000 young Toronto noses don't argue.

The little howler is just asked to stand aside. "Next" gets into the chair, the squirt is over. The howler gets the idea nothing serious is happening after a few more patients have been treated.

Two long halls and a large waiting room were filled with parents and children when The Star visited a spraying clinic at the Hospital for Sick Children.

"Scared, sonny?" the reporter asked several young patients. There was always a "no," but it wasn't always convincing.

"I know it won't hurt. My mother used to be a nurse and she told me it wouldn't hurt," volunteered one eight-year-old miss.

She wriggled in her chair a bit when the doctor's pincer spread her nostril and the long, silver-pointed syringe went high up her nose.

Her hands convulsed upward as a sudden "pfffff" came from the sprayer, but it was all over before she knew it. She grinned, scrambled off the hard little chair and ran out laughing.

"Most children are really a lot better if their parents stay outside," one of the four nurses helping one doctor explained. "At first we let the mothers come in, but that nearly always makes more fuss.

A few fathers had brought their children. One explained his wife was at work. He didn't have a job. One father, who said he came from Italy, had brought his wife and three children.

Brave Young Indians

Bravery prize for the session at this clinic went to John and Stanley Canoe. Eight and 10 years of age, they stalked in with a grin on their faces, held back their heads without a touch from the nurse, let the long slim tube go up in their nose opposite their eyes, didn't shiver when the thing "pfffft-ed," and were still smiling going out.

"They're good youngsters," said Mrs. Canoe, small and very dark. "They should be brave. They're Indians."

Dr. Basil Bradley, who was doing treatments at the rate of about 30 an hour, admitted there were a few "tricks to the trade."

"The syringe looks pretty sharp," he said, showing a six-inch long silvery tube attached to the end of a little bottle with a bluish fluid inside.

"I let the child have a good look at it, tell him it isn't sharp, run the point along his arm to let him get the feel of it."

Every patient gets a definite appointment, but "most of them come a long time ahead," a nurse said. "We try to prevent crowding and keep the children from getting in bunches, but when they come so long ahead of time there isn't a great deal you can do about it."

For very small children who are scared, doctors sometimes use an entirely different method. Instead of the long silvery tube up the nose, the child is put lying on its back on a table, its head hanging over the end. Then the fluid is poured in the nostril, the child's head is held down for a few seconds and it's all over.

Several mothers were asked why they brought their children. "Do you think your child was exposed to the disease? Did you think it was going to get it?"

"No. I thought they were all right, but an ounce of prevention is, I figured, worth a couple pounds of cure," said one woman speaking for all.

Every Care Taken

The procession came into a little room, with hardly a half-dozen doctors, wearing little more than a big white "kimono" and a gauze mask, dripped with perspiration. "The mask is to protect the children from us, not us from the children," one explained. The doctor's mirror flashed a beam of light up the child's nostril, the "spray gun" squirted, the nozzle was unscrewed and tossed into a sterilizer, the next child was called for waiting.

Watching every move the doctors made were several other doctors. Just watching — learning what to be done, they explained. One was a practitioner from another city. So many of his patients had asked him to spray their children's noses that he "grabbed a half-day" and came to Toronto to see exactly how the job is done.

"Sure, I'd far sooner work on children than on adults," one visiting doctor declared. "Working on children is like being a garage mechanic who never works on anything but old cars. Children usually have only one thing wrong with them. You can usually fix them up with a kick out of doing that. Adults are like old cars. You put in a new generator or a spark-plug, but something still rattles and knocks and then you find you need something else. You're never done. ... Special for kids."

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- Similarly hopeful trials of novel treatments echoed in COVID-19 pandemic

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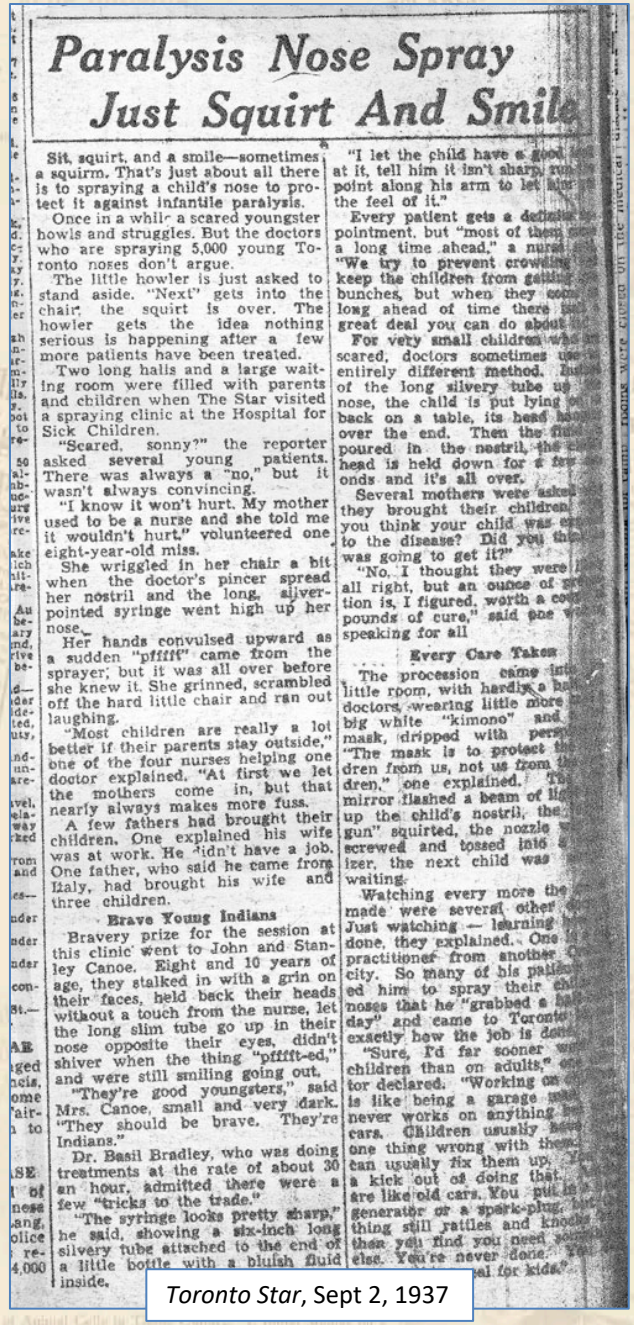

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Toronto Star, Sept 2, 1937

Polio Rising, Dramatically, 1937

- As the polio epidemic worsened in Ontario during July and August, there were concerns and controversy surrounding the issue of whether or not to delay the opening of schools
- It would be an issue that was debated and decided by local governments and school boards; some delayed, while others didn't based on local incidence
- However, if school opening was delayed, the concern was would kids be safer unsupervised in the streets and playgrounds?

DELAY REOPENING OF ALL SCHOOLS TO FIGHT DISEASE

Health Board Studies Wisdom of Closing Theatres, Swimming Pools

17 NEW CASES CITED

Won't Close Park, Pools, etc., Unless Health Board Makes Request

Toronto public, high and separate schools will remain closed until at least Sept. 7, members of the board of education and separate school board agreed to-day, accepting the recommendation of the board of

MIMICO

PARALYSIS REPORT IS NOT ALARMING

Schools Not To Be Closed Under Present Conditions

Mimico, Aug. 26.—The present epidemic of infantile paralysis in Mimico is not of serious proportions, concluded members of the local board of health last night following the hearing of a report submitted by the medical officer of health, Dr. Warren Snyder.

"At present there are two active cases of infantile paralysis ill at home in the town and three are in hospital," read Dr. Snyder's report. "There have been six cases all told, and at present five homes are under strict quarantine. Quarantine has been lifted on the sixth case because of no active development."

Members of the board were of the opinion that it was not advisable to close the schools under present conditions.

The meeting was held behind closed doors. The public and the

YORK TOWNSHIP

KEEP YORK SCHOOLS CLOSED AS ADDED PARALYSIS CHECK

Board Sets September 7 as Delayed Opening Date

41 CASES REPORTED

Because of the infantile paralysis outbreak, York township board of education last night decided to keep its schools closed until Sept. 7, as Trustee Dr. Luke Teskey warned parents to keep children away from theatres and swimming tanks and named "Young Canada's Day" at the Canadian National Exhibition as a possible danger period.

Forty-one cases of the disease have been found in the township since June, reported Dr. W. E. Pearson, board of education M.O.H. No new cases have been reported since before last week-end, he said.

"Parents should not become unnecessarily alarmed at the situation," asserted Dr. Teskey, "but they should not subject their children to congregations, particularly with the exhibition opening in the near future. I might point out that Young Canada's Day is a place where the disease may be spread."

He told of four children in his district who had been thoroughly informed of the disease and its after-effects and said that since then their parents had received no further requests from the children to attend theatres or mingle with crowds.

Answering a query concerning possible contagion through swimming tanks, Trustee Dr. C. W. Dales said: "The season has more to do with the spread than water."

Frank Oke, chairman of the board, was instructed to keep in touch with the M.O.H. to ascertain if the opening date should be further deferred.

TORONTO DISTRICT

ALL YORK SCHOOL OPENINGS DEFERRED UNTIL SEPT. 13

Total of Infantile Paralysis Cases Mounts in Suburban Toronto

HALTED IN PLACES

Although no new cases of infantile paralysis were reported in some centres, the total to-day mounted in others as school boards closed schools in an effort to check spread of the disease in Toronto's suburban area.

Highest number of cases was reported from York township, where three new cases reported since yesterday brought the total to 50 since June. There have been two deaths in that municipality. At a meeting last night, the school board deferred opening of all schools until Sept. 13.

A halt to the increasing number of cases was called in East York township, where the total remained 23, as yesterday. Scarboro township remained among the least affected municipalities, with only two cases of the disease, neither of these involving school children. Schools in Scarboro will open on schedule, it was announced.

SUBURBAN SCHOOLS' OPENINGS DELAYED

Because of the prevalence of infantile paralysis many schools have postponed the opening of classes. A few will open on schedule, to-morrow, but the majority will not begin until Sept. 7. Some will not open until Sept. 13. A few have deferred openings indefinitely until the epidemic subsides. Openings as anonunced to-day are as follows:

Sept. 1.—Burlington, Oakville, Schomberg, Scarboro (except two sections), Port Credit, Clarkson, Lorne Park, Erindale.

Sept. 7.—Forest Hill, Weston, Erindale, Elmbank, Cooksville, Mimico, Etobicoke Twp., Long Branch, Bolton, Dixie, Lakeview, Woodbridge, Milton.

New Toronto will open on the 8th.

Sept. 13.—Leaside, Orangeville, Markham township, York township.

Postponed indefinitely — East York, North York, Scarboro, S.S. 6 and S.S. 12, Brampton.

ported from Markham township, where schools will remain closed

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- It would be an issue that was debated and decided by local governments and school boards; some delayed, while others didn't based on local incidence
- However, if school opening was delayed, the concern was would kids be safer unsupervised in the streets and playgrounds?
- The question of whether, or not, to delay school opening has become especially complex during the COVID-19 pandemic

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17 NEW CASES CITED

Won't Close Park, Pools, etc., Unless Health Board Makes Request

Toronto public, high and separate schools will remain closed until at least Sept. 7, members of the board of education and separate school board agreed to-day, accepting the recommendation of the board of

MIMICO

PARALYSIS REPORT IS NOT ALARMING

Schools Not To Be Closed Under Present Conditions

Mimico, Aug. 26.—The present epidemic of infantile paralysis in Mimico is not of serious proportions, concluded members of the local board of health last night following the hearing of a report submitted by the medical officer of health, Dr. Warren Snyder.

"At present there are two active cases of infantile paralysis ill at home in the town and three are in hospital," read Dr. Snyder's report. "There have been six cases all told, and at present five homes are under strict quarantine. Quarantine has been lifted on the sixth case because of no active development."

Members of the board were of the opinion that it was not advisable to close the schools under present conditions.

The meeting was held behind closed doors. The public and the

YORK TOWNSHIP

KEEP YORK SCHOOLS CLOSED AS ADDED PARALYSIS CHECK

Board Sets September 7 as Delayed Opening Date

41 CASES REPORTED

Because of the infantile paralysis outbreak, York township board of education last night decided to keep its schools closed until Sept. 7, as Trustee Dr. Luke Teskey warned parents to keep children away from theatres and swimming tanks and named "Young Canada's Day" at the Canadian National Exhibition as a possible danger period.

Forty-one cases of the disease have been found in the township since June, reported Dr. W. E. Pearson, board of education M.O.H. No new cases have been reported since before last week-end, he said.

"Parents should not become unnecessarily alarmed at the situation," asserted Dr. Teskey, "but they should not subject their children to congregations, particularly with the exhibition opening in the near future. I might point out that Young Canada's Day is a place where the disease may be spread."

He told of four children in his district who had been thoroughly informed of the disease and its after-effects and said that since then their parents had received no further requests from the children to attend theatres or mingle with crowds.

Answering a query concerning possible contagion through swimming tanks, Trustee Dr. C. W. Dales said: "The season has more to do with the spread than water."

Frank Oke, chairman of the board, was instructed to keep in touch with the M.O.H. to ascertain if the opening date should be further deferred.

TORONTO DISTRICT

ALL YORK SCHOOL OPENINGS DEFERRED UNTIL SEPT. 13

Total of Infantile Paralysis Cases Mounts in Suburban Toronto

HALTED IN PLACES

Although no new cases of infantile paralysis were reported in some centres, the total to-day mounted in others as school boards closed schools in an effort to check spread of the disease in Toronto's suburban area.

Highest number of cases was reported from York township, where three new cases reported since yesterday brought the total to 50 since June. There have been two deaths in that municipality. At a meeting last night, the school board deferred opening of all schools until Sept. 13.

A halt to the increasing number of cases was called in East York township, where the total remained 23, as yesterday. Scarboro township remained among the least affected municipalities, with only two cases of the disease, neither of these involving school children. Schools in Scarboro will open on schedule, it was announced.

SUBURBAN SCHOOLS' OPENINGS DELAYED

Because of the prevalence of infantile paralysis many schools have postponed the opening of classes. A few will open on schedule, to-morrow, but the majority will not begin until Sept. 7. Some will not open until Sept. 13. A few have deferred openings indefinitely until the epidemic subsides. Openings as announced to-day are as follows:

Sept. 1.—Burlington, Oakville, Schomberg, Scarboro (except two sections), Port Credit, Clarkson, Lorne Park, Erindale.

Sept. 7.—Forest Hill, Weston, Erindale, Elmbank, Cooksville, Mimico, Etobicoke Twp., Long Branch, Bolton, Dixie, Lakeview, Woodbridge, Milton.

New Toronto will open on the 8th.

Sept. 13.—Leaside, Orangeville, Markham township, York township.

Postponed indefinitely — East York, North York, Scarboro, S.S. 6 and S.S. 12, Brampton.

ported from Markham township, where schools will remain closed

Polio Rising, Dramatically, 1937

"IRON LUNG" KEEPS PARALYSIS VICTIM ALIVE

Victim of an attack of infantile paralysis, the extent of which nobody yet knows, the life of 11-year-old Joyce McKercher of Weston ltd. is entirely dependent on the "iron lung" at the Hospital for Sick Children (2) for life. Saturday she was taken ill and rushed to the hospital in the nick of time after the paralysis was found to have settled in her lungs. The machine must operate without cessation and indefinitely if the auburn-haired schoolgirl is to live. Turning his camera upside down, a Star photographer got a close-up view (1) of the little girl who must be attended (3) night and day. Joyce will be 12 next Monday.

GIRL, 11, IN AN "IRON LUNG" IS FIGHTING FOR HER LIFE

Joyce McKercher Tells Star She Feels "A Little Better"

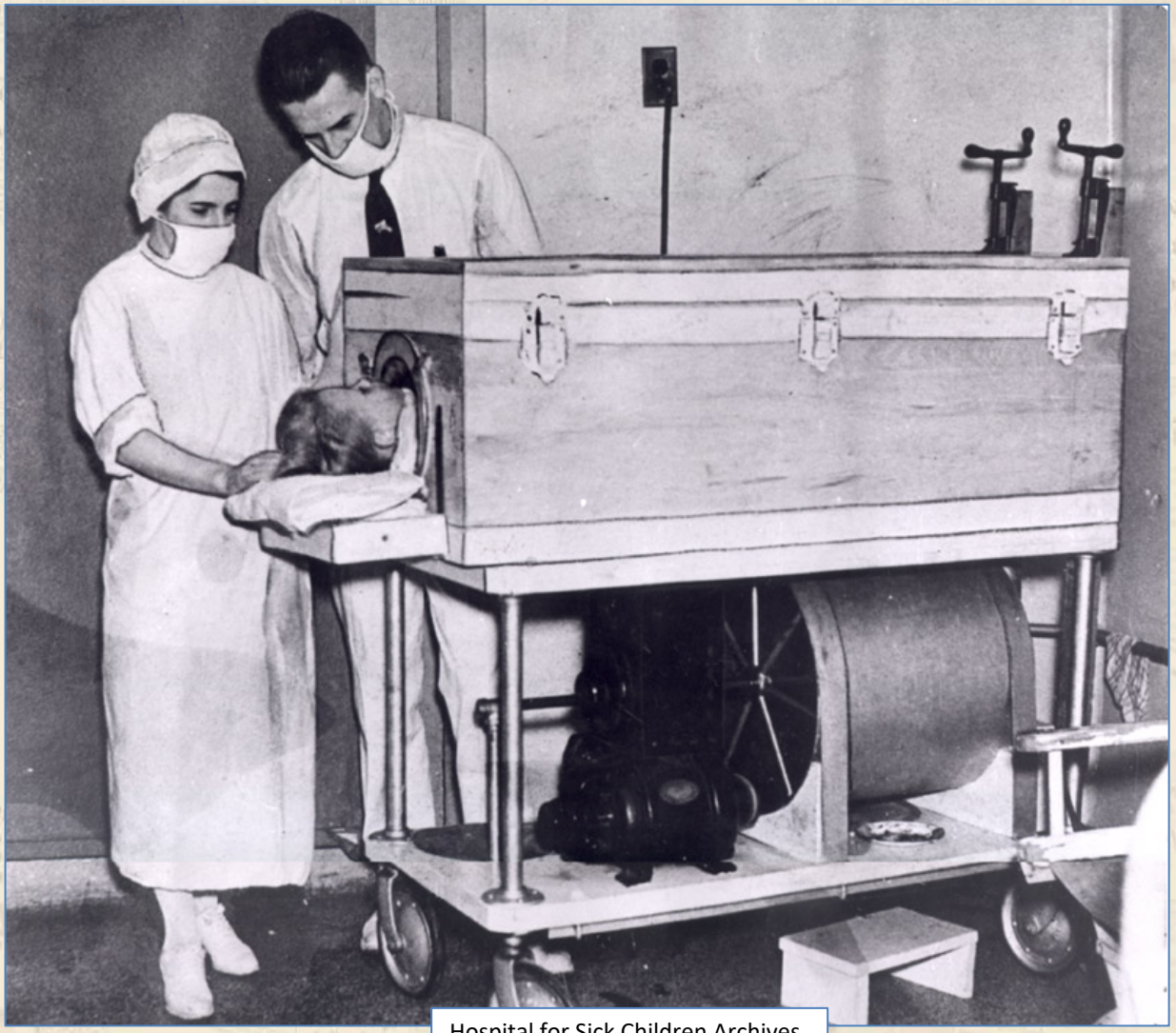
PRAY ON VERANDA

Fighting for her life in the only "iron lung" in Toronto, 11-year-old Joyce McKercher lay in the infectious disease ward of the Hospital for Sick Children to-day, and as the pulsating, rumbling metal cylinder forced air into her lungs

- Most alarming was the sharply higher numbers of severe and life-threatening cases with weakness or paralysis of muscles that control breathing and swallowing
- When the epidemic started, the Hospital for Sick Children had the only iron lung in the country, which was soon in use when an 11-year-old girl needed it

Polio Rising, Dramatically, 1937

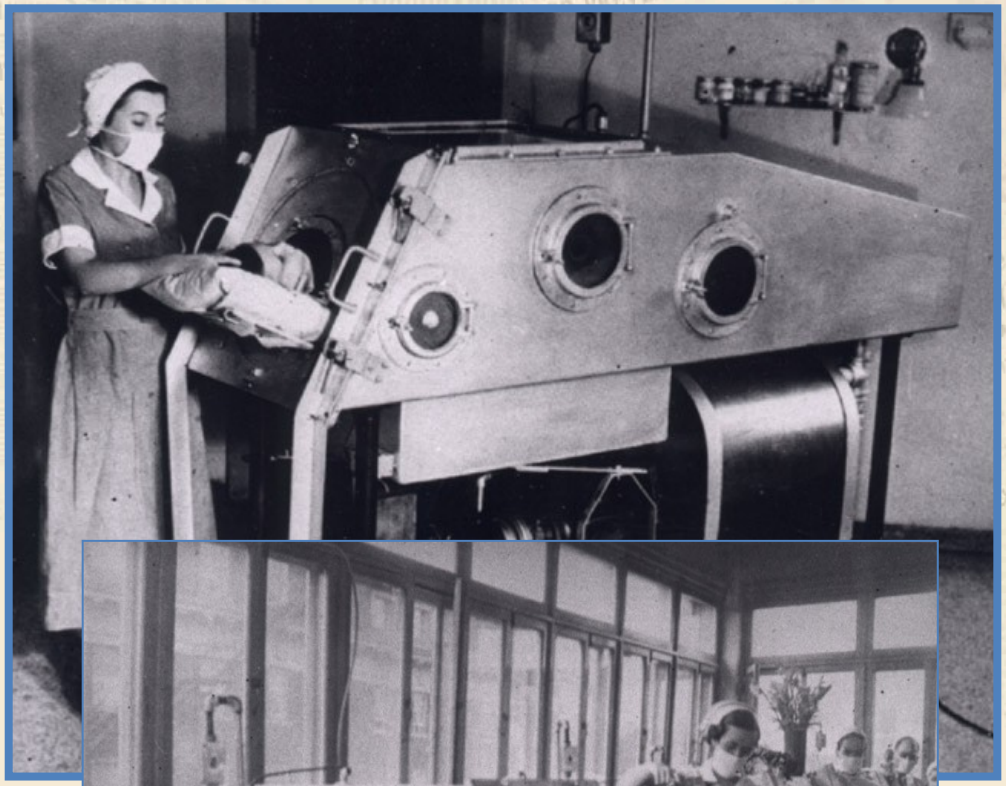
- When a young boy arrived at HSC with respiratory weakness and the iron lung was still occupied, hospital staff scrambled and were able to assemble a "wooden lung" that saved his life



Hospital for Sick Children Archives

Polio Rising, Dramatically, 1937

- Fearful of many more such cases, this effort was followed by the construction of 27 iron lungs in the basement of HSC, paid for by the Ontario Department of Health; some iron lungs distributed elsewhere in the province, and beyond.



Hospital for Sick Children Archives

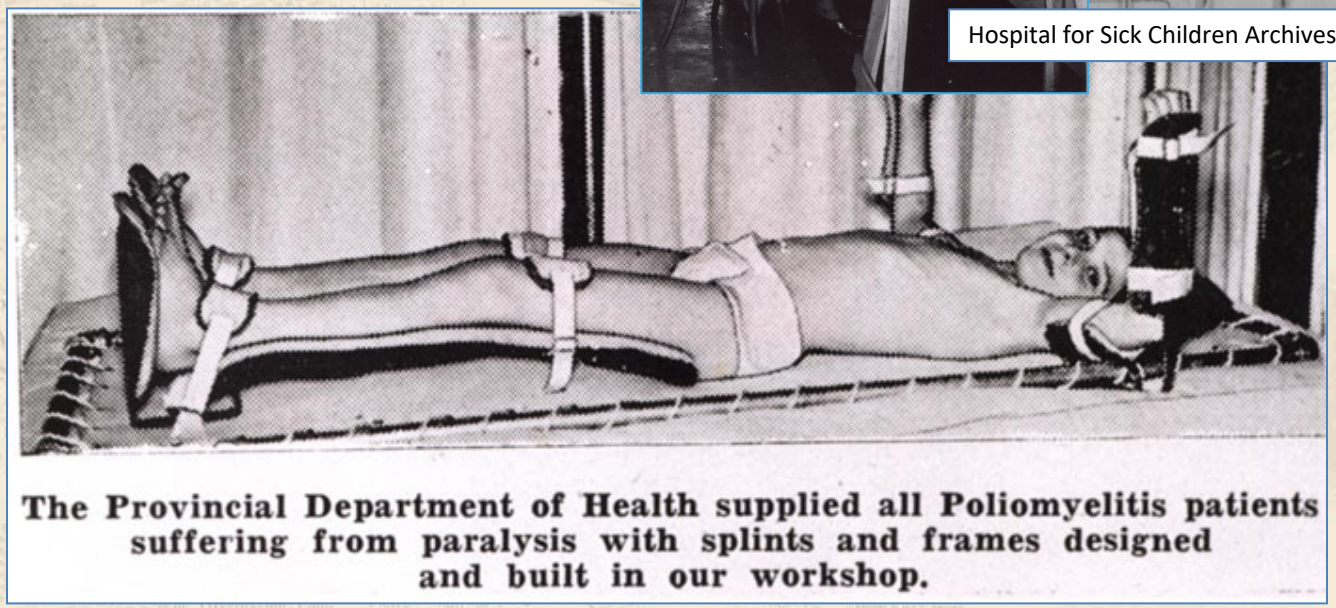
Polio Rising, Dramatically, 1937

One such iron lung is the centerpiece of an exhibit I curated on the history of vaccines at the Museum of Health Care in Kingston, http://www.museumofhealthcare.ca/explore/exhibits/vaccinations/polio.html

Polio Rising, Dramatically, 1937

- Managing the crippling effects of polio was a major challenge
- Strict immobility was the standard of medicine for polio after-care until the early 1940s

Hospital for Sick Children Archives

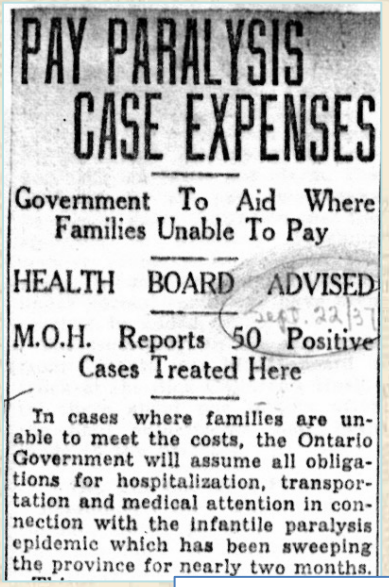


The Provincial Department of Health supplied all Poliomyelitis patients suffering from paralysis with splints and frames designed and built in our workshop.

Polio Rising, Dramatically, 1937

- The severity of the 1937 polio epidemic prompted the Ontario government to establish a distinctive program to cover the costs of specialized polio treatment and hospitalization

- Similar polio treatment policies began in other provinces in the late 1930s, particularly in Alberta and Saskatchewan



PAY PARALYSIS CASE EXPENSES

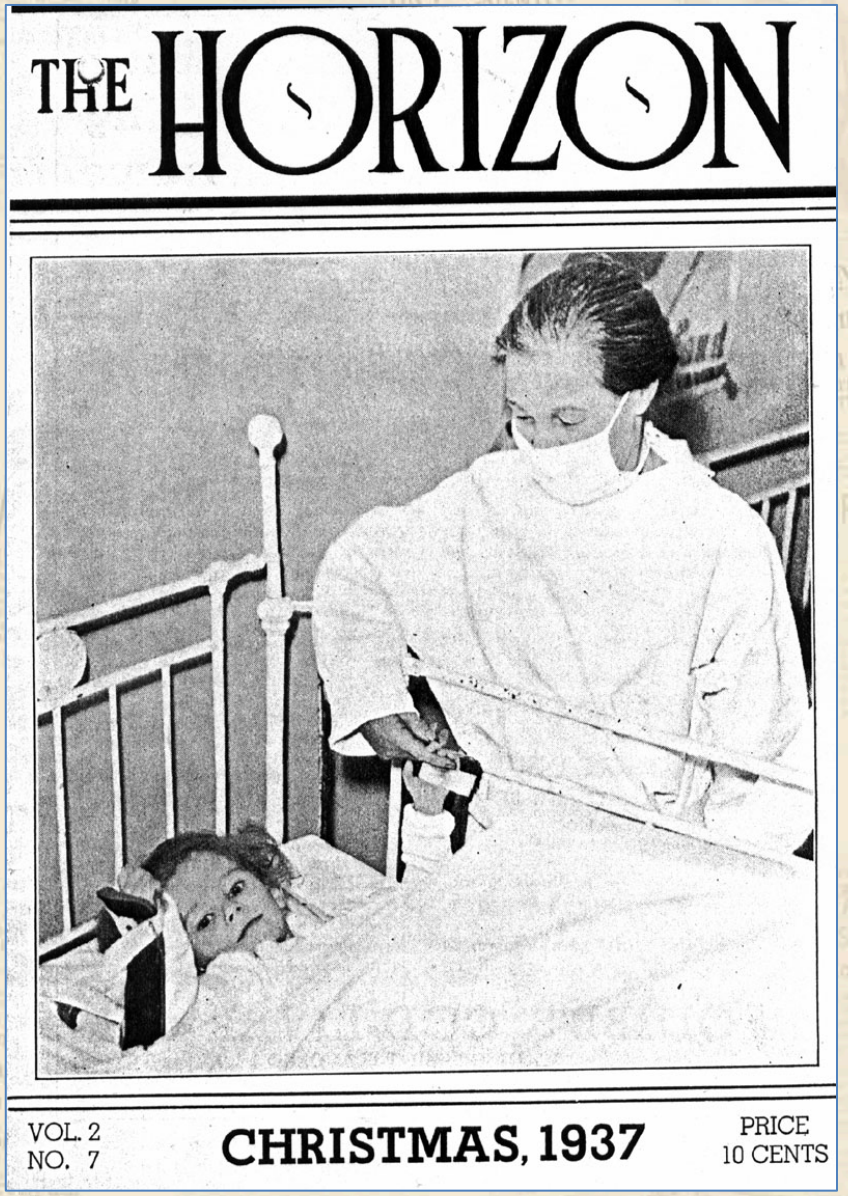
Government To Aid Where Families Unable To Pay

HEALTH BOARD ADVISED

M.O.H. Reports 50 Positive Cases Treated Here

In cases where families are unable to meet the costs, the Ontario Government will assume all obligations for hospitalization, transportation and medical attention in connection with the infantile paralysis epidemic which has been sweeping the province for nearly two months.

London Free Press, Sept 22, 1937



THE HORIZON

VOL. 2
NO. 7

CHRISTMAS, 1937

PRICE
10 CENTS

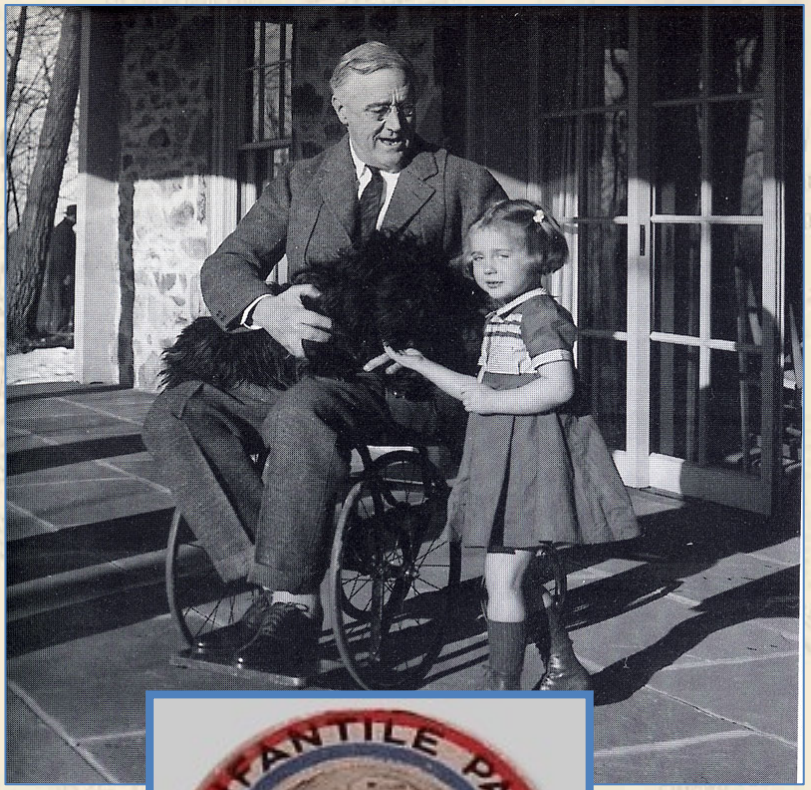
Polio Paralysis, 1940s: Epidemics, Treatment & Sister Kenny

- During the war years, however, there seemed little hope of a polio vaccine being available anytime soon, despite considerable research funding provided by the National Foundation for Infantile Paralysis through its annual "March of Dimes" campaigns

- **1938** – As U.S. President, Franklin D. Roosevelt founded the National Foundation for Infantile Paralysis, which was galvanized by his personal experience with polio

- **1921** – Franklin D. Roosevelt stricken with polio when he was a Senator

- NFIP also provided direct support to polio victims for their treatment



Polio Paralysis, 1940s: Epidemics, Treatment & Sister Kenny

- **1941** - In the meantime, polio epidemics continued and worsened, most notably in Manitoba, at the same time as an outbreak of "sleeping sickness" also struck parts of the province

- Severity of situation prompted medical and scientific aid from Ottawa and the U.S.

TABLE I

POLIOMYELITIS, MANITOBA, 1928-1941

Year	Cases	Deaths	Year	Cases	Deaths
1928	434	43	1935	23	10
1929	57	13	1936	539	37
1930	45	6	1937	261	12
1931	15	2	1938	159	11
1932	7	2	1939	25	5
1933	8	5	1940	19	5
1934	10	3	1941	966	18

Canadian Public Health Journal, June 1942, p. 246

Globe & Mail, Aug 22, 1941, p. 9

Polio Epidemic Much Worse; Ottawa Speeds Aid for West

Winnipeg, Aug. 21 (CP). — The number of infantile paralysis and sleeping sickness cases in Western Canada steadily mounted tonight as leading medical authorities from both Eastern Canada and the United States searched for a cure and studied conditions in the affected areas.

Infantile paralysis, which has been reported in all four Western Provinces, had 668 cases and 10 deaths since the outbreak early in July, and there were 209 cases and 17 deaths in the sleeping sickness epidemics of Manitoba and Saskatchewan.

The epidemics centred in Manitoba. Yesterday thirty new cases of sleeping sickness (encephalitis) were reported in the Province and earlier in the week the poliomyelitis cases passed the previous record of 536 established five years ago. Eleven persons died from sleeping sickness and nine from infantile paralysis.

Dr. John R. Paul, Professor of Preventive Medicine at Yale University, came here by plane for conferences with Provincial and Winnipeg health authorities. Earlier Dr. Donald W. Gudakunst, medical director of the United States National Foundation for Infantile Paralysis, studied the current infantile paralysis epidemic.

Dr. J. M. Uhrich, Saskatchewan Minister of Health, said he has invited Dr. Donald Cameron, Dr. G. Watson and Dr. H. Gibbons of the Dominion Government's Health Department at Ottawa to come to Regina and study the epidemics in the Province.

Encephalitis fatalities in Regina increased to six and there are nearly sixty cases in city hospitals, he said. The Province also has twenty-two infantile paralysis cases in southern districts but none in Regina.

In Alberta there are forty-five poliomyelitis cases and no deaths, while British Columbia has four cases and one death. No persons have been stricken by sleeping sickness in Alberta and British Columbia.

Meanwhile the sleeping sickness epidemic in the Northwestern States showed some signs of abatement. Minnesota reported there have been 592 cases, with forty-five deaths since the outbreak there.

The United States Senate has approved a resolution authorizing $3,000,000 for investigations into the causes of sleeping sickness in Northwest Plains States and Western Canada.

Dr. Gudakunst recently told Dr. F. W. Jackson, Manitoba Deputy Minister of Health, that the present epidemic of infantile paralysis is a mild type and urged complete rest under constant medical supervision for persons afflicted.

Dr. Paul is making a study of both infantile paralysis and sleeping sickness here in an attempt to discover if there is any relationship between them and how they are communicated.

140 Polio Cases in New Brunswick.

Fredericton, Aug. 21 (CP). — New Brunswick's total of reported infantile paralysis cases stood at 140 tonight. Five new cases were reported during the day, two of the victims being adults. Efforts were being made by the Provincial Department of Health to increase the supply of blood for serum by appeals to donors who have previously suffered from the disease.

Symposium

Poliomyelitis and Encephalitis, Manitoba 1941

INTRODUCTION

F. W. JACKSON, M.D., D.P.H.
Deputy Minister of Health and Public Welfare for the Province of Manitoba

THE combined epidemics of the two virus diseases, poliomyelitis and encephalitis, about which so comparatively little is known—certainly from the standpoint of epidemiology, which occurred in Manitoba during the summer and fall of 1941 was an unique experience for a Provincial Health Department. During the early part of July it became apparent to the personnel of the Department of Health and Public Welfare, particularly those in the epidemiological field, that probably we were in for an epidemic of poliomyelitis. In view of this it was thought desirable to do some planning before we be

Canadian Public Health Journal, June 1942, p. 242

Polio Paralysis, 1940s: Epidemics, Treatment & Sister Kenny

- **Early 1940s** - While scientists tried to unravel the enigma of the poliovirus, much of the focus of attention shifted to a major revolution in how paralytic polio was treated in the hospital

- Sister Elizabeth Kenny, an Australian nurse spearheaded this revolution, focused on a more active, physiotherapeutic approach to treatment of muscles weakened or paralyzed by polio, based on "hot packs" and muscle re-education

"Sister Kenny" (1946) movie posters

- **1940** – Sister Kenny came to the U.S. to promote her treatment methods and teach it to nurses who cared for polio patients, but often clashed with physicians who supported use of braces, immobility and surgery to prevent deformities

Polio Paralysis, 1940s: Epidemics, Treatment & Sister Kenny

- **1941-44** – Sister Kenny spent considerable time in Canada, often receiving better support from the medical community and public health authorities in Canada than she did south of the border

- She focused on the training of nurses and physiotherapy specialists in the Kenny method

- Physiotherapy was a new specialty, its growth accelerated by Sister Kenny

Sister Kenny Devotes Life to War on Polio

Fought Uphill Battle to Establish New Attack on Ravages of Dread Infantile Paralysis

Speaking with powerful conviction and quiet confidence, lighted by flashes of pawky wit, Sister Elizabeth Kenny yesterday described her 33-year fight to establish a new conception and treatment of infantile paralysis, in the face of concerted medical opposition.

"It is for the world that I want my work," she told the guests at a luncheon given for her by the Ontario Department of Health at the Royal York Hotel. "I have never accepted any money for it, because I want to keep my work clean and

but you're terrified to let me get away, in case I have!"

For the last three years, associated with the University of Minnesota as special guest instructor, Sister Kenny has trained 16 technicians, taught 282 medical men and 99 physio-therapists.

"If some of you can find out what causes spasm in this disease, you will be doing humanity a service which cannot be estimated," Sister Kenny concluded.

Ontario Minister of Health H. J. Kirby was chairman of the luncheon, which was attended by those active in the control of infantile paralysis in the Province—medical

above ndents physio-

Globe & Mail, June 5, 1942, p. 13

Kenny Polio Treatment To Have Ontario Study

Four Physiotherapists Being Sent to Take Course of Instruction at U. of Minnesota

In preparation for next year's anticipated high incidence of infantile paralysis, the Ontario Department of Health is sending four physiotherapists to take a course of instruction in the Kenny method of treatment at the University of Minnesota, Health Minister H. J. Kirby said yesterday.

The four women, according to present arrangements, will leave this week-end. The step is being taken in view of the public and professional interest in the treatment method developed by the Australian nurse Sister Elizabeth Kenny, whose technique in giving active treatment in the early stages of paralysis, a radical departure from that of keeping affected limbs immobilized in splints, has received the backing of the National Foundation for Infantile Paralysis in the United States.

Some time ago, Mr. Kirby said, Dr. W. J.

therapeutics, University of Toronto, was sent by the department to Minneapolis to study the technique.

Up to yesterday Ontario had fifty-seven cases of infantile paralysis this year. "That is distinctly below the average incidence," according to Dr. J. T. Phair, chief medical officer.

He explained periods of high incidence ran in cycles of six to seven years. Consequently Ontario might expect a high rate in 1943. Demand for admission to the courses in the Kenny treatment has been so great that only now has it been possible to make arrangements.

"Many of the cases reported in Ontario this year have been given the advantages of this method of treatment under the direction of Dr. Gardiner, Department of Physiotherapy, Toronto General Hospital, and other physicians who have visited Minneapolis for the purpose of observing the technique," Dr. Phair

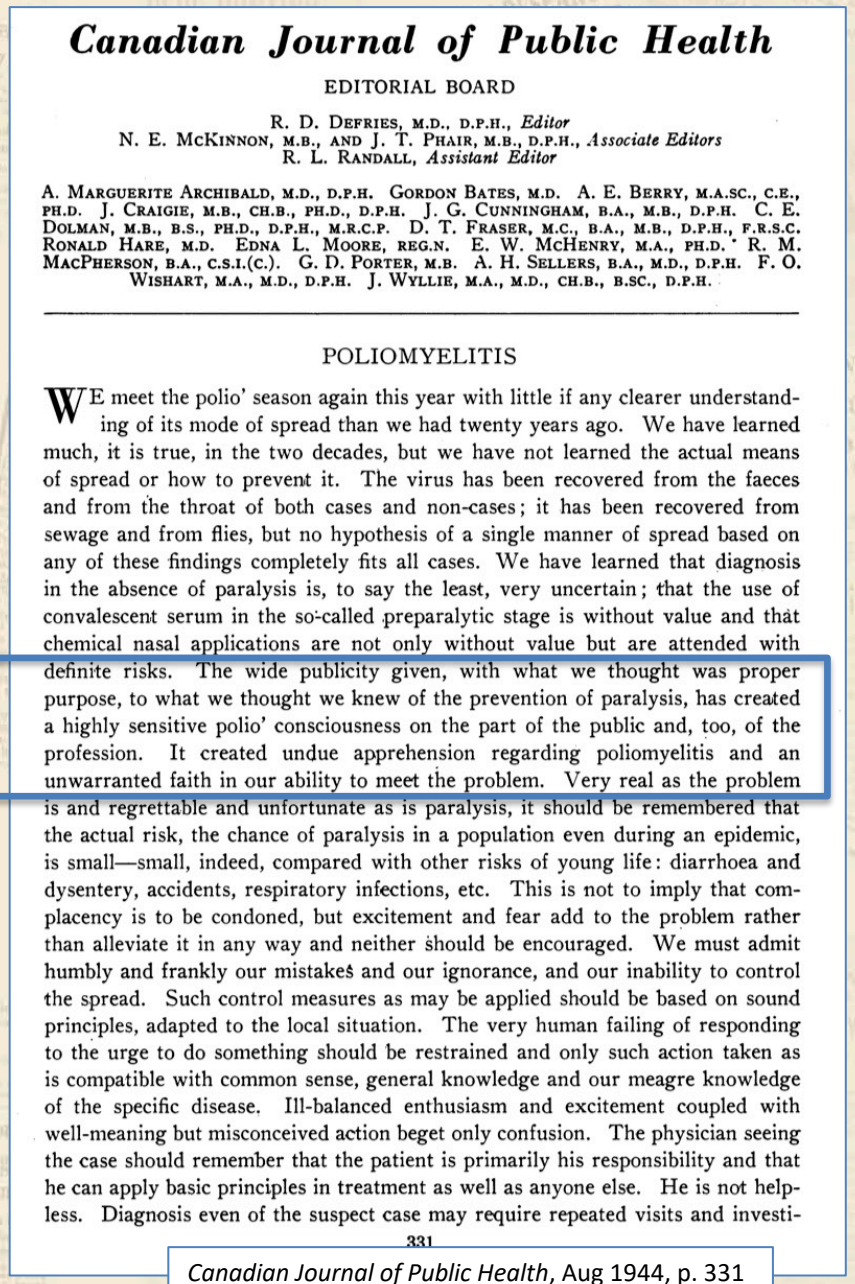
Globe & Mail, Oct 1, 1942, p. 4

Courtesy of Sally Aitken, Montreal

Polio Paralysis, 1940s

- **1944-45** - Polio remained among the most feared infectious diseases in Canada, especially for parents due to its potential life-long physical impact, and, as a 1944 Editorial in the *Canadian Journal of Public Health* emphasized, because its mode of spread and how to prevent it remained a mystery, despite 20+ years of research

- *"The wide publicity given, with what we thought was proper purpose, to what we thought we knew of the prevention of paralysis, has created a highly sensitive polio consciousness on the part of the public and, too, of the profession"*



Canadian Journal of Public Health

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POLIOMYELITIS

WE meet the polio' season again this year with little if any clearer understanding of its mode of spread than we had twenty years ago. We have learned much, it is true, in the two decades, but we have not learned the actual means of spread or how to prevent it. The virus has been recovered from the faeces and from the throat of both cases and non-cases; it has been recovered from sewage and from flies, but no hypothesis of a single manner of spread based on any of these findings completely fits all cases. We have learned that diagnosis in the absence of paralysis is, to say the least, very uncertain; that the use of convalescent serum in the so-called preparalytic stage is without value and that chemical nasal applications are not only without value but are attended with definite risks. The wide publicity given, with what we thought was proper purpose, to what we thought we knew of the prevention of paralysis, has created a highly sensitive polio' consciousness on the part of the public and, too, of the profession. It created undue apprehension regarding poliomyelitis and an unwarranted faith in our ability to meet the problem. Very real as the problem is and regrettable and unfortunate as is paralysis, it should be remembered that the actual risk, the chance of paralysis in a population even during an epidemic, is small—small, indeed, compared with other risks of young life: diarrhoea and dysentery, accidents, respiratory infections, etc. This is not to imply that complacency is to be condoned, but excitement and fear add to the problem rather than alleviate it in any way and neither should be encouraged. We must admit humbly and frankly our mistakes and our ignorance, and our inability to control the spread. Such control measures as may be applied should be based on sound principles, adapted to the local situation. The very human failing of responding to the urge to do something should be restrained and only such action taken as is compatible with common sense, general knowledge and our meagre knowledge of the specific disease. Ill-balanced enthusiasm and excitement coupled with well-meaning but misconceived action beget only confusion. The physician seeing the case should remember that the patient is primarily his responsibility and that he can apply basic principles in treatment as well as anyone else. He is not helpless. Diagnosis even of the suspect case may require repeated visits and investi-

331

Canadian Journal of Public Health, Aug 1944, p. 331

Post-War Public Health Progress: *Federal Health Grants*

- **1946-48** – The end of World War II began a period of accelerating change in public health and biotechnology in Canada, fuelled by peacetime prosperity and a progressive federal government ready to take a leadership role in upgrading Canada's health care infrastructure held back by almost two decades of economic depression and war

- **1946** - A key leader in this effort was Paul Martin, who became Minister of National Health and Welfare just after his 8-year-old son, Paul Jr., was stricken with polio.

Paul Martin, *A Very Public Life*, Vol. 1 (1985)

ith Louis St Laurent, Canada's minister of external affairs at Hyde Park, the ho Irs Eleanor Roosevelt, 3 November 1946.

- **1907** - Paul Martin Sr. had his own experience with polio as a child

Post-War Public Health Progress: *Federal Health Grants*

- **1946-48** – Worsening polio epidemics, among other health challenges, put a major strain on the Canadian public health and hospital infrastructure
- The ability of provincial governments to pay for specialized polio care services became acute
- **1948** – With the growing polio problem an important factor, Martin introduced annual Federal Health Grants to boost provincial health services on a shared cost basis, designed to support hospital construction, mental health, cancer and tuberculosis control, crippled children, and public health research

$150 Million in Grants Health Services Plan

By WARREN BALDWIN

OTTAWA, May 14 (Staff) — Prime Minister King today revealed to the Commons the government's plans to spend $30 million a year for five years in grants to the nine Canadian provinces for assistance in setting up health services. Money this year will be included in supplementary estimates to be voted by parliament before the session prorogues. The grants follow the pattern laid down in the Dominion Government proposals to the provinces in August, 1945, and the amounts in many cases are identical. The program represents the maximum length to which it is believed the Dominion will go in pro-

Globe & Mail, May 15, 1948, p. 1

Martin Says Grants War on Disease

Vancouver, May 18 (CP). — Health Minister Paul Martin today said the new federal $30,000,000 health program marks the start of a frontal attack on disease.

He spoke at the opening session of the 36th annual meeting of the Canadian Public Health Association today with 600 delegates present from all sections of the Dominion.

The grants to the provinces will enable them to survey the hospital needs, and the hospital construction program will provide 40,000 needed beds within 10 years, he said.

"It is the first step in a national contributory health in-

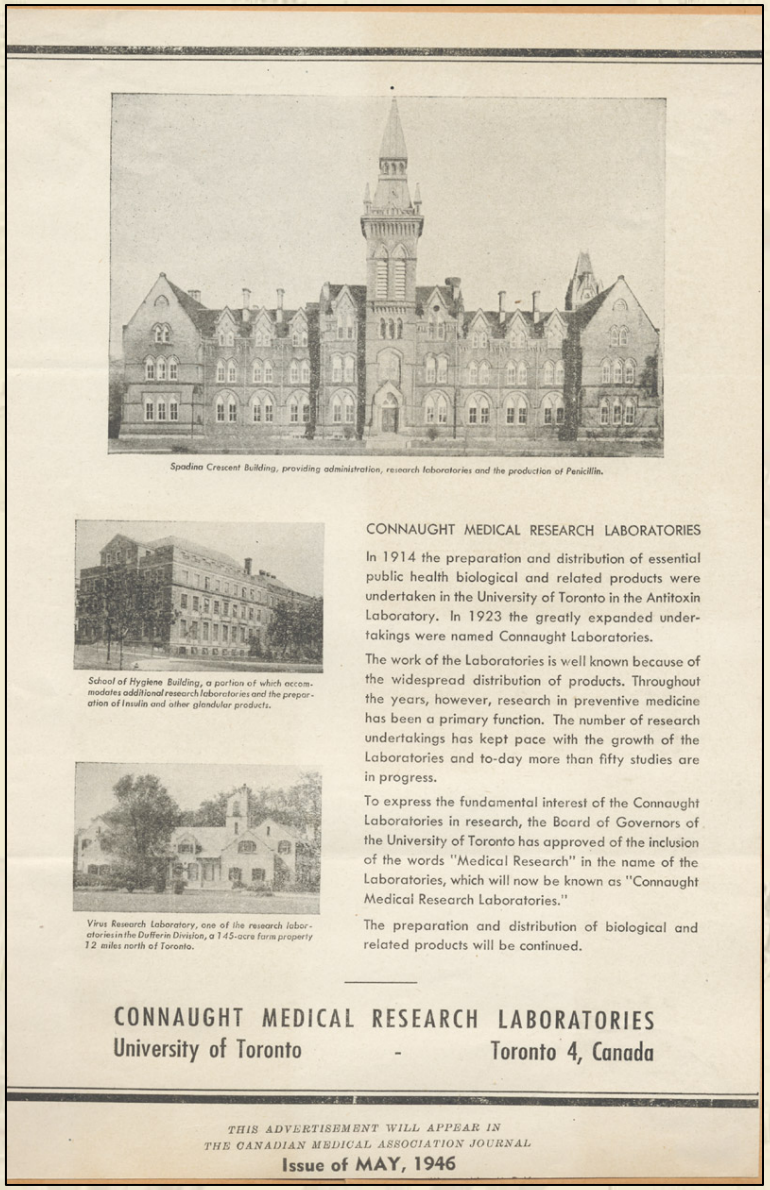
Globe & Mail, May 19, 1948, p. 12

POLIOMYELITIS

Library & Archives Canada

Connaught Medical Research Laboratories:
University of Toronto

- **1914** – Established as a self-supporting part of the University of Toronto to develop, produce, distribute and improve essential public health products
- **1920s** – Played a key role in the development and production of insulin
- **1920s-40s** – Played a major role in the development and production of diphtheria toxoid, pertussis vaccine, heparin, and penicillin
- **1972** – Ultimately, Connaught sold by UofT and today its legacy continues as Sanofi Pasteur Canada



Spadina Crescent Building, providing administration, research laboratories and the production of Penicillin.

School of Hygiene Building, a portion of which accommodates additional research laboratories and the preparation of Insulin and other glandular products.

Virus Research Laboratory, one of the research laboratories in the Dufferin Division, a 145-acre farm property 12 miles north of Toronto.

CONNAUGHT MEDICAL RESEARCH LABORATORIES

In 1914 the preparation and distribution of essential public health biological and related products were undertaken in the University of Toronto in the Antitoxin Laboratory. In 1923 the greatly expanded undertakings were named Connaught Laboratories.

The work of the Laboratories is well known because of the widespread distribution of products. Throughout the years, however, research in preventive medicine has been a primary function. The number of research undertakings has kept pace with the growth of the Laboratories and to-day more than fifty studies are in progress.

To express the fundamental interest of the Connaught Laboratories in research, the Board of Governors of the University of Toronto has approved of the inclusion of the words "Medical Research" in the name of the Laboratories, which will now be known as "Connaught Medical Research Laboratories."

The preparation and distribution of biological and related products will be continued.

CONNAUGHT MEDICAL RESEARCH LABORATORIES
University of Toronto - Toronto 4, Canada

THIS ADVERTISEMENT WILL APPEAR IN
THE CANADIAN MEDICAL ASSOCIATION JOURNAL
Issue of MAY, 1946

Post War Polio Progress

- **1947-48** - Dr. Andrew J Rhodes, a leading virologist specializing in polio, was recruited from the UK to lead a comprehensive research program at Connaught Medical Research Laboratories to investigate the virology, epidemiology and clinical diagnosis of polio
- Rhodes' research funded by NFIP, Canadian Life Insurance Companies, and the new Federal Public Health Research Grants

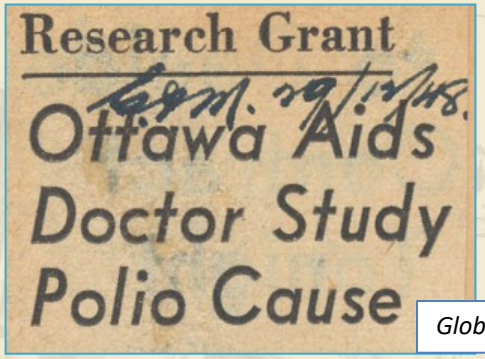
Sanofi Pasteur Canada Archives

Globe & Mail, Sept 11, 1948

Non-Tourist Dufferin County Chosen for 1948 Polio Research

Sanitary inspector of Dufferin County health unit, Harry Williams, is seen (left) taking sewage water samples from an open drain during study of poliomyelitis in the Dufferin County area. Check-back can be made to sewage sources for possible points of contamination. At right, Mr. Williams prepares check samples to be sent to Connaught Laboratories for analysis.

—Fred Clarke.



Research Grant

Ottawa Aids Doctor Study Polio Cause

Globe & Mail, Dec 29, 1948

Key Poliovirus Studies, 1949: Arctic Polio

- **Winter 1948-49 –** One of Rhodes' most significant projects involved investigating a highly unusual polio epidemic that struck Chesterfield Inlet on the western shore of Hudson Bay, with the Inuit community severely affected; 60 cases and 13 deaths among a population of 275, with many adults stricken

- Very little about this outbreak fit what was known about polio at the time, especially it striking so far north in the middle of an Arctic winter

The Canadian Medical Association Journal

Vol. 61 OCTOBER, 1949 No. 4

POLIOMYELITIS IN THE ARCTIC*

J. D. Adamson
Director, Department of Medicine, University of Manitoba; Director, Department of Medicine, Deer Lodge Hospital (Department of Veterans' Affairs)

J. P. Moody
Field Medical Officer, Eastern Arctic, Indian Health Services

A. F. W. Peart
Chief, Division of Epidemiology, Department of National Heath and Welfare

R. A. Smillie
Major, R.C.A.M.C., Command Hygiene Officer

J. C. Wilt
Assistant Pathologist, Winnipeg General Hospital

and

W. J. Wood
Regional Superintendent, Indian Health Services

DURING the autumn of 1948 and the winter of 1949 a widespread epidemic of acute anterior poliomyelitis occurred in the Eastern Arctic of Canada. This epidemic has attracted much attention since it was at its height during the winter in an isolated district, sparsely settled by Eskimos who had previously had no poliomyelitis. Thorough investigation was undertaken by Indian Health Services in the Federal Department of Health and Welfare, to whom this report is accordingly submitted.

Two trips in ski-equipped aircraft were arranged by the Royal Canadian Air Force, the first in the first week of March and the second in the first week of May. The party received most valuable assistance from members of the white settlement at Chesterfield. Without their general knowledge of the Eskimo and familiarity with local conditions the important features of the epidemic could not have been discovered.

* This study was conducted under the direction of the Department of National Health and Welfare.

THE LOCALE

Reference to the map will show the area affected to be between 60 and 65° N. and between 90 and 100° W. Chesterfield Inlet is a thousand air miles north of Winnipeg. This is one of the most northerly epidemics of polio-

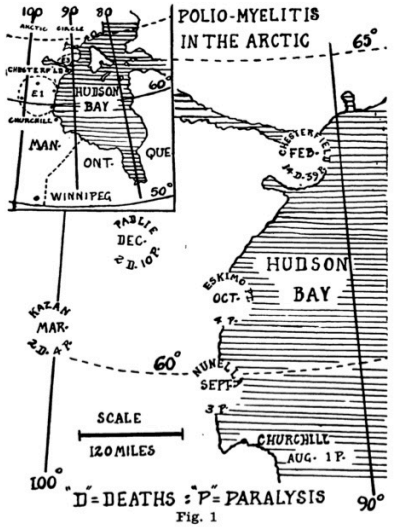


Fig. 1

myelitis on record and among the very few known to have occurred in Eskimos. Arne Hoygaard[1] refers to an epidemic in August-November, 1925, at Angmagssalik, East Greenland (65° N.) which caused 27 deaths among 800 Eskimos. He also refers to a report of an epidemic in West Greenland by A. Bertelson[2] in 1935.

It will be seen that the epidemic occurred during the coldest part of an unusually cold

Post War Polio Progress & Tragedy: *Arctic Polio*

- **Late March 1949** – 24-year-old Constance Beattie was the only real choice to answer a distress call issued by the Department of Indian Affairs

- A physiotherapist was urgently needed to provide muscle re-education to Inuit polio victims in the Chesterfield Inlet area

- It would be an unprecedented mercy mission in response to an unprecedented and especially tragic polio epidemic that struck the local Inuit population, of which there were about 275, along with 25 "whites" living in and around the outpost

Globe & Mail, April 2, 1949, p. 1

Brockville Girl to Aid Polio-Stricken Eskimos

Nine days from today, a pretty young physiotherapist is going to give up her comfortable job in the city and fly 400 miles inside the Arctic Circle to aid the Eskimos stricken with polio at Chesterfield Inlet. She is the first physiotherapist ever to be sent into the Arctic Circle.

Her eyes shining with excitement, 24-year-old Constance Beattie, from Brockville, yesterday explained how she had jumped at the opportunity. As president of the Toronto branch of the Canadian Physiotherapy Association, she was the first to receive a letter from the Indian Department of the Canadian Government asking for volunteers. She immediately wired back, asking that her name be put first on the list.

"It will be a thrilling adventure," she exclaimed, "and a chance to help those unfortunate Eskimos who don't have half the chance that polio victims get down here."

It was at the end of January that a mysterious plague was first reported among the Eskimo settlements around Chesterfield Inlet. It was later discovered there were over 60 cases of poliomyelitis. Since then 13 have died and 13 others have been flown to Winnipeg for treatment. Extra medical aid has been sent up north.

Miss Beattie will join the 25 whites and the 250 Eskimos in the isolated Arctic village. She has been assured that, although the Eskimos all live in igloos, the whites live in houses. She will likely stay at the seven-bed hospital which was improvised to accommodate 35 patients after the epidemic was discovered.

Since her discharge from the army, Constance has been working with orthopaedic cases at the Toronto East General Hospital, where she is in charge of the physiotherapy department. After her four months in the Arctic, she plans to return here.

The furthest north Miss Beattie has ever been is Winnipeg, one of her postings during her army career.

Although there are one resident doctor and several Grey Nuns in the hospital, the physiotherapy treatment of the 18 Eskimos will fall entirely on Miss Beattie.

—Globe and Mail.
Constance Beattie.

Post War Polio Progress & Tragedy: *Arctic Polio*

- Connie grew up in Brockville, ON, and graduated from the University of Toronto's Physiotherapy program before serving in the Royal Canadian Army Medical Corp.

- **1948** – She joined the Physiotherapy Department at Toronto East General Hospital and was also President of the Toronto branch of the Canadian Physiotherapy Association, which was where officials from the Department of Indian Affairs started their search

- **April 2, 1949** - Connie wasted little time in volunteering her services. "It will be a thrilling adventure and a chance to help those unfortunate Eskimos who don't have half the chance that polio victims get down here"

Courtesy of Chuck Beattie (Connie's nephew)

Post War Polio Progress & Tragedy: *Arctic Polio*

- A month earlier, newspapers first reported the alarming news of a mysterious epidemic striking Chesterfield Inlet
- Spreading swiftly, initial reports said that 11 “Eskimos” had died from the disease, which appeared similar to polio, although the “white persons” seemed to have escaped it
- One sixth of the local Inuit population was affected, including many adults, leaving them with varying degrees of paralysis that could be permanent and debilitating

Winnipeg Tribune, March 4, 1949, p. 1

Polio Suspected In North Plague

Poliomyelitis was suspected today as the cause of a northland plague which took the lives of 11 Eskimos and sent a five-man medical team to Chesterfield Inlet, 350 miles north of Churchill.

The team, headed by Dr. W. J. Wood, was expected to fly back to Winnipeg late Saturday or early Sunday following a report from Churchill this morning that the malady had been localized in one section.

Fears that the disease might spread had earlier necessitated a quarantine over a 40,000-square mile area by federal health officers.

Dr. Wood radioed Churchill that others affected by the sickness at Chesterfield Inlet had recovered or were on the road to health.

He doubted that any similarity existed between the epidemic and the disease which wiped out nine lives more than a month ago at Creswell Bay on Somerset Island, 400 miles within the Arctic Circle.

Only Eskimos were affected at Chesterfield Inlet and most were in the younger age levels. The tiny mission hospital has been provided with extra beds to accommodate patients but their exact number is not yet known.

Dr, P. J. Moody, resident physician, reported, however that the disease was "definitely waning."

Post War Polio Progress & Tragedy: *Arctic Polio*

- Dr. Joseph P. Moody, Medical Officer of Health for the Eastern Arctic and resident physician at Chesterfield, took the unprecedented step of ordering the quarantine of 100,000 square kilometers, extending from the outpost, strictly restricting the movement of the area's mostly Inuit population, estimated to be 600

- This massive quarantine would remain in place for almost 9 months

- **March 2** - Five doctors arrived at Chesterfield Inlet and after a few days of treating cases in the outpost's St. Theresa Hospital, investigating the outbreak, and gathering specimens for lab tests, the doctors and 13 of the Inuit polio patients flew to Winnipeg for further treatment

New York Times, March 9, 1949, p. 11

13 ESKIMOS VICTIMS OF POLIO EPIDEMIC

40,000 Square Miles in Arctic Put Under Quarantine— 'Carrier' Is Traced

By P. J. PHILIP
Special to THE NEW YORK TIMES.

OTTAWA, March 8—Medical experts who flew to Chesterfield Inlet on the west shore of Hudson Bay last week to investigate an epidemic of poliomyelitis among Canadian Eskimos have returned here with an amazing story of the reasons why an area of 40,000 square miles of Arctic territory has been quarantined.

When the epedimic was reported it was not possible to establish its exact nature and infantile paralysis was not at first suspected because it was not considered a cold-weather disease.

Now Dr. A. F. W. Peartchief, of the epidemic division of the Department of National Health and Welfare, and Dr. P. E. Moore, director of Indian Health Services, have satisfied themselves that the disease was carried into the region and transmitted by carriers who were themselves immune to persons who had no developed resistance.

As these doctors told it here today the chain was established last August when a white man came to Winnipeg from Churchill and was found to have a mild case of poliomyelitis. In the middle of September an Eskimo named Tutu, who had been in contact with the white man in Churchill, went north to Nunella Chesterfield and also visited Eskimo Point. At both places a malady now believed

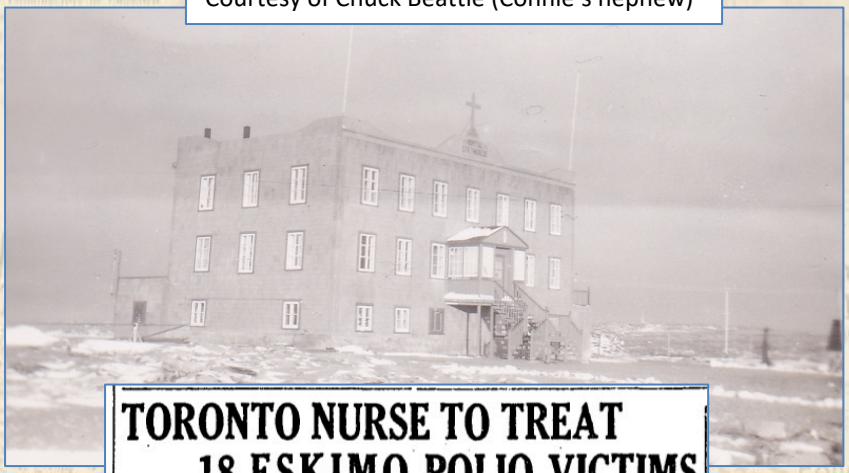
Post War Polio Progress & Tragedy: *Arctic Polio*

- **End of March** – There had been some 60 polio cases in an Inuit population of about 275, with 38 having definite paralysis and 13 died from respiratory complications

- Moody thought several of the cases would benefit from physiotherapy and suggested that a person trained in orthopaedic exercises be brought to the outpost

- Connie Beattie committed to spending four months in Chesterfield Inlet, working closely with Dr. Moody and the Grey Nun nurses at St. Theresa Hospital

Courtesy of Chuck Beattie (Connie's nephew)



TORONTO NURSE TO TREAT 18 ESKIMO POLIO VICTIMS

The first physiotherapist ever to be sent across the Arctic circle, 24-year-old Constance Beattie will soon be treating 18 polio-infected Eskimos at Chesterfield Inlet. Miss Beattie, as president of the Toronto branch of the Canadian Physiotherapy association, was first to receive a letter from the department of Indian affairs at Ottawa, asking for volunteers. She wired back immediately, asking that her name be put first on the list.

Nine days from today, Miss Beattie will go to Winnipeg to spend three weeks treating Eskimos there. Then she will go 400 miles inside the Arctic circle to Chesterfield Inlet for a four-month stay.

Near the end of last January a mysterious plague was reported among the Eskimos around Chesterfield Inlet. Later it was discovered there were over 60 cases of poliomyelitis. Since then, 13 have died.

"It will be a thrilling adventure," she exclaimed. "It will be a chance to help those unfortunate Eskimos who don't have half the chance that polio victims have down here." She said she probably would live in the seven-bed hospital which has been improvised to care for 35 patients. There are 25 whites and 250 Eskimos at the settlement.

Constance has been working with orthopaedic cases at the Toronto East General hospital since her discharge from the army. She is in charge of the physiotherapy department, and plans returning to it after her stay in the Arctic.

"The furthest north I've ever been is Winnipeg," she smiled. "I was posted there while in the army." There is one resident doctor at the Chesterfield Inlet hospital and several Grey nuns.

CONSTANCE BEATTIE

Toronto Star April 2, 1949, p. 17

Post War Polio Progress & Tragedy: *Arctic Polio*

- **April 11** - Her Arctic adventure actually began in Winnipeg, spending three weeks at the King George Hospital assisting with the care of the 13 Inuit polio patients who had been brought from Chesterfield, although she said that there had essentially been "*no* Physio" provided so far

Courtesy of Chuck Beattie (Connie's nephew)

- **April 26** – Connie arrived in Chesterfield Inlet, accompanied by two of the polio patients (two young Inuit boys) returning home, along with 4 doctors and a nurse from the Department of Indian Affairs

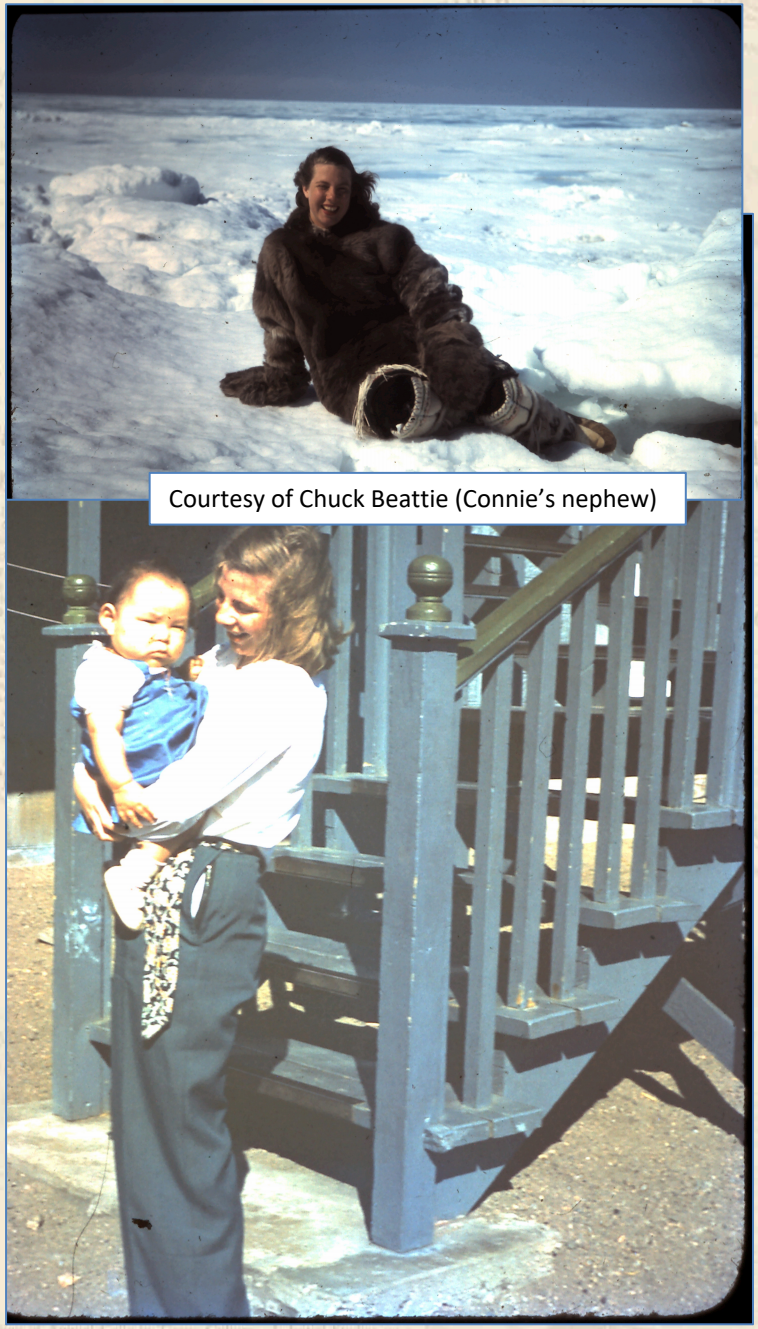
Post War Polio Progress & Tragedy: *Arctic Polio*

- Everyone in and around Chesterfield Inlet quickly became very fond of Connie, although to the local Inuit, she was “Isuaksiajikulaq,” or “young doctor”

- She did remarkable therapeutic work among the 40 polio patients left with residual paralysis in the area, providing therapy to patients in the hospital and in their igloos based on the Sister Kenny method

- In a letter home, Connie stressed, “Arctic or no Arctic, I am still hotpacking!”

- She often had to melt snow when water was needed for the hot packs



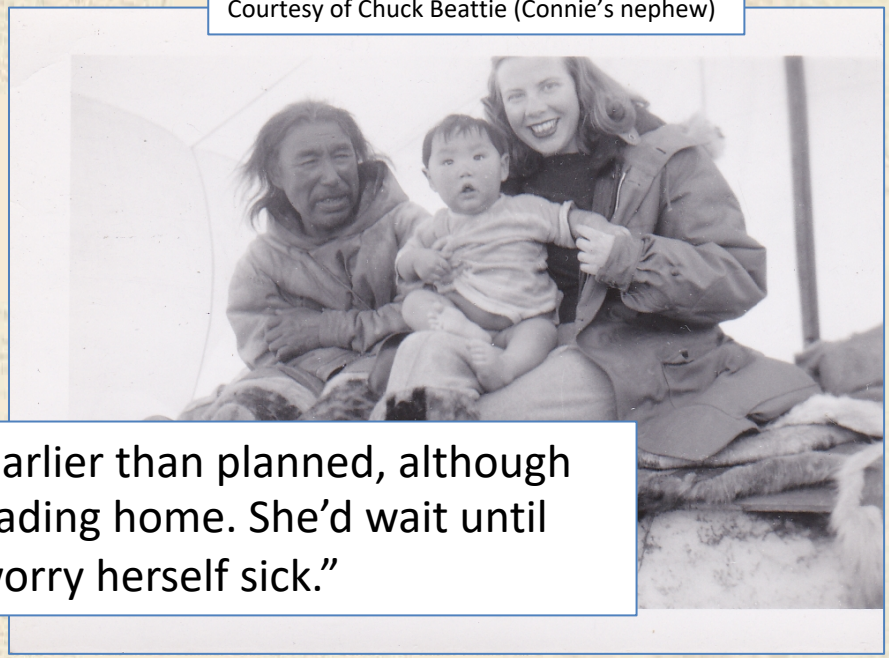
Courtesy of Chuck Beattie (Connie’s nephew)

Post War Polio Progress & Tragedy: *Arctic Polio*

- After a fairly quiet spring and early summer, Connie was surprised to learn that she would be leaving two weeks earlier than expected, although she was eager to get home as she had plans to get married

- The earlier departure was to facilitate the flight plan of the RCAF Canso aircraft that would first transfer several federal transportation department personnel at a remote weather station on Baffin Island, before stopping in Chesterfield Inlet and heading for Winnipeg on Aug 21

Courtesy of Chuck Beattie (Connie's nephew)

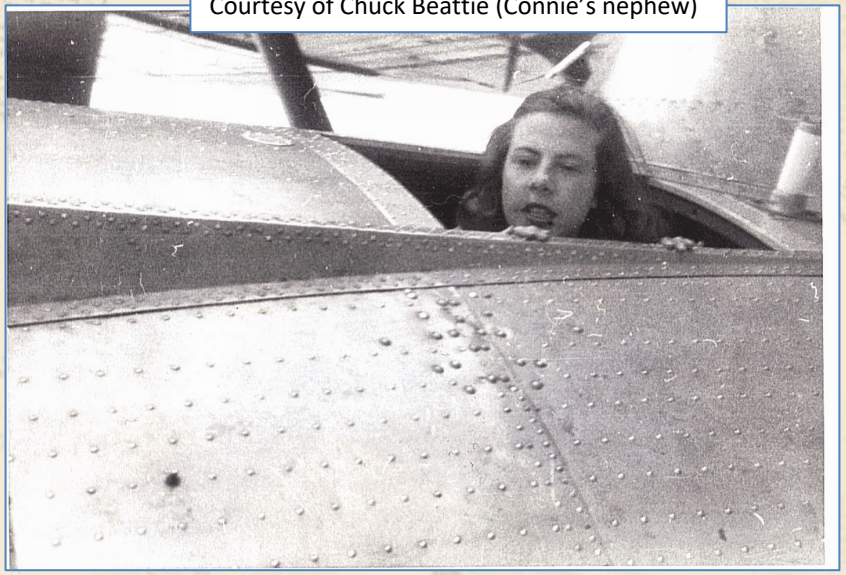


- It was a scramble getting ready to leave earlier than planned, although Connie didn't tell her parents she was heading home. She'd wait until getting to Winnipeg, "as Mother would worry herself sick."

Post War Polio Progress & Tragedy: *Arctic Polio*

- Although Connie had completed her Arctic assignment, and eight of the most serious polio cases would accompany her on the flight to Winnipeg, as Moody wrote, “we dreaded having her go back to civilization”
- “The evacuation of eight paralyzed Eskimos was a pitiful sight. Many young men, formerly great hunters, were carried out with arms and legs dangling helplessly”
- The remaining Inuit grieved as they watched their friends and family members carried onto the canoe that took them to the plane
- Several of the children resisted until they understood that Connie would also be going

Courtesy of Chuck Beattie (Connie’s nephew)



Post War Polio Progress & Tragedy:
Arctic Polio

- **Aug 22** - Connie Beattie's smiling face dominated the front page of the *Toronto* Star, but it was placed below an alarming headline: "20 Missing On Mercy Plane: Comb Barren North For Mercy Aircraft; Ontario Girl Aboard"

  - Like the news of the Arctic polio epidemic itself, news of the missing "mercy flight" spread quickly in the North American press

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TORONTO DAILY STAR

THE WEATHER
Toronto and vicinity — Tuesday: Sunny and warm. Low tonight, 60; high Tuesday, 85.

57TH YEAR | Authorized as second class mail, Post-Office Department, Ottawa. | MONDAY, AUGUST 22, 1949—38 PAGES | 3c PER COPY, 18c PER WEEK

20 MISSING ON MERCY PLANE

COMB BARREN NORTH FOR MERCY AIRCRAFT ONTARIO GIRL ABOARD

Special to The Star

Winnipeg, Aug. 22—Search planes are mustering at Stevenson airport here today for a second sweep of some 750 miles of barren territory to the north holding the secret of an R.C.A.F. Canso amphibian, missing with 20 aboard since last night on a mercy flight.

Four department of transport inspectors, returning from long duty spells at northern outposts, are among the missing. With them are seven Eskimo polio victims, a crew of seven, a nurse and a newspaperman.

Constance Beattie, 24, of Brockville, is believed to be the nurse accompanying the polio-stricken Eskimos aboard the missing plane. She is a physiotherapist.

Miss Beattie, who left her Brockville home to nurse in the north, was looking after the Eskimos on their flight to Winnipeg, where they were to enter the city hospital. All seven were crippled by polio during the last winter's polio outbreak.

Newsman Aboard

Jack Aveson of Canadian Press was also aboard, returning from a northern assignment. Pilot of the plane is Flt.-Lieut. Frank Rush.

Air force authorities said two of the Eskimos were women, three young girls and two men. Two could walk but five were loaded on the overdue Canso in stretchers.

With fuel to last 10 hours, the Canso left Churchill at 6 p.m. last night and checked in with the Hudson Bay station three hours later. Last radio contact was made at

HOME AND SPORT EDITION

MISSING AIRCRAFT from Chesterfield Inlet is believed to have among 20 persons aboard Nurse Constance Beattie of Brockville, who was accompanying seven Eskimo polio victims from inlet. Plane, Canso, is being sought by aircraft in northern Manitoba

  - The next morning, newspapers reported the grim news that the Canso had crashed and all 21 on board were very likely killed

Post War Polio Progress & Tragedy:
Arctic Polio

- **Aug 23** - The front page of the *Toronto Star* again featured Connie Beattie, the "pretty physiotherapist" in her graduation photo, along with a picture of her fiancé, Dr. Guthrie Grant
- As soon as he heard the plane was missing, Grant had set out on a Trenton-based RCAF search plane for Winnipeg, although by the time he arrived he knew the plane had been found with no signs of life

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TORONTO DAILY STAR

THE WEATHER
Toronto and vicinity—Wednesday Clearing, cooler. Low tonight, 6[illegible] high Wednesday, 70.

57TH YEAR — Authorized as second class mail, Post-Office Department, Ottawa — TUESDAY, AUGUST 23, 1949—40 PAGES — 3c PER COPY, 18c PER WEEK

FIND WRECK, HINT ALL 21 DEAD

Doctor Won't Drop Hopes Bride-To-Be Still Alive

HOME AND SPORT EDITION

Fight Every Application At Robb Liquor Hearing

AMONG THE 21 PERSONS aboard R.C.A.F. Canso which crashed, burned while en route to Winnipeg from Churchill, Man., with Eskimo polio victims, was Constance Beattie of Brockville and Toronto, seen, right, during another mercy mission. She went west on plea for physiotherapists at time of Chesterfield Inlet epidemic, when this picture was taken

R.C.A.F. GROUP ready to attempt rescue of any who may have survived is briefed by Wing Commander A. L. Walmsley. Wreckage of craft, which disappeared Sunday night during heavy rain storm, was sighted this morning by searching R.C.A.F. planes. Also aboard aircraft was A. B. Neill of Glencoe, Ont., who has spent two years in the north on government work

SEE 'NO SIGN OF LIFE' IN BURNED WRECKAGE OF R.C.A.F. AIRCRAFT

Special to The Star

Winnipeg, Aug. 23—Airborne para-rescuers today are winging toward the wreckage of an R.C.A.F. Canso aircraft carrying 21 persons, including a Brockville, Ont., nurse, that crashed and burned between Churchill, Man., and Winnipeg.

Discovery of the lost plane, which disappeared on a mercy mission, was announced by the R.C.A.F. The tersely-worded bulletin suggested the 21 are dead. It said the Canso had burned and there was "no sign of life" visible from the air.

In Barren Territory

Crumpled on barren territory on a direct track between Churchill and Winnipeg, the crashed Canso was sighted at 10.35 a.m., Toronto time. Search headquarters here said the para-rescue team, which had been standing by, immediately left for the scene. Two float planes and an amphibious Canso were also ordered into the air.

Discovery of the wreckage followed reports by two Indians at Little Grand Rapids, 200 miles north of Winnipeg, that a parachute flare was seen dropping from a twin-engine plane late Sunday night, when the Canso vanished. As information concerning the plane and its passengers was correlated, it became known 21 were aboard, one more than originally announced by the R.C.A.F.

Brockville Girl Aboard

They include 24-year-old Constance Beattie of Brockville, who was returning home to be married after four months tending polio-stricken Eskimos, 400 miles within the Arctic circle; three department of transport radio-operators and a cook from Baffin island weather station.

All four were married men returning from the Clyde river base

—Photo by Ashley and Crippen

FIANCE of Miss Beattie is Dr. Guthrie Grant, who flew to Winnipeg early today

—Photo by Ashley and Crippen

PRETTY PHYSIOTHERAPIST, Miss Beattie, is described by friends as "a swell type." A graduate of University of Toronto, she wanted to aid in work of improving the health of Eskimos and other residents of the north. Photo was taken at time of graduation

Doctor Flies to Rescue Clings to Hope Nurse His Bride-to-be Alive

Special to The Star

Winnipeg, Aug. 23—A young doctor from Brooklin, Ont., climbed wearily aboard an R.C.A.F. rescue plane today still hoping to find alive the girl who, returning to marry him after a four-month mercy mission inside the Arctic circle, crashed with 20 others when storms enveloped the plane bringing her home.

Dr. Guthrie Grant, who set out on a journey of mixed hope and fear from his Brooklin surgery last night, knew that search planes had reported no sign of life. But he still believed he might find his fiancee, 24-year-old Constance Beattie of Brockville, Ont., somehow miraculously alive.

Hour after hour, he had waited in Air Commodore Martin Costello's hangar operations-room as the radio crackled and searching pilots turned in their reports. Arriving at the airport here in the early hours of the morning, he stood sleepless watch until the first crews began to filter in for the dawn search.

Doctor's Story Spreads

It had been a cold, impersonal drama until that moment. Grim-faced fliers glanced at the silent, tweed-jacketed figure in the corner incuriously. They were searching for 21 human beings; that was all.

But the story of Dr. Grant was spreading, and the lonely figure assumed a new importance. This was the fiance of that girl in the plane — the physiotherapist who spent all that time caring for Eskimos in a polio-infested Arctic outpost.

The search became a more personal matter as the crews talked to the stranger. It was still a concentrated, mechanical affair with black, straight lines dividing off the maps to indicate each plane's assigned area. Now, though, it was something more as well.

Contacts Fiance's Family

Four hours after the first planes took off in the pre-dawn darkness, Dr. Grant heard the radioed message that the wreckage had been spotted.

"I've got to send the Beattie family before I do anything else," he said. "Then I'll try to get out there."

But there were telephone delays, and the para-rescue team had already taken off for the crash scene when Dr. Grant finally got through the message that was to raise new hopes and fears in a small Brockville family.

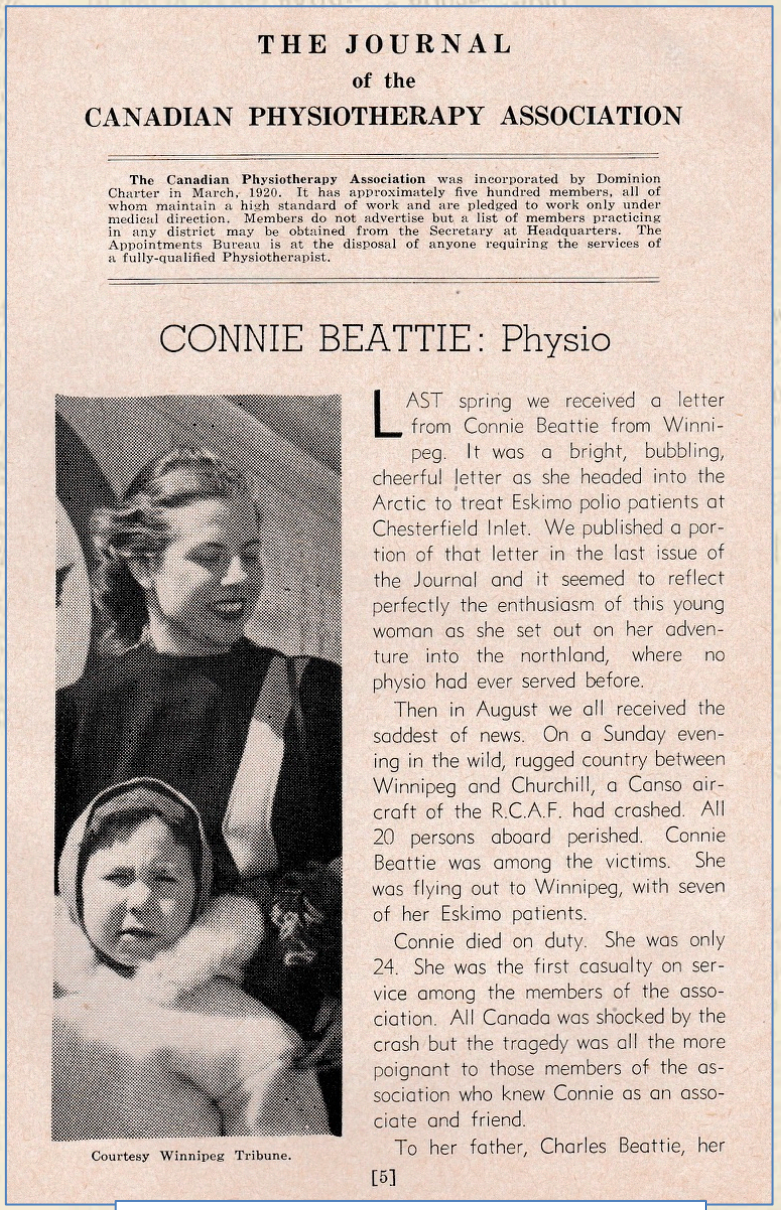
At lunch time, unshaven and with an empty stomach, but still grave and betraying no feeling but weariness, the doctor climbed aboard a reserve plane. "There's a lake near the scene," he said. "Perhaps we can get down there. At any rate we might see something. We might find someone alive, surely. . . ."

Post War Polio Progress & Tragedy: *Arctic Polio*

- Connnie Beattie's personal story of heroism and service in response to the Arctic polio tragedy, coupled with her personal tragedy while completing this service, was especially poignant as it played out prominently in the Canadian press

- Her death hit her fellow "physios" especially hard. Indeed, "she had served where no physio had served before"

- Her legacy has lived on to this day, most notably with the establishment of the "Constance Beattie Memorial Fund" bursary program by the Canadian Physiotherapy Association



THE JOURNAL
of the
CANADIAN PHYSIOTHERAPY ASSOCIATION

The Canadian Physiotherapy Association was incorporated by Dominion Charter in March, 1920. It has approximately five hundred members, all of whom maintain a high standard of work and are pledged to work only under medical direction. Members do not advertise but a list of members practicing in any district may be obtained from the Secretary at Headquarters. The Appointments Bureau is at the disposal of anyone requiring the services of a fully-qualified Physiotherapist.

CONNIE BEATTIE: Physio

Courtesy Winnipeg Tribune.

LAST spring we received a letter from Connie Beattie from Winnipeg. It was a bright, bubbling, cheerful letter as she headed into the Arctic to treat Eskimo polio patients at Chesterfield Inlet. We published a portion of that letter in the last issue of the Journal and it seemed to reflect perfectly the enthusiasm of this young woman as she set out on her adventure into the northland, where no physio had ever served before.

Then in August we all received the saddest of news. On a Sunday evening in the wild, rugged country between Winnipeg and Churchill, a Canso aircraft of the R.C.A.F. had crashed. All 20 persons aboard perished. Connie Beattie was among the victims. She was flying out to Winnipeg, with seven of her Eskimo patients.

Connie died on duty. She was only 24. She was the first casualty on service among the members of the association. All Canada was shocked by the crash but the tragedy was all the more poignant to those members of the association who knew Connie as an associate and friend.

To her father, Charles Beattie, her

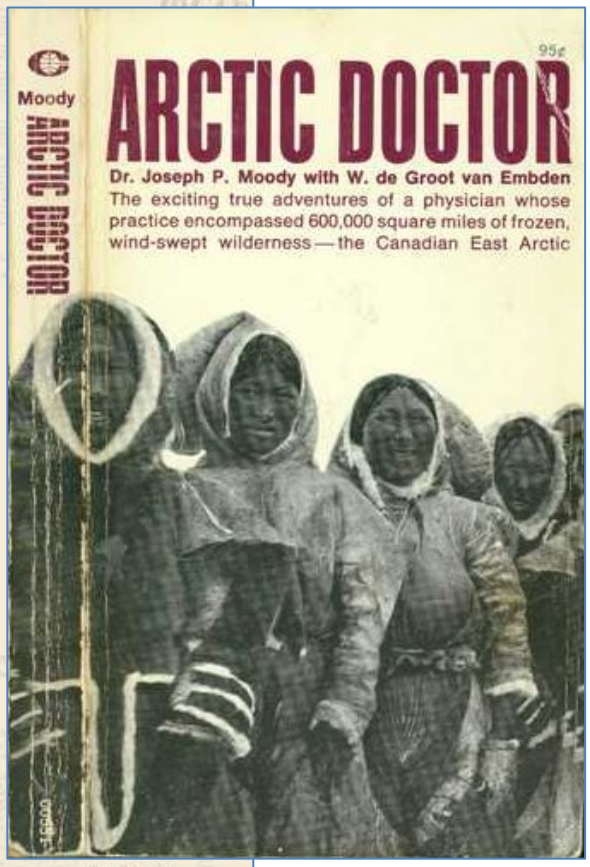
[5]

J. Canadian Physiotherapy Assoc., Sept 1949, p. 5

Post War Polio Progress & Tragedy: *Arctic Polio*

- The Arctic polio epidemic and its aftermath certainly weighed very heavily on the Inuit, who would refuse all medical evacuations for a long time

- As Dr. Moody put it, “this great disaster pursued the Eskimos like a nemesis. By direct action, it had crippled a race. Indirectly, it had been responsible for a plane crash that added another blow to the thinning of the ranks of the coastal and Caribou Eskimos”



2 THE GLOBE AND MAIL, SATURDAY, OCTOBER 8, 1949.

Took Terrific Toll

Arctic Polio Outbreak Hit Hard, Killed Quickly

Ottawa, Oct. 7 (CP).—The infantile paralysis epidemic which struck Chesterfield Inlet, N.W.T., last February, would have knocked out half the population of a large city if it had hit in a similar degree.

This is the view of a medical team which flew into the sub-Arctic to make a post-epidemic investigation.

Poliomyelitis hit Chesterfield Inlet, on the western shore of Hudson Bay, some 350 miles north of Churchill, Man., between Feb. 14 and March 7.

In that time there were 14 deaths and 39 cases of paralysis among the 275 Eskimos in the area. In addition, there were 13 deaths in other areas of the Eastern Arctic.

The group of specialists who investigated for the federal Health Department reported their findings in a leading article in the current issue of the Canadian Medical Association Journal.

"The enormity of this outbreak can be appreciated only if one translates the death and disability rates into corresponding figures in a large city," the report says.

"For example: If an epidemic of the same destructiveness were to attack Greater Winnipeg, more than 50 per cent of the people would be laid up, there would be in the course of 10 days 15,000 deaths and 42,500 people would be left with paralysis."

Globe & Mail, Oct 8, 1949, p. 2

Post War Polio Progress & Tragedy: *Arctic Polio*

- However, amidst all the tragedy surrounding this unique epidemic, much of scientific significance was learned about the epidemiology of polio, and especially about its immunology, that would ultimately prove very valuable to the development of polio vaccines

Canadian Journal of Public Health, Oct. 1949, p. 418

An Outbreak of Poliomyelitis in Canadian Eskimos in Wintertime

LABORATORY INVESTIGATIONS*

A. J. RHODES, M.D., F.R.C.P., Ed.[1]
EINA M. CLARK, B.Sc., M.A.[1]
ALICE GOODFELLOW, B.A., M.D.[2]
AND
W. L. DONOHUE, M.A., M.D.[2]

Technical Methods

SEVERAL pathological specimens were obtained from Eskimos involved in an epidemic of poliomyelitis at Chesterfield Inlet which has been described elsewhere. The specimens were shipped by aeroplane in the frozen state, and were received in good condition; they were stored in the carbon dioxide ice chest until the time of examination. Some nervous tissue was also received in glycerol, and this was stored in the cold room.

It was decided to examine sufficient specimens by monkey inoculation to confirm the clinical diagnosis of poliomyelitis beyond reasonable doubt. Accordingly, the following 7 samples were selected as most suitable: preparations of brain and cord from 2 cases; stools from 3 cases; and throat washings from 2 cases.

Nervous tissue was prepared for inoculation by grinding in a mortar to constitute a 20 per cent suspension in broth. Penicillin (1,000 units per ml) and streptomycin (5 mg. per ml) were added, and the inoculations performed in rhesus monkeys by the cerebral route; the suspension was allowed to stand at room temperature for about 30 minutes before inoculation, to allow the antibiotics to act.

Bacteria-free extracts of 2 of the stool samples were prepared by shaking repeatedly with ether, without concentration of the contained virus. In the third case, virus in an aqueous suspension of stool was concentrated in the ultracentrifuge at approximately 39,000 r.p.m. Inoculations were made cerebrally and peritoneally in rhesus monkeys.

The throat washings were treated with penicillin and streptomycin without concentration of the virus, and inoculated cerebrally and peritoneally.

Monkeys were examined daily, and were killed when paralysis developed. Monkeys that did not develop paralysis were killed 4 weeks after inoculation. All animals were examined histologically.

*Aided by a grant from the Department of National Health and Welfare, Ottawa.
[1]Connaught Medical Research Laboratories, University of Toronto.
[2]Department of Pathology, Hospital for Sick Children, Toronto.

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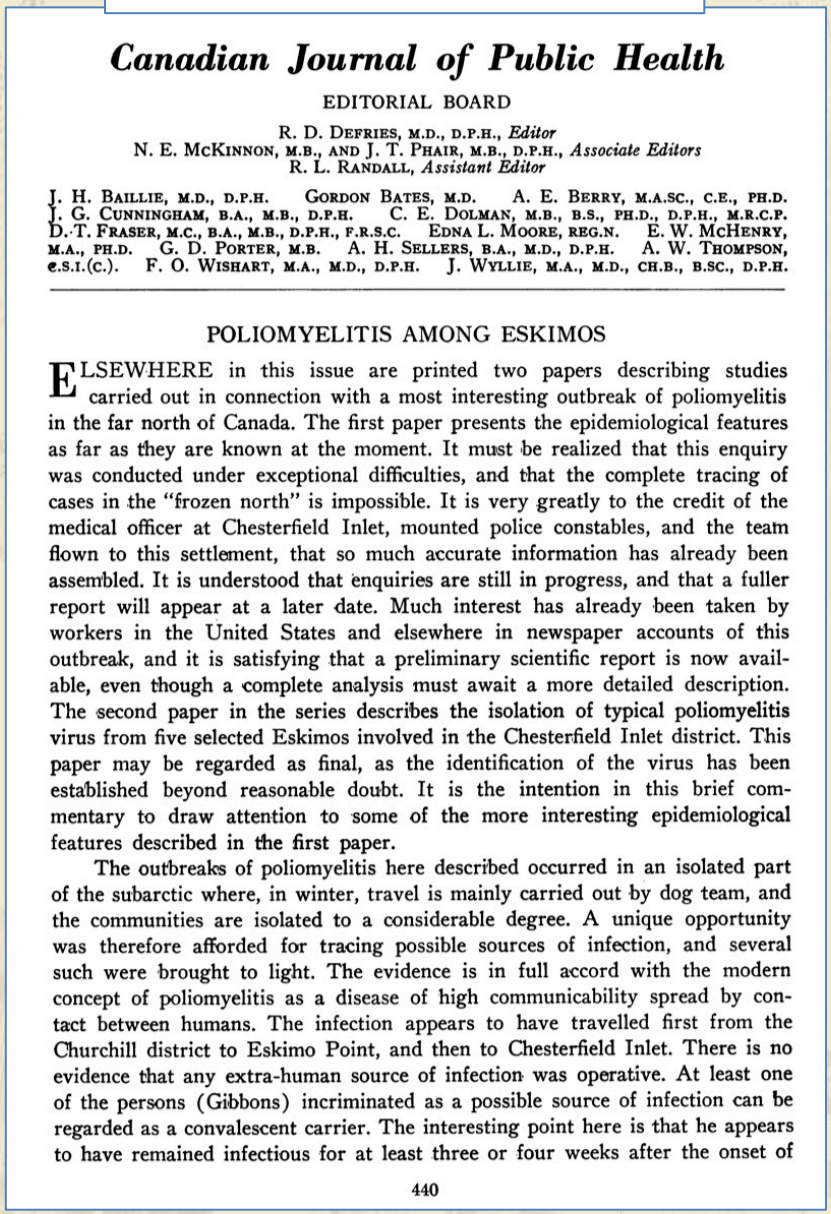
Post War Polio Progress: *Vaccine Door Opening*

- **1949** – Rhodes' Arctic polio investigations ultimately brought questions not of climate or Inuit food habits, but of human immunity, to the fore, underscoring how the poliovirus was widely distributed globally, even into the Arctic
- Yet this distribution had significant demographic and geographic gaps in countries with the most advanced public health infrastructures, and it was in such gaps that polio epidemics could be generated in any human community
- This advance in understanding the disease was a critical step towards the development of polio vaccines

Canadian Journal of Public Health, Oct. 1949, p. 440



Canadian Journal of Public Health

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POLIOMYELITIS AMONG ESKIMOS

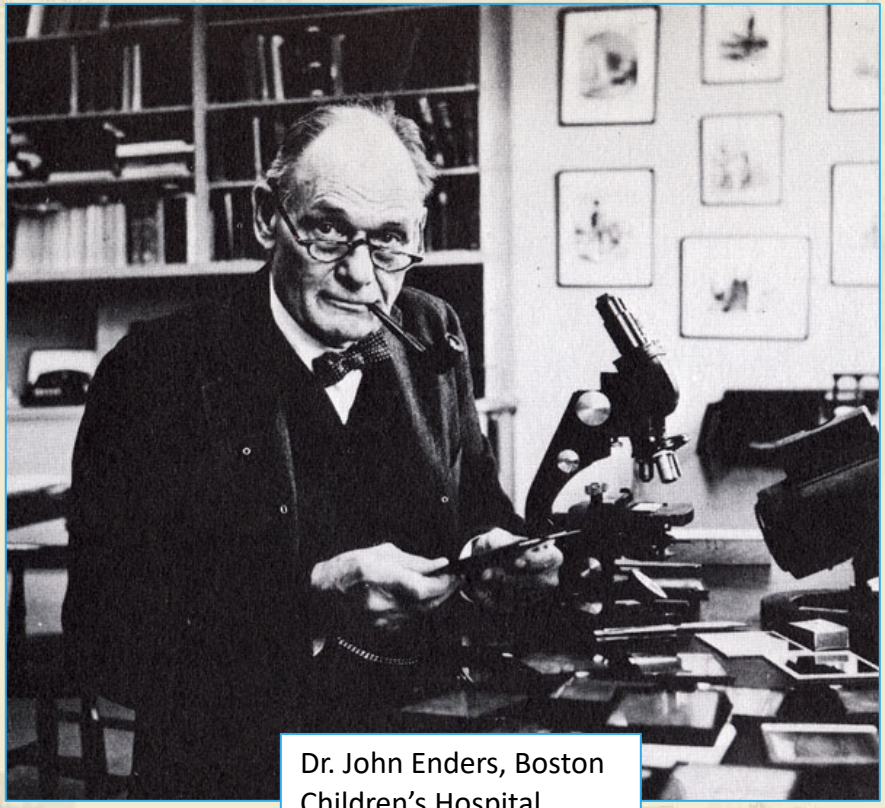
ELSEWHERE in this issue are printed two papers describing studies carried out in connection with a most interesting outbreak of poliomyelitis in the far north of Canada. The first paper presents the epidemiological features as far as they are known at the moment. It must be realized that this enquiry was conducted under exceptional difficulties, and that the complete tracing of cases in the "frozen north" is impossible. It is very greatly to the credit of the medical officer at Chesterfield Inlet, mounted police constables, and the team flown to this settlement, that so much accurate information has already been assembled. It is understood that enquiries are still in progress, and that a fuller report will appear at a later date. Much interest has already been taken by workers in the United States and elsewhere in newspaper accounts of this outbreak, and it is satisfying that a preliminary scientific report is now available, even though a complete analysis must await a more detailed description. The second paper in the series describes the isolation of typical poliomyelitis virus from five selected Eskimos involved in the Chesterfield Inlet district. This paper may be regarded as final, as the identification of the virus has been established beyond reasonable doubt. It is the intention in this brief commentary to draw attention to some of the more interesting epidemiological features described in the first paper.

The outbreaks of poliomyelitis here described occurred in an isolated part of the subarctic where, in winter, travel is mainly carried out by dog team, and the communities are isolated to a considerable degree. A unique opportunity was therefore afforded for tracing possible sources of infection, and several such were brought to light. The evidence is in full accord with the modern concept of poliomyelitis as a disease of high communicability spread by contact between humans. The infection appears to have travelled first from the Churchill district to Eskimo Point, and then to Chesterfield Inlet. There is no evidence that any extra-human source of infection was operative. At least one of the persons (Gibbons) incriminated as a possible source of infection can be regarded as a convalescent carrier. The interesting point here is that he appears to have remained infectious for at least three or four weeks after the onset of

440

Post War Polio Progress: *Vaccine Door Opening*

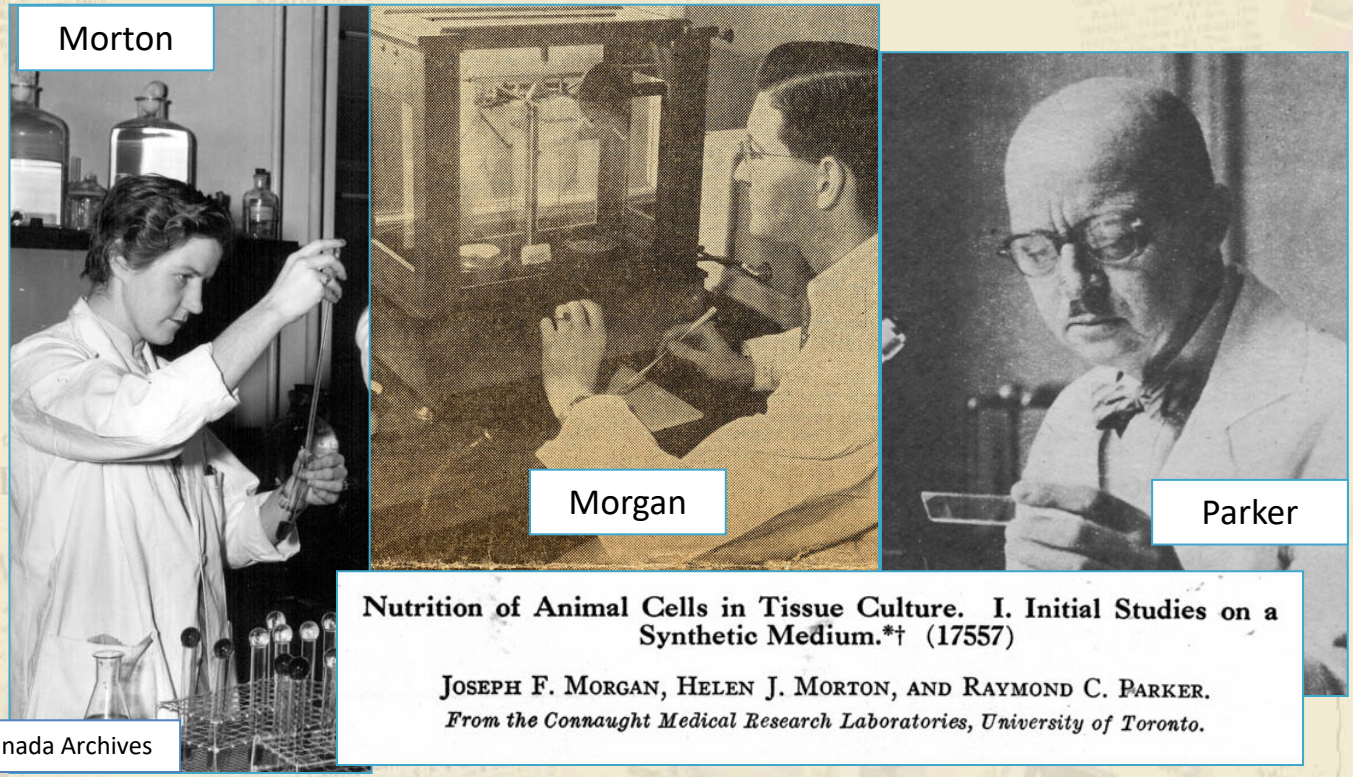
- **1949** - Hopes for a polio vaccine were also raised significantly when a research team in Boston, led by Dr. John Enders discovered a way to grow poliovirus in test tubes using non-nervous tissues
- This discovery won the Nobel Prize
- A further advance was discovering the poliovirus in the bloodstream, in addition to the gastrointestinal track, pointing to two systems where a vaccine could be targeted



Dr. John Enders, Boston Children's Hospital

Post War Polio Progress:
Vaccine Door Opening

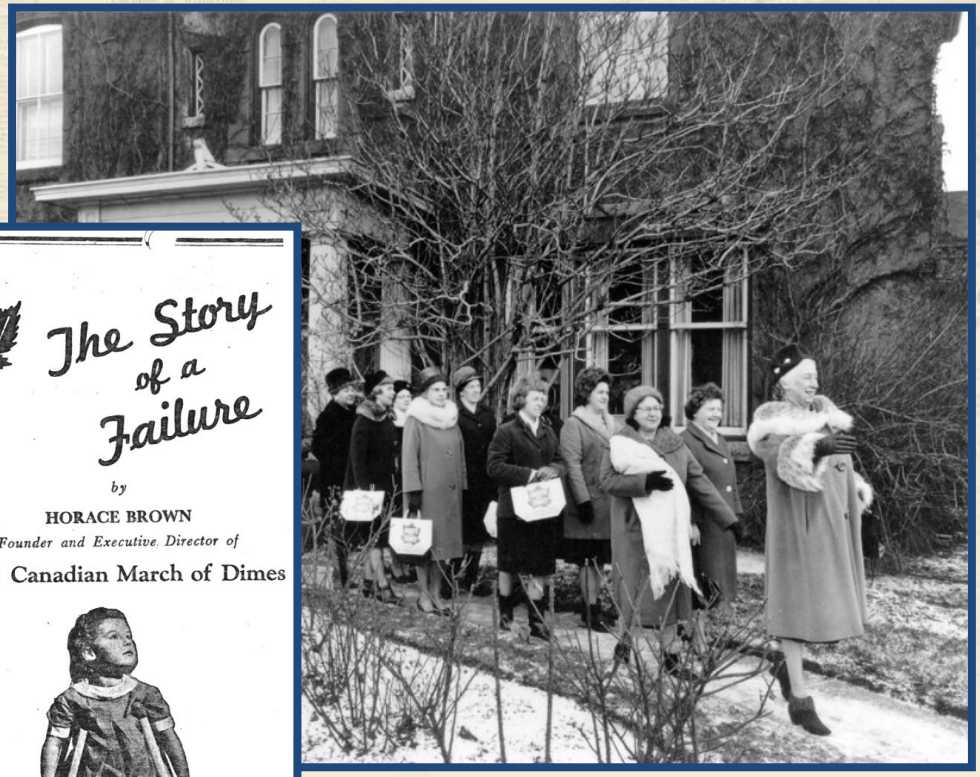
- **1949-50** – Although not linked to Rhodes' poliovirus investigations until later, another Connaught research team developed the first chemically defined synthetic tissue culture medium known as "Medium 199"
- "Medium 199", a precise mixture of 60+ ingredients, was originally developed for nutritional studies of cancer cells

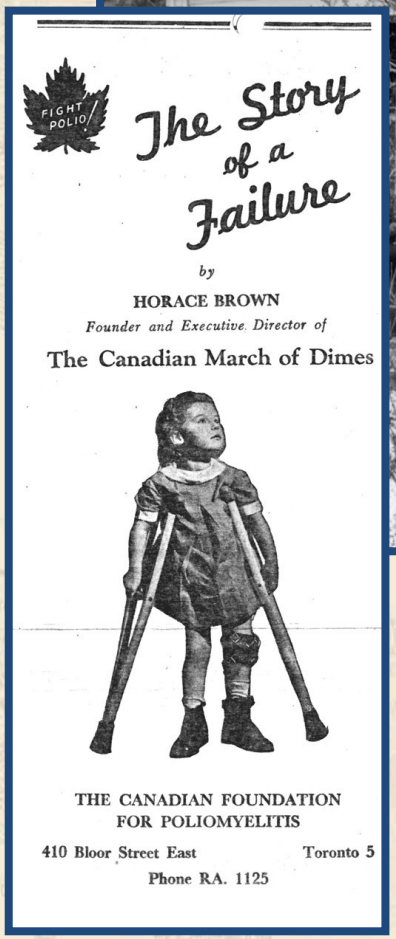


Sanofi Pasteur Canada Archives

Canadian Foundation for Poliomyelitis; *Ontario March of Dimes*

- **1948-49** – Inspired by the success of the National Foundation for Infantile Paralysis (U.S. March of Dimes), the Canadian Foundation for Poliomyelitis was established
- **1951** – CFP restructured into independent provincial organizations, including the Ontario March of Dimes, their primary focus on supports for adults with polio and other physical disabilities
- The Marching Mothers became a symbol of hope in the fight against polio





Polio: Ontario, 1951

- **July 1951** – "Polio season" began with some 227 cases reported across Canada, with 161 in Ontario
- **Aug 1951** – Another 761 cases reported nationally; 561 in Ontario
- **Sept 1951** – 973 more cases nationally, 659 in Ontario
- **Polio Totals for 1951:**
  - 2,568 in Canada, 162 deaths
  - 1,701 in Ontario; 101 deaths

- Worst polio year in Ontario since 1937

Exhaust Oxygen Supply; Firemen Lose Race To Save Polio Victim

Peterborough, Aug. 6. — Two Peterborough firemen fought hard against insurmountable odds Sunday night in an effort to save the life of a young poliomyelitis victim.

In a rush trip to Riverdale Isolation Hospital in Toronto they used two ambulances, two inhalators and artificial respiration, but 25-year-old Alvin Snowden, Peterborough optical firm employee, was dead on arrival. During the trip one ambulance broke down, and at Oshawa they had to pick up a second inhalator. Before they reached Toronto it too, ran out of oxygen.

Capt. Garnet Brown and Fireman Bill Bloom left Peterborough at 11:05 and, in spite of their difficulties, arrived at the hospital at 12:50.

"We started out in Nesbitt's ambulance from Peterborough," said Bloom, "but about three miles east of Bowmanville a rod went through the motor. I hitchhiked into Bowmanville and got an ambulance from J. J. Morris and Sons and we went back and transferred Snowden.

"Then as we got near Oshawa Capt. Brown noticed we were running low on oxygen, so we stopped at the Oshawa Fire Department for their inhalator. Both of us were working on the man while Mr. Morris' son drove so I don't know just where it was, but about the time Scarboro police gave us an escort we ran out of oxygen. Capt. Brown started giving Snowden artificial respiration and I helped him.

"When we got to the city, the Toronto accident squad gave us an escort, and at 12:50 we were at the hospital, but it was all in vain."

The death was Peterborough's first from polio this year. Snowden had worked on Friday, but complained of feeling ill on Saturday. A doctor was called and on Sunday night he was ordered to the Toronto hospital for polio treatment.

Globe & Mail, Aug 7, 1951, p. 1

14 Polio Cases During Weekend

The three-day holiday weekend turned up 14 new cases of poliomyelitis in Toronto, Health Department officials reported last night. The new cases, all but one being children, were reported between Friday night and Tuesday morning.

So far this year, 47 Torontonians have been stricken with the disease, as compared to only 30 for the whole of 1950 and 62 for the same period in 1949. The sole death this summer, that of a 22-year-old woman, occurred on July 19.

Of the weekend cases, one was a man of 26, the remainder youngsters between the ages of 2 and 14. Eight had no paralysis, the other four were slightly paralyzed either n legs or face.

At present, 17 of the 1951 cases re hospitalized, with nine still in the active stage.

Globe & Mail, Aug 8, 1951, p. 5

Polio: Ontario, 1951

- The Toronto and surrounding area was hardest hit, with cases in Hamilton and Halton to the west, and the Peterborough area to the east

- Of particular note were the cases of respiratory paralysis, including many adults, some not making it in time to an iron lung

- Most dramatic was the case of a baby born to 25-year-old Peterborough woman in an iron lung at Riverdale Isolation Hospital; the first such case in Canada

- The news, however, soon turned tragic, first for the baby and then the mother

Mother Stricken by Polio, Baby Born in Iron Lung; Report Condition Good

A six-pound baby girl was born last night while her mother fought for her life in an iron lung at Riverdale Isolation Hospital.

According to Dr. Frank O'Leary, head of the obstetrical department at St. Michael's Hospital, the birth is the first, to his knowledge, of its type in Canada. There have been two or three cases in the United States of a polio victim giving birth in an iron lung.

Late last night both Mrs. William Miller, 25, and her new daughter were in good condition.

Earlier Dr. O'Leary and Dr. W. H. Jacques, assistant superintendent at the hospital, had followed the course of labor through portholes in the lung which completely covered the mother from the neck down.

Both doctors were contemplating the possibility of a Caesarian operation or even a post-mortem Caesarian when Mrs. Miller was brought in from Peterborough early in the evening.

In what hospital authorities described as "very critical" condition when she was admitted, she was kept alive during the last 17 miles of the ambulance trip with oxygen administered by a registered nurse.

While the two doctors were discussing the case, Mrs. Miller showed signs of regaining her strength and complained of a backache and other first signs of labor.

Through an anxious hour and a half they made complete preparations. When it was obvious that the moment of birth was near, the woman was slid out of the lung for less than a minute and Dr. O'Leary guided the birth with forceps.

The woman was immediately placed back in the lung and delivery of the placenta was made through the portholes. Following the delivery, Mrs. Miller showed good respiration and a marked improvement over her condition when she was admitted.

Her legs and chest muscles are paralyzed and her arms are partially paralyzed, Dr. O'Leary explained, "Mother Nature just overcame the obstacles."

The doctor said Mrs. Miller was given a few whiffs of anaesthetic just before she was taken out of the lung. "For the 30 seconds or so she was out of the lung," he said, "she was not breathing because of the paralysis in her chest muscles."

The baby, the doctor said, appears to be perfectly normal. She was due within the next week.

Mrs. Miller was stricken with polio Tuesday and the decision to move her to Toronto made yesterday after her respiration became serious.

Mr. Miller is a technician at Luminus Process Co. The couple has one other child, Michael, 2 years old.

Globe & Mail, Aug 10, 1951, p. 1

Iron Lung Mother Dies of Polio

Mrs. William Miller, 25, of Peterborough, who gave birth to a six-pound girl while in an iron lung Thursday night, died Saturday of poliomyelitis, at Riverdale Isolation Hospital.

The child, born as Mrs. Miller was removed from the lung for less than a minute, died shortly after birth. Mr. Miller was on his way to Toronto when his wife died.

Globe & Mail, Aug 13, 1951, p. 5

Polio: Ontario, 1951

- As the 1951 "polio season" continued in Ontario, there were other cases that seemed unusual, but which reflected polio's broadening and highly variable threat during the early 1950s

- There were multiple cases in families, affecting children and parents, often with relatively mild effects

- Others, were deadly and heart-breaking

Polio Hits Scarboro Family of Seven

Three children are still in bed, while two adults, one older child and a baby have recovered from a mild form of polio which infected a Scarboro Township family one by one, over the past three weeks.

Only the mother, Margaret Woolhead, 33, was admitted to the hospital. She entered Riverdale Isolation Hospital on July 30 and was released on Aug. 4. Dr. C. D. Farquharson, medical officer of health for Scarboro, said the family has been released from quarantine.

Polio first struck the eldest daughter of Mr. and Mrs. Edward Woolhead, 13-year-old Myrna, a third form student at Markham High School. Then the parents contacted polio and then the baby, 2-months-old Randy.

Still confined to bed are the Woolhead's three other children, Raymond, 11, a second form student at Markham High School; Barrie, 8, and Linda, 4.

Dr. O. E. A. Stephens, who, with Dr. R. E. Robinson of Agincourt, attended the family, said the illness was caused by a type of polio which does not paralyze.

Dr. K. R. Borland of Agincourt doubted that the entire family contracted polio. He denied a previous report that he had attended the family.

Mrs. Woolhead said Dr. Stephens believed the entire family had it.

"I was the only one in hospital, but tests showed the rest of the family had polio, even my 2-months-old baby," declared Mrs. Woolhead.

Only one member of the family, the mother, was reported to health authorities as having polio, Dr. Farquharson said.

"Cells in fluid removed from the

Two cousins of the Woolhead's also were reported affected by the mild polio. They recovered. Mr. Woolhea side, nor

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Globe & Mail, Aug 17, 1951, p. 5

Polio Hits Family—Ernest Ward of Toronto, his wife and 5-year-old son Tommy, were all reported improving last night after being stricken with poliomyelitis while visiting in Peterborough. The Wards' youngest child, Susan, 1½, has escaped the disease and is being cared for by grandparents. Mrs. Ward became ill last Tuesday, and on Wednesday her husband and son were stricken. Medical authorities said multiple cases in families were not common, but not unusual. Mr. Ward is a draftsman with the Ontario Hydro and lives at 20 Arden Cres., Scarboro.

Globe & Mail, Aug 14, 1951, p. 5

'A Perfect Pair,' 2 Young Sisters Killed by Polio

Two young sisters have died of polio in Toronto within two weeks. Frances Howell, 10, died at her Havelock St. home on Aug. 9. Her elder sister, Shirley, 15, was fatally stricken by the disease at Riverdale Isolation Hospital Monday.

She was one of three children to die of polio within 24 hours here. The other victims were Gordon Smith, 12, of Bellair St. and Garry Young, 14, of Malton.

"Shirley and Dolly were a perfect pair of happy sisters," mourned their bereaved father. "Now we have nothing to live for any more."

The father, Frank Howell, said the family had cancelled vacation plans because of the death of Frances, affectionately called Dolly, but had decided because of the city heat to spend a few days at their cottage near Eight Mile Point on Lake Simcoe.

"I wonder if we would have been better off to stay at home," he said. "Perhaps Shirley would be still with us."

Shirley became ill Saturday morning and was taken to Memorial Hospital at Orillia. When her condition was diagnosed, she was rushed to Isolation Hospital here Saturday evening in a police-escorted ambulance.

"I watched Dolly die," her father said. "I saw the same look in Shirley's eyes." Shirley was a star swimmer and basketball player at Central High School of Commerce, and was popular with all her classmates, who always regarded her as the life of the party.

Gordon Smith died Monday night, less than 48 hours after he had been taken to the Isolation Hospital. He became ill Friday just after the family had returned from a month at Wasaga Beach.

Garry Young also died in the hospital Monday night, and was buried yesterday in Sanctuary Park Cemetery. His father, Harry Young, died

Globe & Mail, Aug 22, 1951, p. 5

Polio: Ontario, 1951

- As the 1951 “polio season” continued in Ontario, there were other cases that seemed unusual, but which reflected polio’s broadening and highly variable threat during the early 1950s

- There were multiple cases in families, affecting children and parents, often with relatively mild effects

- Others, were deadly and heart-breaking

- During the COVID-19 pandemic there have been many similarly tragic stories of families hit especially hard by the disease

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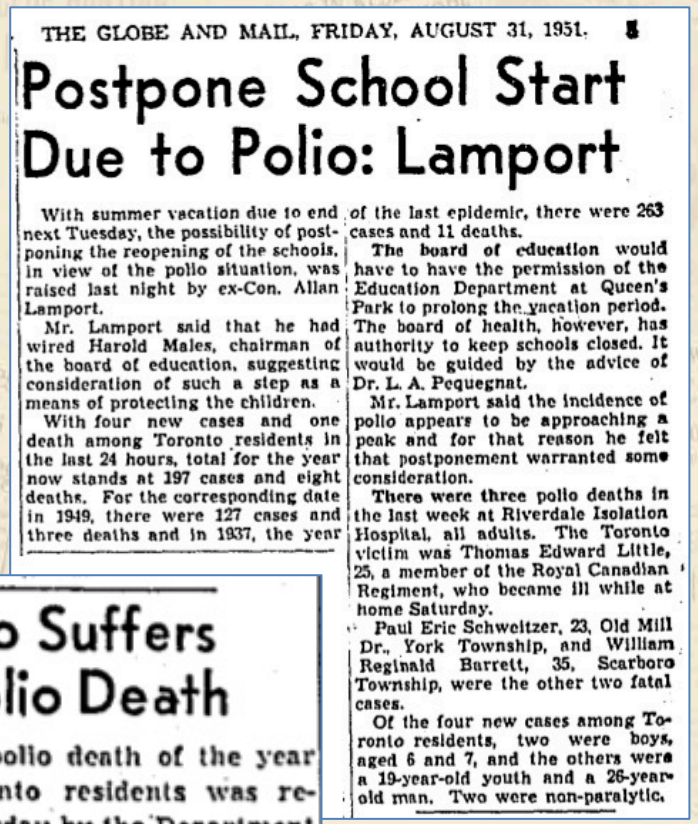
Globe & Mail, Aug 22, 1951, p. 5

Polio: Ontario, 1951

- **End of August 1951** – As the Labour Day weekend began, Toronto had reported 197 polio cases and 8 deaths so far, and once again there was debate over whether the start of school should be postponed
  - In the county of Peterborough, to the north-east of Toronto, there would be a total of 7 deaths due to polio
  - **Aug 31** – Within Peterborough county, the small village of Omemee would report its first case of polio, the youngest son of Scott Young, a noted writer, 5-year-old Neil; the town's 2nd case would prove fatal



THE GLOBE AND MAIL, FRIDAY, AUGUST 31, 1951.

Postpone School Start Due to Polio: Lamport

With summer vacation due to end next Tuesday, the possibility of postponing the reopening of the schools, in view of the polio situation, was raised last night by ex-Con. Allan Lamport.

Mr. Lamport said that he had wired Harold Males, chairman of the board of education, suggesting consideration of such a step as a means of protecting the children.

With four new cases and one death among Toronto residents in the last 24 hours, total for the year now stands at 197 cases and eight deaths. For the corresponding date in 1949, there were 127 cases and three deaths and in 1937, the year of the last epidemic, there were 263 cases and 11 deaths.

The board of education would have to have the permission of the Education Department at Queen's Park to prolong the vacation period. The board of health, however, has authority to keep schools closed. It would be guided by the advice of Dr. L. A. Pequegnat.

Mr. Lamport said the incidence of polio appears to be approaching a peak and for that reason he felt that postponement warranted some consideration.

There were three polio deaths in the last week at Riverdale Isolation Hospital, all adults. The Toronto victim was Thomas Edward Little, 25, a member of the Royal Canadian Regiment, who became ill while at home Saturday.

Paul Eric Schweitzer, 23, Old Mill Dr., York Township, and William Reginald Barrett, 35, Scarboro Township, were the other two fatal cases.

Of the four new cases among Toronto residents, two were boys, aged 6 and 7, and the others were a 19-year-old youth and a 26-year-old man. Two were non-paralytic.

Toronto Suffers 12th Polio Death

The 12th polio death of the year among Toronto residents was reported yesterday by the Department of Public Health. The victim was Fred Schaeff of Silverthorn Ave., 26-year-old father of two children, who died in hospital Sunday night.

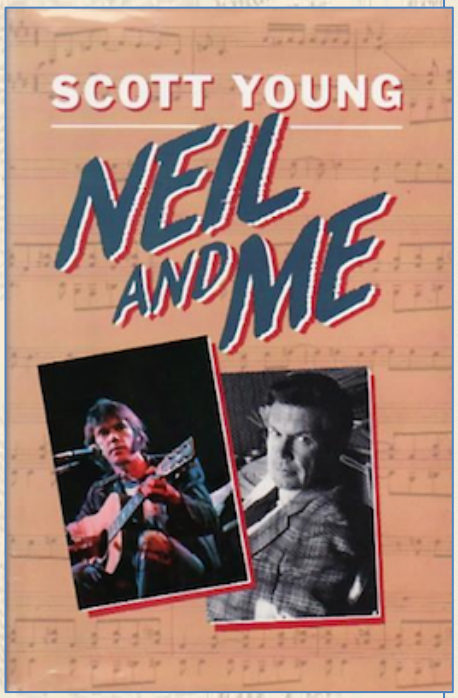
Thirteen new cases developed over the weekend, making the total for the year 292. For the corresponding date in 1937, the year of the polio epidemic, there were 562 cases and 24 deaths. Eleven of the cases were children under the age of 14. The other two were a man and woman in the 20-24 age group.

Globe & Mail, Sept 18, 1951, p. 5

Polio: Ontario, 1951:
Neil Young Case

"Polio is the worst cold there is."

Neil Young, 1951, age 5
Omemee, ON



CHAPTER THREE

Polio Was a Killer – and Neil Had It

You have to be a certain age to remember the polio epidemic in the late summer of 1951, before there was Salk vaccine to control the disease. In Omemee, as elsewhere in Canada, the headlines every day gave the statistics, usually using the phrase "infantile paralysis" because the killer disease most often struck the young. News reports explained the different types. One form could kill a person in a few hours. Another could result in paralysis and leave a person crippled for life. People that August stayed away from fairs and exhibitions and were urged to avoid mingling in crowds anywhere. In cities the ultra-cautious walked instead of taking streetcars, and kept their distance from everyone else. City or country, the fearful woke in the night wondering if that back pain was the polio back pain, or that sore throat was the polio sore throat. There was, however, no polio in Omemee as the summer wore on into early September and the ducks began to flock up on the lake and partridges in farm wood lots began to feed in late afternoons under the apple and hawthorn trees.

Then Omemee did have its first case, and ten days later in September I went up to my third-floor study and wrote something, not for sale, but just so I would remember. It sat in my files for nearly thirty years, unpublished. Here it is, exactly as written in 1951:

> The night that polio first made my younger son groan sleepily in his bed, I was reading. It was past one o'clock and I was the only one awake in the house. I waited for a minute or two after the first sound I heard from Neil's room. He seemed to be mumbling to himself. I got out of bed, trying not to disturb my wife, and opened his door. In the dim light that shone across the hall from

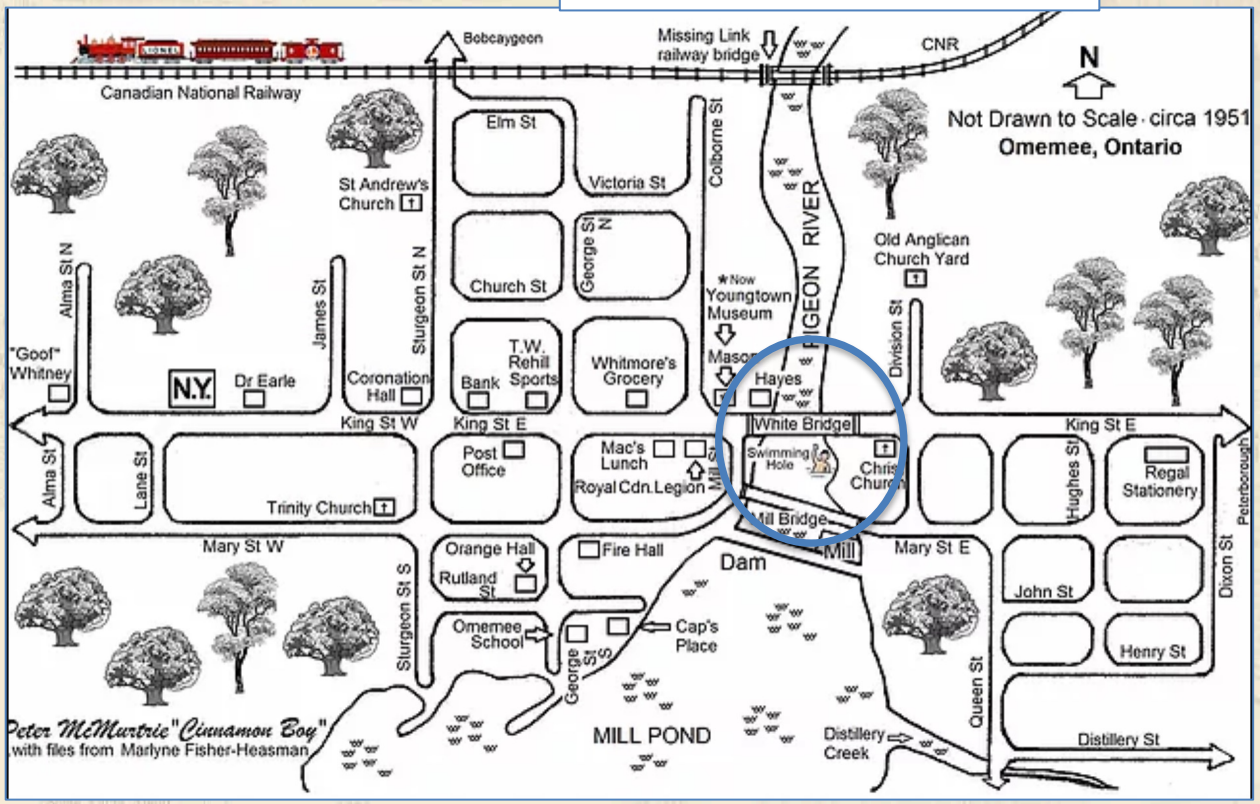
30

Scott Young, *Neil & Me* (Toronto: 1984)

Polio: Ontario, 1951: *Neil Young Case*

- **Aug 30** – Neil and his father went swimming in Pigeon River, the local swimming hole
- **Aug 31, 1:00 am** – Neil wakes up groaning, his back hurting, and feverish
- Scott Young was well aware of the polio spectre, especially with recent headlines
- He would also document the story

Sharry Wilson, *Young Neil*, blog, https://www.youngneil.com/photo-gallery



- The next morning, with Neil still in pain, the family doctor was called and after some tests, he suspected polio
- After considering their options, it was decided to drive the 90 miles, through a thunderstorm, to the Hospital for Sick Children in Toronto

Polio: Ontario, 1951:
Neil Young Case

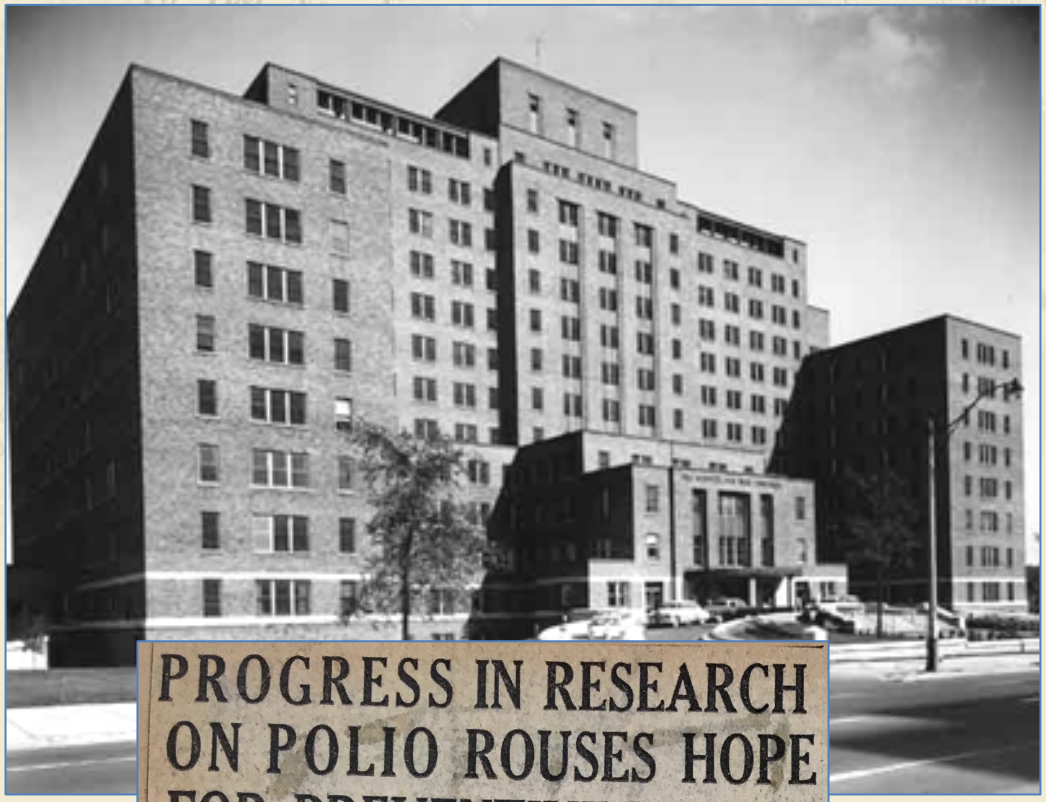
- The Hospital for Sick Children that Neil arrived at was brand new, opening in February 1951
- Soon after arriving a spinal, or lumbar, puncture test confirmed the polio diagnosis and Neil was admitted to the isolation ward
- Though scary and painful for Neil, and worrisome for his parents, his case was fairly typical, affecting his left shoulder, and after 5 days he was able to go home to recover

"I didn't die, did I?" was the first thing Neil said when he was picked up

- Much later, Neil said of polio's effects, "My left-hand side got a little screwed. Feels different from the right. If I close my eyes, my left side, I really don't know where it is – but over the years I've discovered that almost one hundred percent for sure it's gonna be very close to my right side… probably to the left."

Key Poliovirus Studies, 1951

- **Fall 1951** – While young Neil Young stabilized in the Hospital for Sick Children's isolation ward, little did he know that elsewhere in the hospital some very significant polio research was taking place in a state-of-the-art Virus Laboratory designed by Dr. Andrew J. Rhodes



DR. ANDREW J. RHODES
Heads Research Institute

Toronto Telegram, Dec. 1953

PROGRESS IN RESEARCH ON POLIO ROUSES HOPE FOR PREVENTIVE TOXOID

By ROY GREENAWAY

An important step in polio research, which may eventually lead to production of a prevention vaccine or toxoid similar in effect to diphtheria toxoid, is credited to Dr. Andrew Rhodes, a young Toronto research worked at the Connaught Laboratories. The research, originated in the Hospital for Sick Children, is being continued by the Connaught Laboratories under the direction of Dr. Rhodes, who for years has been concentrating on polio.

The fundamental idea behind the research is to obtain an attentuated or weak strain of the polio virus which the body can easily destroy, and in the process build up effective antibodies. These antibodies, remaining in the body, would give immunity against any future serious attacks of the disease.

Toronto Star?, Fall 1951

Key Poliovirus Studies, 1951

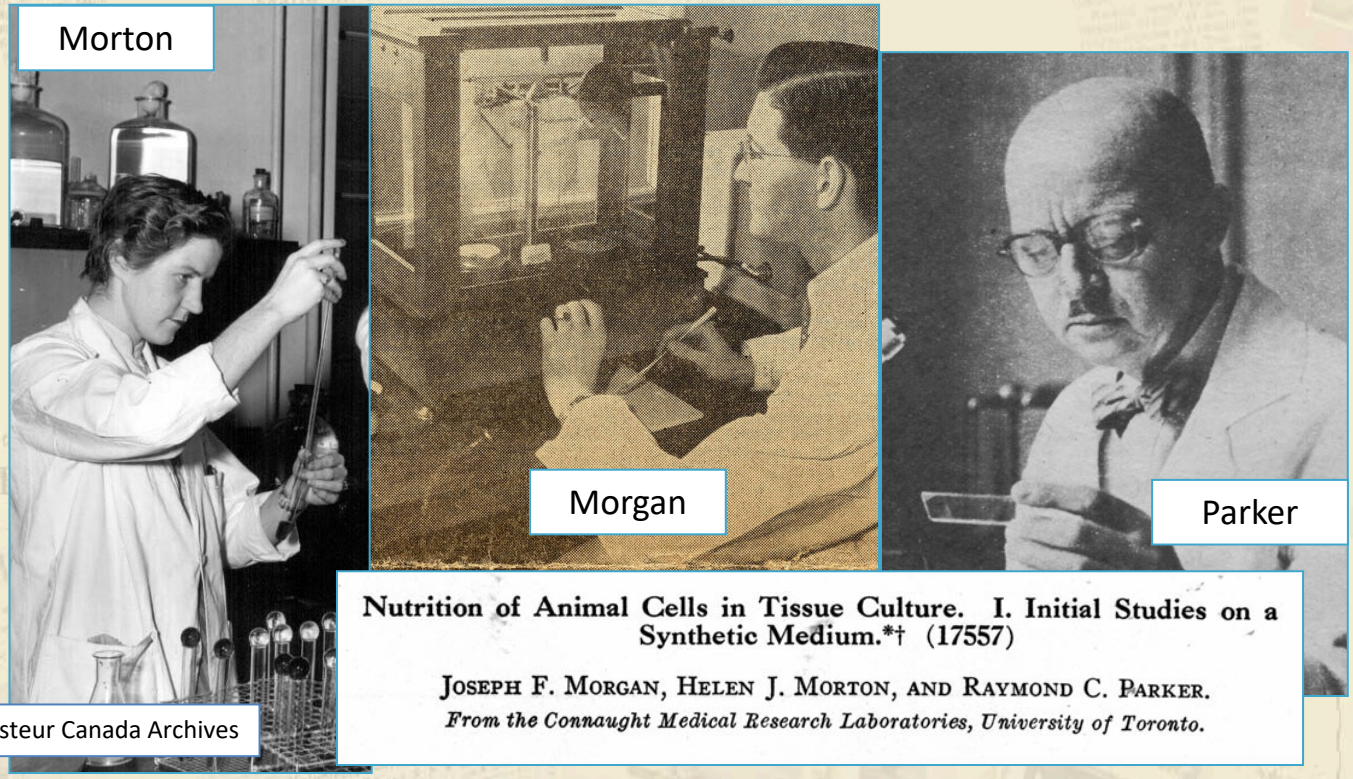
Sanofi Pasteur Canada Archives

- **June 1951** – Dr. Arthur E. Franklin (left), who had recently earned his Ph.D. in Biochemistry, joined Rhodes' polio research group, focusing his skills on cultivating the poliovirus in various tissues using a traditional animal serum-based nutrient media solution, but with limited success

- **Nov 1951** – After trying to modify the existing medium, Franklin happened to meet at a Connaught Labs seminar, Dr. Joseph Morgan, the biochemist behind Connaught's recently developed "Medium 199," the world's first purely synthetic tissue culture nutrient medium

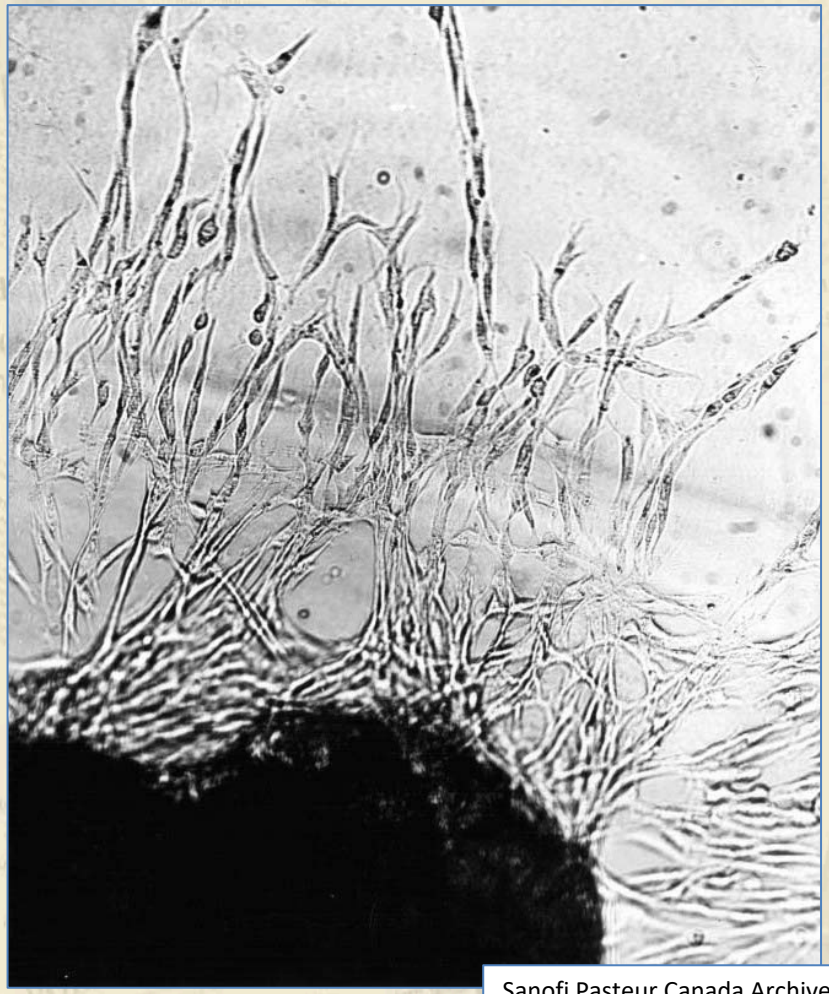
Key Poliovirus Studies, 1951

- **1949-50** – As noted earlier, “Medium 199”, a precise mixture of 60+ ingredients, was originally developed at Connaught for nutritional studies of cancer cells
- A lot could be learned about cancer cells when scientists were able to precisely measure what elements they require nutritionally, or do not require



Sanofi Pasteur Canada Archives

Key Poliovirus Studies, 1951



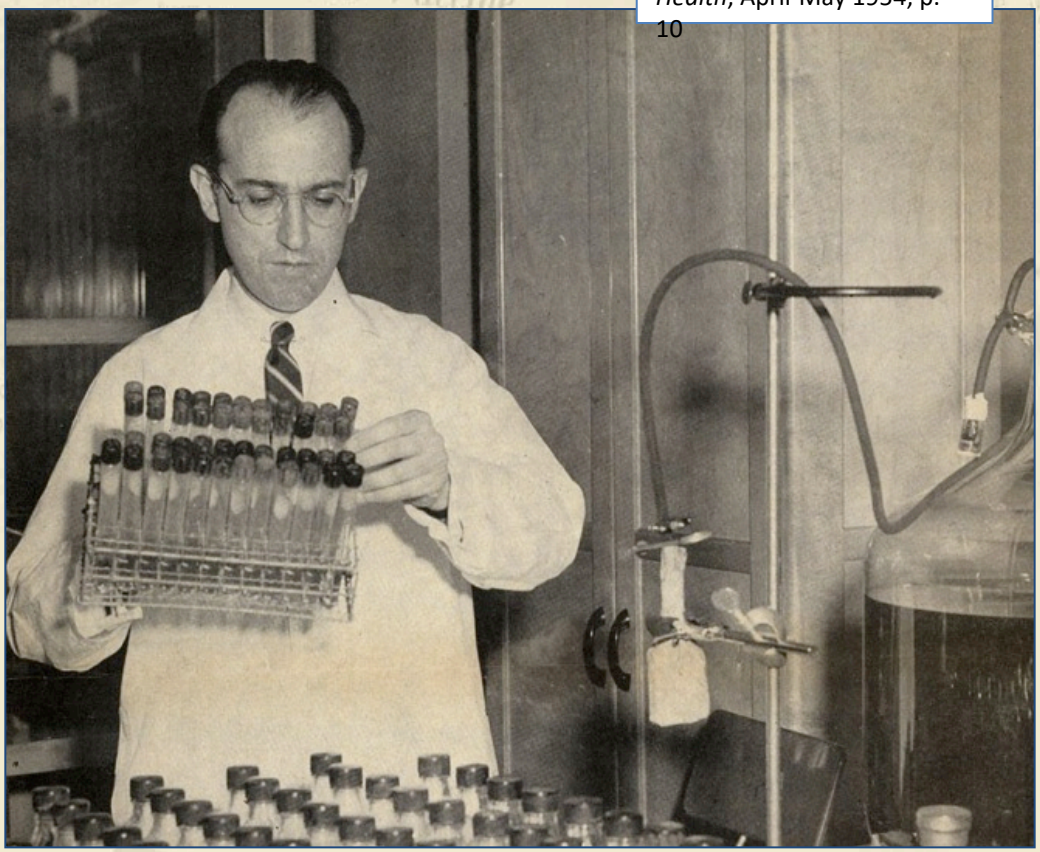
Sanofi Pasteur Canada Archives

- Morgan supplied Franklin with some Medium 199, and it was quickly apparent that it solved, quite spectacularly, most of the problems Franklin was having with cultivating the poliovirus, vastly improving the yields and purity of poliovirus cultures

- When Rhodes' initially found out about Franklin's remarkable results with 199, in an uncharacteristic display of excitement, he jumped up on a chair and cheered

Dr. Jonas E. Salk: Polio Vaccine Pioneer

- **1951** - In the meantime, Dr. Jonas Salk, at the University of Pittsburgh, had shown that an inactivated poliovirus vaccine could prevent polio in monkeys
- **1952** - News of Connaught's "Medium 199" and its successful use for poliovirus cultivation, opened the door for Salk to plan for a first human trial of his polio vaccine
- **Late 1952** – The first trial took place at a residence for disabled children, most with polio, to test for antibody response and general side effects



Health, April-May 1954, p. 10

- The first vaccine trial, and then a second, proved successful, but the major problem remained of how to make the vaccine on a large enough scale for a definitive field trial

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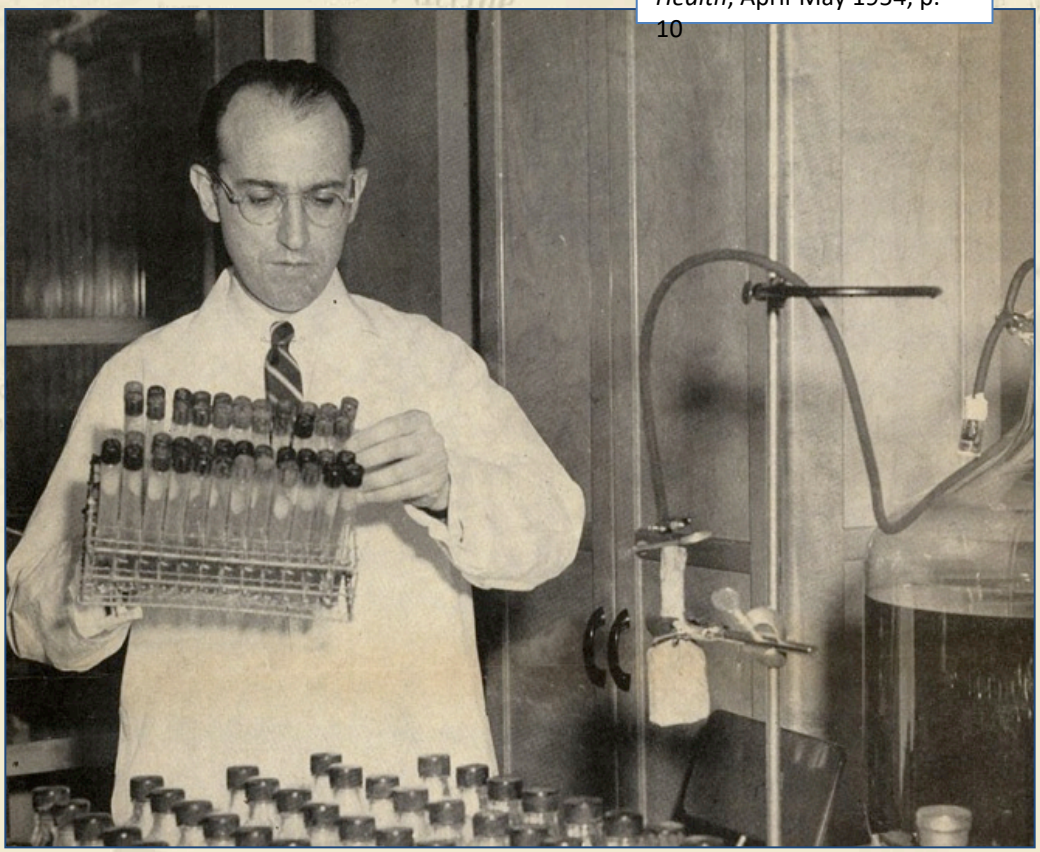


Health, April-May 1954, p. 10

- The first vaccine trial, and then a second, proved successful, but the major problem remained of how to make the vaccine on a large enough scale for a definitive field trial

- Salk's first polio vaccine trials were the equivalent of a Phase 1 vaccine trial; several Phase 1 COVID-19 vaccine trials have been completed recently

Polio: Saskatchewan, 1952

- **1952** – Meanwhile, polio's devastation shifted to the west, with Saskatchewan at the epicenter

- Also major outbreaks in B.C., Alberta, Manitoba, P.E.I and New Brunswick

- 1,205 cases and 90 deaths in Saskatchewan
- 142.9 per 100,000 case rate, the highest provincial rate yet seen in Canada

- The first cases in an isolated Mennonite community north of Saskatoon; the virus likely imported via a group who had visited Texas: the U.S. endured its worst ever polio epidemic year in 1952

- The epidemic spread slowly and continued into December

- Among the victims of polio in Saskatoon was 9-year-old Joni Mitchell
- Polio made her "prematurely adult and stubborn."

Polio: Saskatchewan, 1952
Joni Mitchell Case

- **Christmas 1952** – Joni was stricken with polio sometime in December, and spent six scary weeks in St. Paul's Hospital in Saskatoon

- "The polio ward is a really depressing place," she remembered, "and you hear the whining of the iron lungs, a bunch of them going away, and you're just praying that you don't go into one. The disease only rampages for two weeks and then you're left with the disaster. I was unable to walk or stand. I was train-wrecked. My spine looked like the freeway after an earthquake...

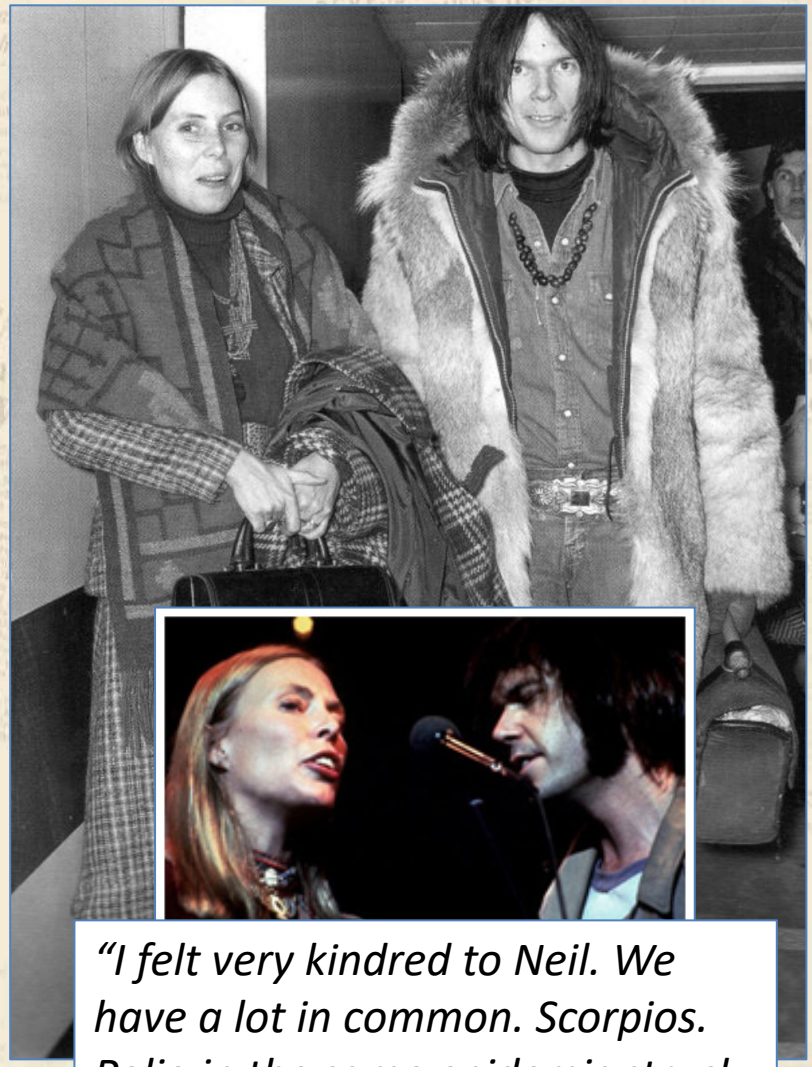
- "My mum put up a Christmas tree in my room. and I remember saying to the tree, 'I am not a cripple.' They would come with cauldrons of hot flannel rags and pin them all over you – the heat was meant to do something to the muscles. In a very short space of time, I unfurled. They sent me home in a wheelchair, but I refused to use it."

Polio: Saskatchewan, 1952
Joni Mitchell Case

- "There was a boy in the bed next to mine in the polio ward who was really depressed. He didn't even have polio as bad as I did, but he wasn't fighting it – he wasn't fighting to go on with what he had left." Joni had to "learn to stand, and then to walk"

- "Through all of this, I drew like crazy and sang Christmas carols. I think that the creative process was an urgency then, but it was a survival instinct. I left that ward long before that boy, who had a mild case of polio in one leg. He lay with his back to the wall, sulking. When the spirit of child's play enters into the creative process, it's a wonderful force and something to be nurtured."

- As Joni recovered at home, she developed a strong artistic sensitivity. "A great sorrow hath humanized me"



"I felt very kindred to Neil. We have a lot in common. Scorpios. Polio in the same epidemic struck the same parts of our bodies. And we both have a black sense of humour. Typical Canadians."

Key Poliovirus Studies, 1952-53

- While Joni was recovering in Saskatoon, Connaught Lab's Spadina Building, acquired by the Labs a decade earlier to prepare penicillin, became the focus of solving the problem of how to produce Salk's inactivated polio vaccine on a larger scale

- **1952** - Recognizing Connaught's experience in developing large scale vaccine and biologicals production technologies, the NFIP financed a major pilot project to cultivate poliovirus in large quantities

Sanofi Pasteur Canada Archives

Key Poliovirus Studies, 1952-53: *The Toronto Method*

- Key to efforts to grow the poliovirus in larger containers was Dr. Leone N. Farrell, who had considerable experience with the large-scale production of biologicals, such as pertussis vaccine

Sanofi Pasteur Canada Archives

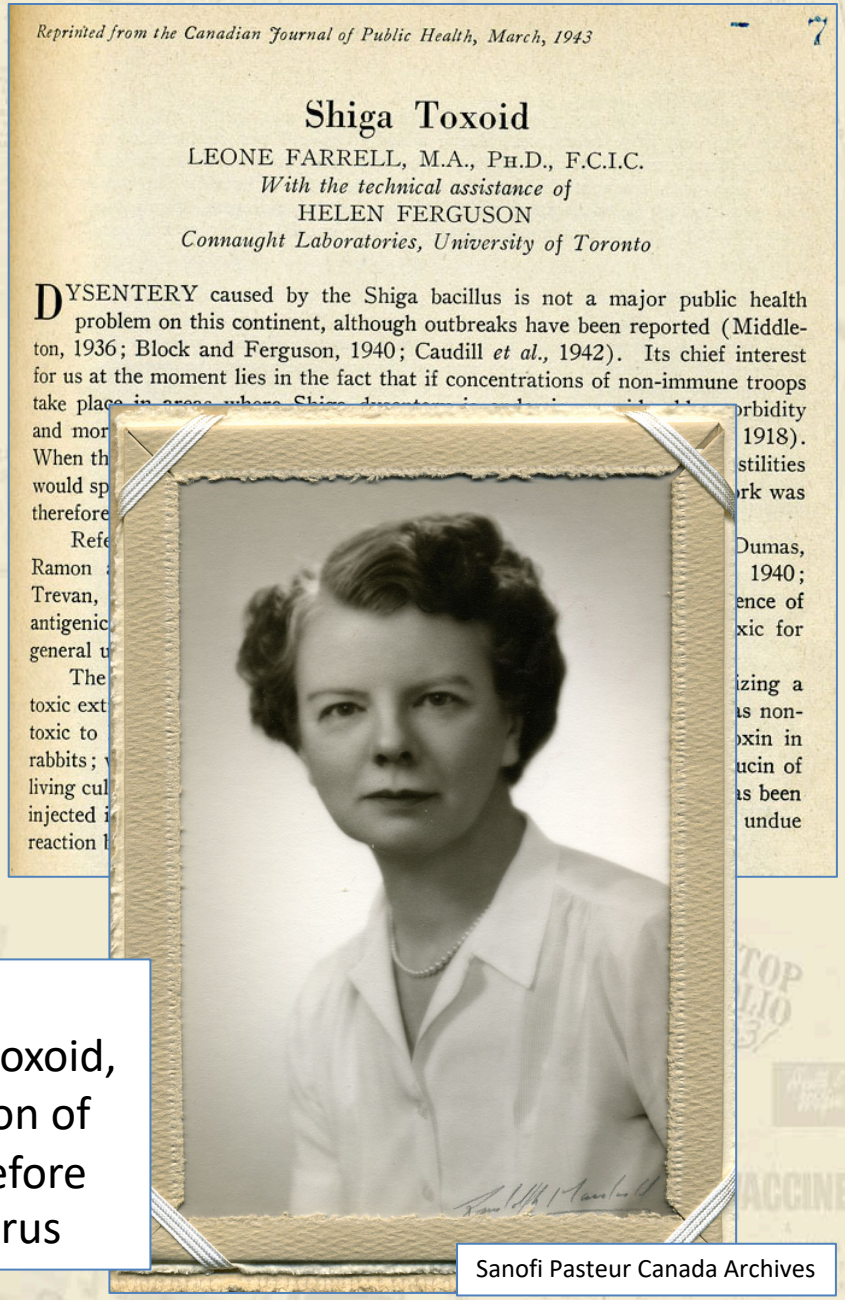
Key Poliovirus Studies, 1952-53: *The Toronto Method*

Sanofi Pasteur Canada Archives

- Dr. Leone Farrell was among a small group of women of her generation to earn a Ph.D. in the sciences
- She was a true pioneer in the laboratory, innovative in her work and inspirational in her dedication to it
- Born in a small farming community near Ottawa, she grew up in Toronto, earned a B.A. in Chemistry at the University of Toronto in 1928; a Masters in Zymology followed in 1929, focused on the chemistry of fermentation, particularly in honey.
- After working at the National Research Council in Ottawa, she studied at the London School of Hygiene & Tropical Medicine, then returned to UofT to complete her Ph.D. in Biochemistry in 1933

Key Poliovirus Studies, 1952-53: *The Toronto Method*

- **1934** – After joining Connaught, Farrell focused on the development of toxoid vaccines against staphylococcus and dysentery
- **1939-40** – She then developed a new deep culture method of "rocking" cell cultivation ("Toronto Method") for the bulk production of toxin in a liquid semi-synthetic cell nutrient mixture
- **Early 1940s** – She adapted this deep culture "rocking" method for the production of pertussis vaccine



Reprinted from the Canadian Journal of Public Health, March, 1943 7

Shiga Toxoid

LEONE FARRELL, M.A., PH.D., F.C.I.C.
With the technical assistance of
HELEN FERGUSON
Connaught Laboratories, University of Toronto

DYSENTERY caused by the Shiga bacillus is not a major public health problem on this continent, although outbreaks have been reported (Middleton, 1936; Block and Ferguson, 1940; Caudill *et al.*, 1942). Its chief interest for us at the moment lies in the fact that if concentrations of non-immune troops take place in areas where Shiga [illegible] orbidity and mor 1918). When th stilities would sp rk was therefore

Refe Dumas, Ramon 1940; Trevan, ence of antigenic xic for general u

The izing a toxic ext s non- toxic to oxin in rabbits; ucin of living cul s been injected i undue reaction h

- During WWII, Farrell was involved with the production of cholera vaccine and dysentery toxoid, then concentrated on improving the production of penicillin in the late 1940s and early 1950s, before turning her attention to cultivating the poliovirus

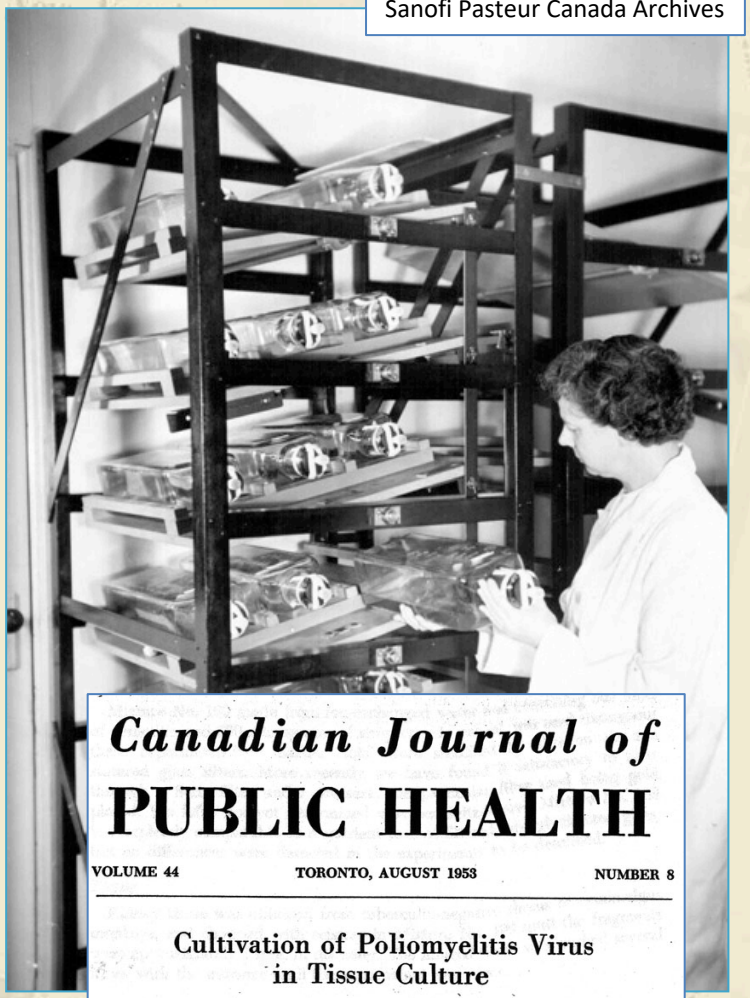
Sanofi Pasteur Canada Archives

Key Poliovirus Studies, 1952-53:
The Toronto Method

- **1953** - Building on her experience with 'deep culture' production, Farrell adapted the "Toronto Method" to the production of poliovirus fluids using Medium 199 to cultivate the virus in monkey kidney cells in large Povitsky bottles that were incubated on custom built rocking machines

- **July 1953** - In the wake of the worst polio epidemic year in U.S. history, and encouraged by Salk's and Connaught's progress, the NFIP asked the Labs to provide all of the poliovirus fluids required for an unprecedented controlled field trial of Salk's inactivated polio vaccine, which would hopefully start in the spring

Sanofi Pasteur Canada Archives



Canadian Journal of
PUBLIC HEALTH

VOLUME 44 TORONTO, AUGUST 1953 NUMBER 8

Cultivation of Poliomyelitis Virus in Tissue Culture

VI. METHODS FOR QUANTITY PRODUCTION OF POLIOMYELITIS VIRUSES IN CULTURES OF MONKEY KIDNEY*

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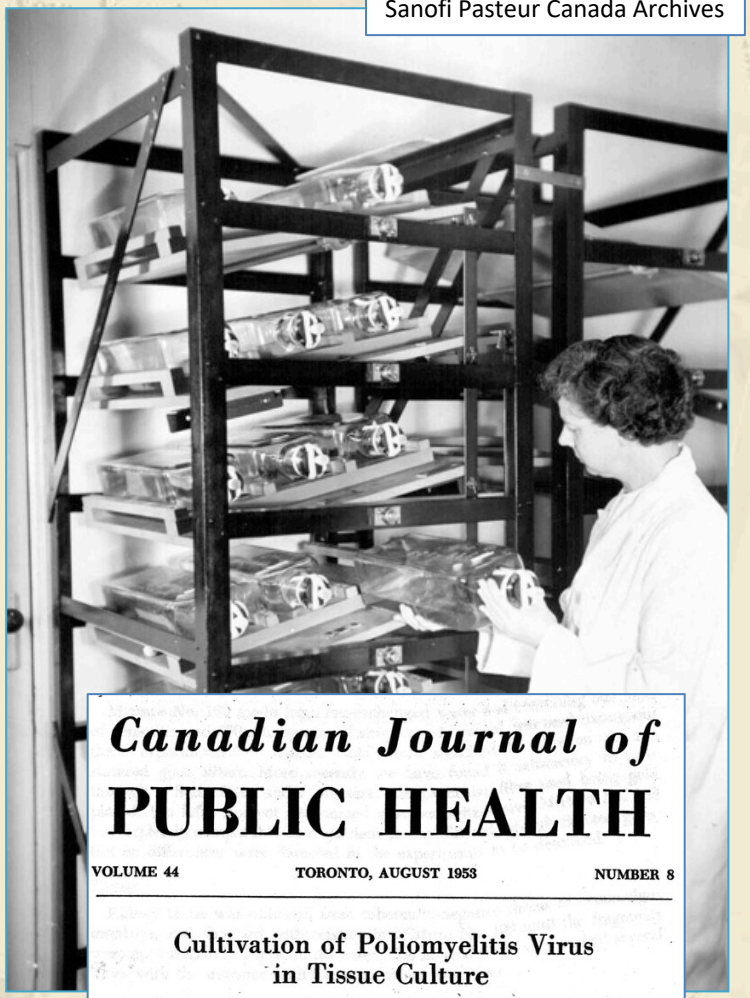
- Canada's worst polio epidemic year was just starting…

Sanofi Pasteur Canada Archives



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Summer of Fear, 1953

- **1953** – Canada's worst polio year began in the Yukon in May; it eventually affected most provinces and continued through the winter into 1954
- In the Yukon, there were 142 cases and 9 deaths among a population of about 9,000 civilians, natives, and Air Force and Army personnel, many requiring iron lungs

Globe & Mail, June 24, 1953, p. 32

Yukon Polio Total 130 Cases, 5 Fatal

Edmonton, June 23 (CP).— An outbreak of polio in the Yukon has taken at least five lives, striking 59 civilians and 71 military men and their dependents. Three of the deaths were civilian cases. Canadian servicemen and their dependents are being attended in the 75-bed Whitehorse military Hospital. Civilians are being treated in hospitals at Dawson City, Mayo and Whitehorse.

Three iron lungs have been flown into the Yukon by the RCAF.

Canadian Journal of Public Health, Aug 1954, p. 337

Poliomyelitis in the Yukon

J. D. ADAMSON, M.D.,[1] MALCOLM R. BOW, M.D.[2] AND E. H. LOSSING, M.D.[3]

THE YUKON is a sparsely settled Territory in the north-west extremity of Canada. It extends into the Arctic, lying between 60° and 40°N. longitude and between 130 and 140°W. latitude (see map). To the north is the Arctic Ocean, to the west, Alaska, to the south, British Columbia, and to the east, the Northwest Territories. The capital city, Whitehorse, lies 1,369 miles by the Alaska Highway north-west of Edmonton. The most northerly settlement, Dawson City, lies 250 air miles farther north. The country is mountainous, with very little arable land, and is richly grown with poplar, spruce and jack pine of small size. It is drained to the north-west by many magnificent, rapidly flowing, navigable rivers, all of which ultimately join the Yukon, which empties into the Behring Sea. The climate is moderate in comparison to the Eastern Arctic and other parts of the earth of equal longitude. The annual mean temperatures for the past eleven years are as follows: 1942, 32.4; 1943, 33.2; 1944, 34.7; 1945, 31.0; 1946, 31.2; 1947, 32.7; 1948, 28.6; 1949, 30.8; 1950, 27.6; 1951, 28.3; and 1952, 31.4. The average monthly temperatures during the first five months of 1953 were: January, 13.9; February, 19.1; March, 16.5; April, 35.8; and May, 48.9. The monthly mean for the 10-year period was as follows: January, 1.5; February, 7.5; March, 19.1; April, 31.4; May, 45.9; June, 54.7; July, 57.3; August, 53.7; September, 46.4; October, 34.1; November, 16.3; and December, 4.8.

THE PEOPLE

Before 1898 the country contained only a few bands of Indians and Metis, who lived by fishing and trapping, and some widely spaced trading posts. Then came the gold strike on the Klondike River, which joins the Yukon at Dawson City. This was followed by the most noteworthy gold rush in Canadian history, which brought all conditions of men and women swarming down the waterways and overland. It is said that the population of Dawson City reached 25,000. Fabulous wealth was temporarily attained by a few; abject failure was the fate of most. The Klondike days have become a legend and a pensive memory to the oldtimers. Since then the Yukon history has been punctuated by strikes of gold, silver, lead, zinc and uraniums, and prospectors are always on the prowl. The only large operation at present is at Keno, 35 miles north-east of Mayo, where there is a settlement of 500 people, including miners and dependents.

[1]Former Professor of Medicine, University of Manitoba.
[2]Chief Medical Health Officer, Yukon Territory.
[3]Epidemiology Division, Department of National Health and Welfare, Ottawa.

Summer of Fear, 1953

- From Manitoba west, especially, every province felt the full effects of epidemic polio at record or near record levels
- While the experience of each of the western provinces was dramatic and devastating, it was Manitoba that faced the worst crisis in the country, if not in the history of this disease

National numbers:
- 9,000 cases (59.9 per 100,000)
- 500 deaths

Manitoba:
- 2,317 cases (286.4/100,000)
- 91 deaths

Winnipeg:
- 763 cases (318/100,000)

Canadian Journal of
PUBLIC HEALTH
VOLUME 45 TORONTO, MAY 1954 NUMBER 5

The Poliomyelitis Epidemic in Winnipeg, 1953

EPIDEMIOLOGICAL STUDY, INCLUDING THE USE OF GAMMA GLOBULIN

R. G. CADHAM, M.D., D.P.H.
Deputy Medical Health Officer
Winnipeg, Manitoba

DURING the summer months of 1953 the City of Winnipeg (population 243,000) experienced the second largest case rate of poliomyelitis ever to occur in North America in an urban population of over 200,000. A total of 763 cases was reported. The case rate was 318 per 100,000 population. Type I virus was identified in stool specimens from hospital patients. The only previous epidemic in a large urban centre in which this case rate was exceeded was in Newark, New Jersey, in 1916, with a case rate of 340 per 100,000 population. Other severe poliomyelitis epidemics with a high incidence of reported cases in American cities with populations in excess of 200,000 are as follows (1): Los Angeles (1934), 95; Providence (1935), 100; Buffalo (1944), 110; and Minneapolis (1946), 150.

THE B. SUN. 28.11.53

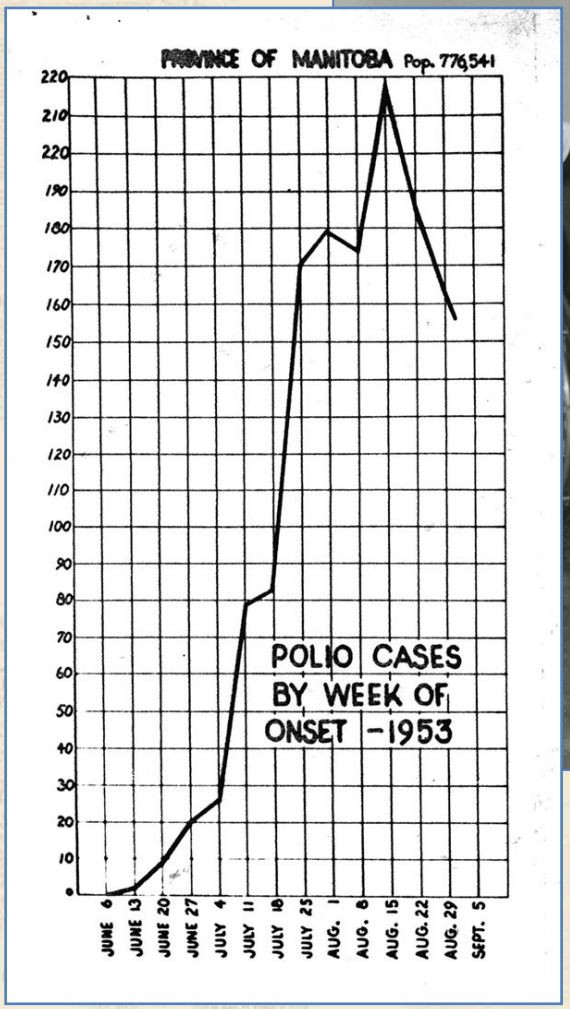
Manitoba Had Heaviest Polio Epidemic In World History

WINNIPEG (CP) — This year's polio epidemic in Manitoba which struck nearly 2,300 persons and caused 82 deaths is believed to technical advisory committee said "we know of no polio epidemic in the world of similar magnitude." The 2,300 cases were 120 per cent more than in Manitoba's lar-

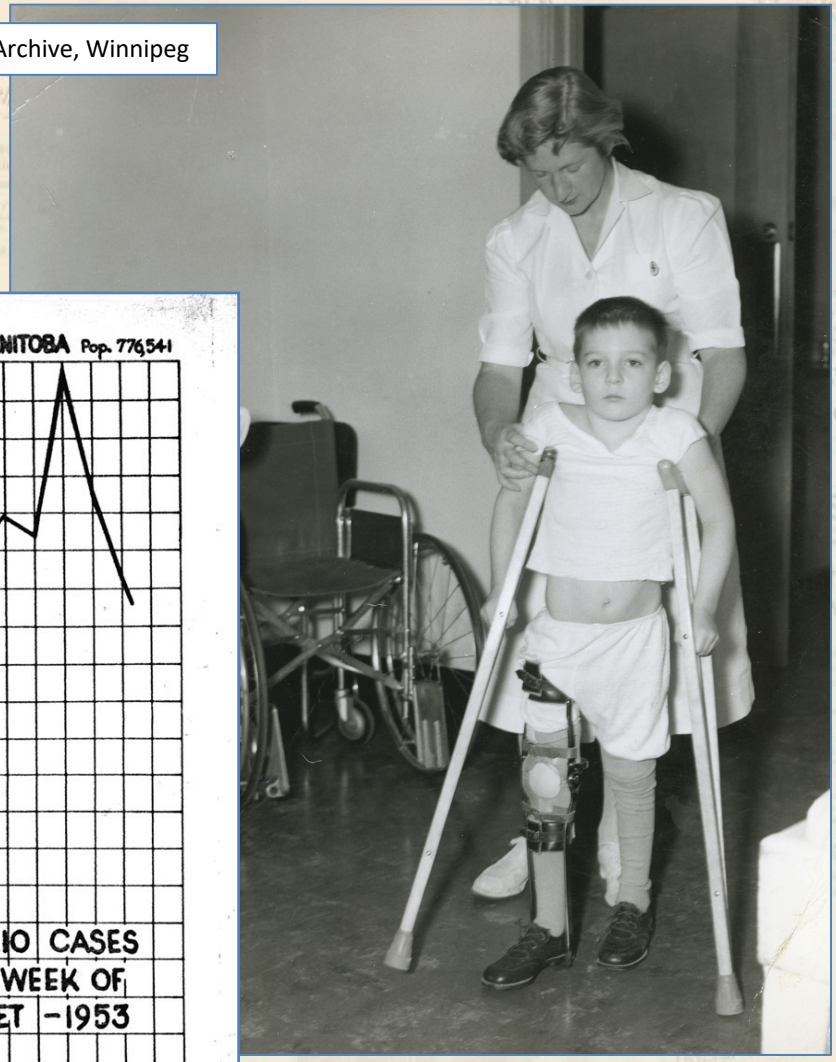
Brandon Sun, Dec 28, 1953

Summer of Fear, 1953

- **May 1953** - The first cases of the epidemic were reported, the numbers growing steadily until late June
- Incidence then escalated alarmingly, reaching a peak of 244 cases per week by mid-August, staying above 160 cases per week for the next three weeks, and then slowly declining
- Cases were reported through December and to the end of February 1954

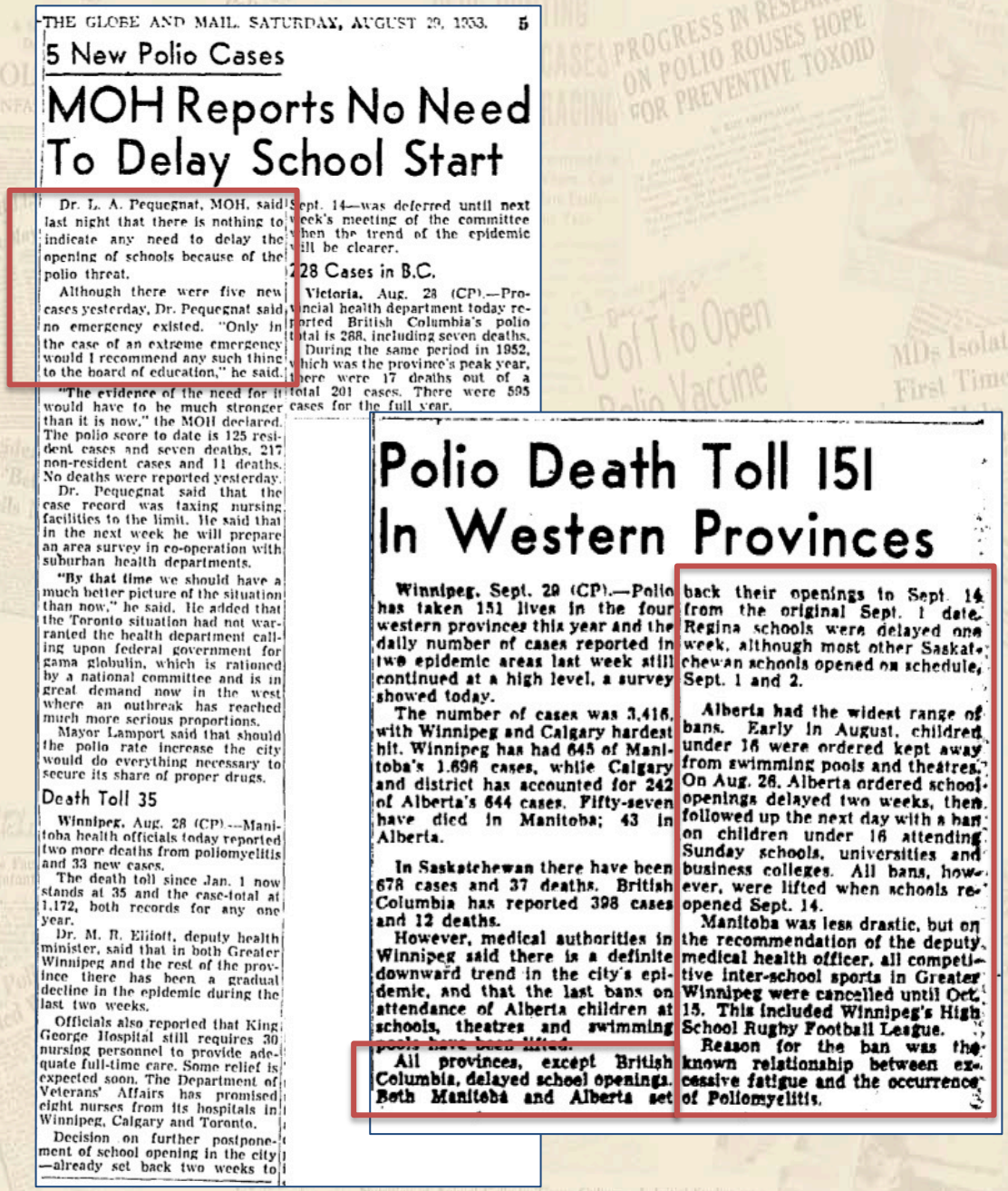


Riverview Health Centre Archive, Winnipeg



Summer of Fear, 1953

- Not unlike with COVID-19, as polio epidemics reached the highest levels yet seen in many parts of the country in 1953, there was persistent debate about delaying school opening and varying provincial and local strategies
- There were also variations in bans imposed on children under 16 against going swimming, and to movie theatres, Sunday schools, universities, colleges



THE GLOBE AND MAIL, SATURDAY, AUGUST 29, 1953. 5

5 New Polio Cases

MOH Reports No Need To Delay School Start

Dr. L. A. Pequegnat, MOH, said last night that there is nothing to indicate any need to delay the opening of schools because of the polio threat.

Although there were five new cases yesterday, Dr. Pequegnat said no emergency existed. "Only in the case of an extreme emergency would I recommend any such thing to the board of education," he said.

"The evidence of the need for it would have to be much stronger than it is now," the MOH declared. The polio score to date is 125 resident cases and seven deaths, 217 non-resident cases and 11 deaths. No deaths were reported yesterday.

Dr. Pequegnat said that the case record was taxing nursing facilities to the limit. He said that in the next week he will prepare an area survey in co-operation with suburban health departments.

"By that time we should have a much better picture of the situation than now," he said. He added that the Toronto situation had not warranted the health department calling upon federal government for gama globulin, which is rationed by a national committee and is in great demand now in the west where an outbreak has reached much more serious proportions.

Mayor Lamport said that should the polio rate increase the city would do everything necessary to secure its share of proper drugs.

Death Toll 35

Winnipeg, Aug. 28 (CP)—Manitoba health officials today reported two more deaths from poliomyelitis and 33 new cases.

The death toll since Jan. 1 now stands at 35 and the case-total at 1,172, both records for any one year.

Dr. M. B. Elliott, deputy health minister, said that in both Greater Winnipeg and the rest of the province there has been a gradual decline in the epidemic during the last two weeks.

Officials also reported that King George Hospital still requires 30 nursing personnel to provide adequate full-time care. Some relief is expected soon. The Department of Veterans' Affairs has promised eight nurses from its hospitals in Winnipeg, Calgary and Toronto.

Decision on further postponement of school opening in the city—already set back two weeks to Sept. 14—was deferred until next week's meeting of the committee when the trend of the epidemic will be clearer.

28 Cases in B.C.

Victoria, Aug. 28 (CP).—Provincial health department today reported British Columbia's polio total is 268, including seven deaths. During the same period in 1952, which was the province's peak year, there were 17 deaths out of a total 201 cases. There were 595 cases for the full year.

Polio Death Toll 151 In Western Provinces

Winnipeg, Sept. 29 (CP).—Polio has taken 151 lives in the four western provinces this year and the daily number of cases reported in two epidemic areas last week still continued at a high level, a survey showed today.

The number of cases was 3,416, with Winnipeg and Calgary hardest hit. Winnipeg has had 645 of Manitoba's 1,696 cases, while Calgary and district has accounted for 242 of Alberta's 644 cases. Fifty-seven have died in Manitoba; 43 in Alberta.

In Saskatchewan there have been 678 cases and 37 deaths. British Columbia has reported 398 cases and 12 deaths.

However, medical authorities in Winnipeg said there is a definite downward trend in the city's epidemic, and that the last bans on attendance of Alberta children at schools, theatres and swimming pools have been lifted.

All provinces, except British Columbia, delayed school openings. Both Manitoba and Alberta set back their openings to Sept. 14 from the original Sept. 1 date. Regina schools were delayed one week, although most other Saskatchewan schools opened on schedule, Sept. 1 and 2.

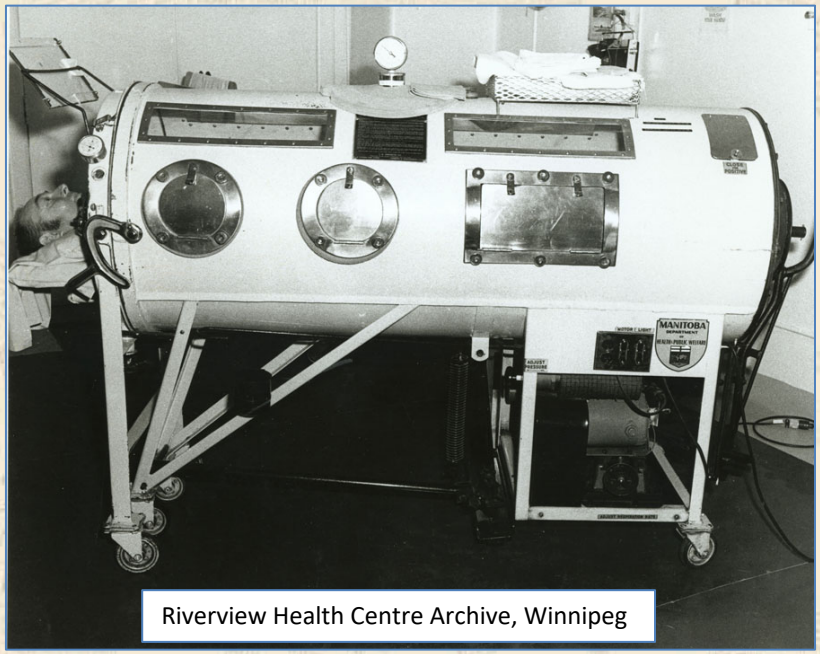
Alberta had the widest range of bans. Early in August, children under 16 were ordered kept away from swimming pools and theatres. On Aug. 26, Alberta ordered school openings delayed two weeks, then followed up the next day with a ban on children under 16 attending Sunday schools, universities and business colleges. All bans, however, were lifted when schools reopened Sept. 14.

Manitoba was less drastic, but on the recommendation of the deputy medical health officer, all competitive inter-school sports in Greater Winnipeg were cancelled until Oct. 15. This included Winnipeg's High School Rugby Football League.

Reason for the ban was the known relationship between excessive fatigue and the occurrence of Poliomyelitis.

Summer of Fear, 1953

- During the 1953 epidemic, many iron lungs were needed all over the country, although the greatest need was in Winnipeg
- The Canadian Air Force was called on to transport iron lungs, from elsewhere in Canada and from the U.S., in a desperate attempt to meet the crisis



Riverview Health Centre Archive, Winnipeg

Winnipeg Free Press, Aug 27, 1953, p. 1

RCAF Flies Iron Lungs To Winnipeg

FP 27 8 53 p. 1

Ten iron lungs for treatment of polio victims at King George hospital arrived in Winnipeg from Boston Wednesday night aboard an RCAF C-119 "Flying Boxcar."

The 10 respirators bring to 14 the number flown here by the RCAF in answer to a request by provincial health authorities.

Difficulties in transporting iron lungs from Boston factories to Winnipeg originally prompted the request for air force assistance.

There is no immediate need for the respirators, but health authorities feel they will provide a safeguard against any future development in the Manitoba polio epidemic.

The aircraft, one of four of its kind in Canada, left its home base at Montreal Monday afternoon. It will leave Winnipeg today to return to Montreal.

Summer of Fear, 1953

- As the 1953 epidemic began there were 21 adult-size iron lungs and one child-size respirators in Manitoba, but of these, 13 were occupied by cases from 1952.

- Initial confidence that the supply of iron lungs would meet any need was soon shattered and by August there was a desperate scramble to get iron lungs to Winnipeg's King George Hospital

Winnipeg Free Press, Sept 5, 1953, p. 1

Small In Number, A 'Fighting' Few, Stand Polio Siege

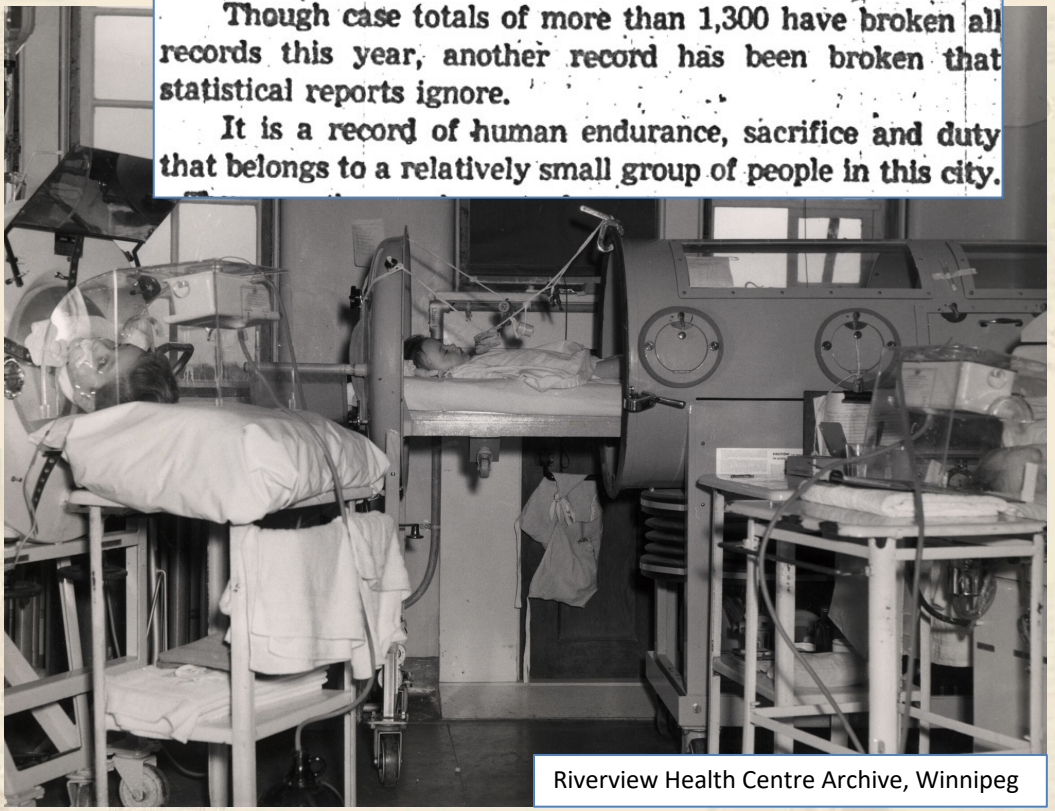
FP 5.9.53 p1

BY LYN CHANDLER

Statistics never tell the whole story of the Manitoba polio epidemic.

Though case totals of more than 1,300 have broken all records this year, another record has been broken that statistical reports ignore.

It is a record of human endurance, sacrifice and duty that belongs to a relatively small group of people in this city.



Riverview Health Centre Archive, Winnipeg

Summer of Fear, 1953

- The crisis grew sharply worse…
- A total of 64 patients needed iron lungs by the end of August, 72 a week later, 82 by September 21st, and an overwhelming 92 cases were dependent on respirators at once at KGH at the beginning of October.
- In total, 165 cases were treated in iron lungs in Winnipeg's King George Hospital; 62 died during the epidemic

Riverview Health Centre Archive, Winnipeg

Summer of Fear, 1953

- This dramatic and desperate search for and transport of iron lungs, and of patients in need of them, by the Air Force, or any other means, was repeated, though on somewhat lesser scale, across Canada in 1953

Riverview Health Centre Archive, Winnipeg

Summer of Fear, 1953

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Riverview Health Centre Archive, Winnipeg

- In many ways the challenges associated with securing sufficient supplies of ventilators to manage COVID-19 patients during the pandemic very closely echoes the 1953 polio epidemic crisis

Summer of Fear, 1953

- The financial costs of the 1953 polio epidemic in Manitoba in particular, and in Canada generally, were extremely high, leaving many wondering who would pay the bills
- The epidemic occurred within a context of rising interest in public health insurance and a federal election in which it became an issue

WINNIPEG FREE PRESS, THURSDAY, DECEMBER 10, 1953

Canada Hard Hit By Polio Epidemic

By THE CANADIAN PRESS

Canada is nursing the wounds of one of the worst outbreaks of polio in her history.

The western flank of the 1953 epidemic out-manoeuvred medical defenders and short-lived theories, resulting in at least 289 deaths in the four western provinces and a high rate of paralysis among the 5,316 cases.

In eastern Canada, polio followed a generally orthodox vroute, creating record incidence and death only in Newfoundland, which experienced a 1953 increase to 12 deaths and 224 cases from the five cases and no deaths reported last year.

When final figures are available, the number of polio cases across Canada this year is expected to double the 1952 total. The federal health department reported in the Commons Wednesday that to Nov. 28 there had been 8,298 cases compared with 4,755 last year.

Manitoba, Alberta and Ontario were the hardest hit by this season's outbreak.

In Manitoba there were 300 cases of polio for every 100,000 persons, a total of 2,318 cases, from which 85 persons died. Government officials say this incidence exceeded all known Canadian and world figures.

Alberta, plagued with an epidemic prolonged beyond the normal period, has suffered 98 deaths persons over 20. In Alberta, too, polio no longer is considered a children's disease. Seventeen per cent of the 98 Alberta deaths occurred in children under 10, while 60 per cent were persons between 20 and 40.

In previous years, the oil province has seen epidemics hit their peak in August and end their normal decline in September. This year, 40 per cent of deaths occurred in the final quarter of the year.

"Cold weather" polio also continues in British Columbia, where, for bulbar and paralysis, 1953 has been the worst year in the province's history.

There have been 595 cases and 37 deaths in the B. C. this year, compared with 760 cases and 26 deaths last year. Medical authorities term the increased death rate "exceptionally low" compared to the Prairie figures but say Prairie provinces have had more bulbar.

Bulbar polio occurs when the polio virus attacks the "bulb," or spinal nervous system at the nape of the neck, and affects respiratory muscles. Paralysis of other nature results from infections of other sections of the nervous system.

Alberta hospitals have crowded isolation wards with iron lungs, including 12 flown from Boston, to combat bulbar polio.

CAUSE UNKNOWN

Polio Now Major Issue Says Martin

OTTAWA (CP) — Poliomyelitis has assumed new prominence as a major public health problem in Canada, Hon. Paul Martin, health minister, said Wednesday in the Commons.

He said preliminary figures of 8,213 cases and 354 deaths "indicate that this year's outbreak will prove to be one of the most serious on record."

Replying to a question by E. G. McCullough (CCF—Moose Mountain) as to what federal assistance is being provided, Mr. Martin said the government has made more

Winnipeg Free Press, Dec 3, 1953, p. 1

Riverview Health Centre Archive, Winnipeg

Summer of Fear, 1953

- The financial costs of the 1953 polio epidemic in Manitoba in particular, and in Canada generally, were extremely high, leaving many wondering who would pay the bills

- The epidemic occurred within a context of rising interest in public health insurance and a federal election in which it became an issue

- Canadian Medicare certainly removes the direct economic impact of COVID-19, but the broader economic impact of the pandemic has been much greater than polio's worst epidemic year

WINNIPEG FREE PRESS, THURSDAY, DECEMBER 10, 1953

Canada Hard Hit By Polio Epidemic

By THE CANADIAN PRESS

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The western flank of the 1953 epidemic out-manoeuvred medical defenders and short-lived theories, resulting in at least 289 deaths in the four western provinces and a high rate of paralysis among the 5,316 cases.

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Winnipeg Free Press, Dec 3, 1953, p. 1

Riverview Health Centre Archive, Winnipeg

Polio Vaccine Trial, 1953-54:
Connaught Lab's "Herculean Task"

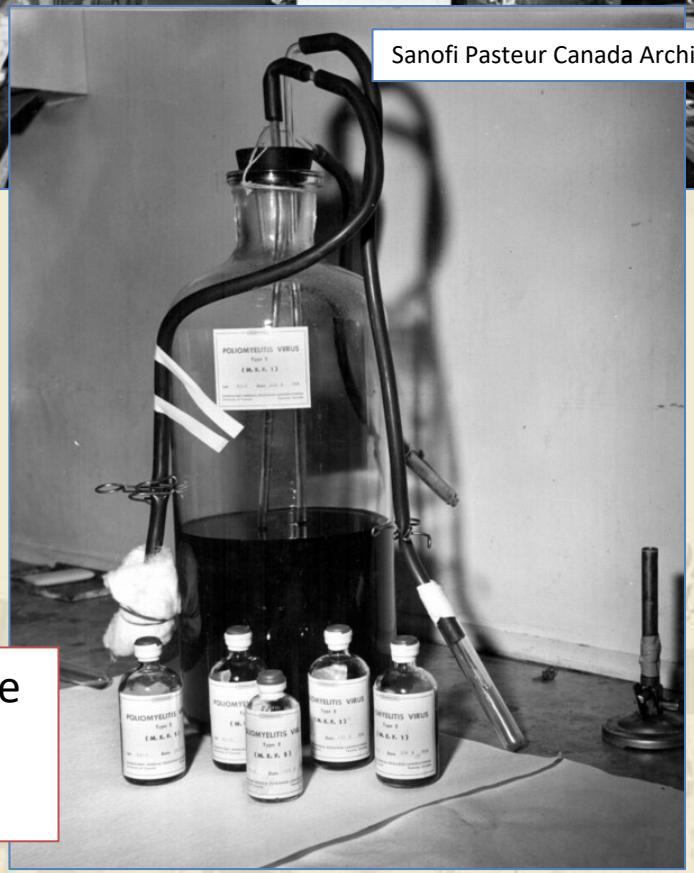
Sanofi Pasteur Canada Archives

- **1953-54** – While the polio emergency worsened, Connaught undertook -- as Jonas Salk described it -- the "herculean task" of producing over 3,000 litres of poliovirus fluids for what would be the largest vaccine field trial ever attempted

- The poliovirus fluids were shipped to two U.S. pharmaceutical firms by station wagon for inactivation and processing into the finished vaccine in time for immunizations to start in April 1954

1954-55 - Connaught then focused its efforts on the full preparation of vaccine for eventual Canadian use, pending the results of the field trial

Polio Vaccine Trial, 1953-54:
Connaught Lab's "Herculean Task"



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- At the current point in the COVID-19 pandemic, the development of potential COVID-19 vaccines has yet to reach an equivalent stage

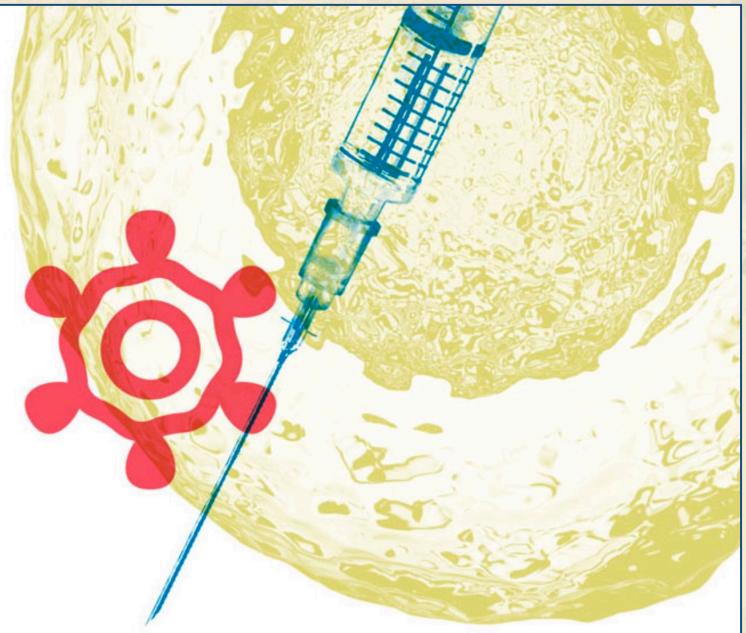
COVID-19 Vaccine Development

- However, globally, there are an unprecedented number of COVID-19 vaccine candidates in varying stages of development

How close are we to a vaccine for COVID-19?

A look at the different vaccines under development, and where they are in the pipeline

Emily Chung
CBC News • Posted: July 17, 2020 • Last updated: July 21, 2020



An effective vaccine against the coronavirus that causes COVID-19 is everyone's hope for a real return to normal life. More than 100 teams of scientists around the world are working to develop and test a vaccine against the virus SARS-CoV-2 as quickly as possible. They're employing a huge variety of strategies and technologies, including some that have never been used in an approved vaccine before.

"It's a very fascinating and kind of impressive effort," said Dr. Lynora Saxinger, an infectious disease specialist at the at the University of Alberta in Edmonton.

"It's absolutely crucial."

Even in countries that have had a devastating number of deaths from COVID-19, there is nowhere close to a level of "herd immunity" within the population preventing the disease from spreading exponentially if we go back to normal levels of social interaction, she said.

Total number of vaccine candidates

Pre-clinical evaluation	Phase 1	Phase 2	Phase 3	Approved
142	24	15	4	0

COVID-19 Vaccine Development

- Of these, there are at least 7 COVID-19 vaccine candidates in development with significant Canadian involvement

Lots of Canadian candidates

As mentioned earlier, Canada currently has at least seven vaccine candidates under development, with Canadian involvement in the development of some others. Saxinger said that maximizes the impact of the expertise we have, from work on diseases such as Ebola, SARS and MERS.

Developing and producing vaccines here at home could also give Canada more control over when Canadians can get the vaccine, and who can be prioritized, given that there will likely be huge demand for the vaccine from countries around the world.

"I don't think we want to rely on others, hoping they will remember us," said Volker Gerdts, director and CEO of VIDO-Intervac at the University of Saskatchewan in Saskatoon, one of the Canadian teams developing a SARS-CoV-2 vaccine. The current race for a vaccine underscores why it's important for countries like Canada to be self-sufficient, he added.

Canadian vaccine candidates

Developer	Pre-clinical evaluation	Phase 1	Phase 2	Phase 3	Approved
Medicago/GSK	Virus-like particles				
Mediphage Bioceuticals/University of Waterloo	DNA				
University of Manitoba	Non-replicating viral vector				
VIDO-InterVac, University of Saskatchewan	Protein subunit				
University of Alberta	Protein subunit				
Western University	Replicating viral vector				
Entos Pharmaceuticals	DNA				
IMV Inc.	Protein subunit				

COVID-19 Vaccine Development

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Developer	Pre-clinical evaluation	Phase 1	Phase 2	Phase 3	Approved
Medicago/GSK Virus-like particles					
Mediphage Bioceuticals/University of Waterloo DNA					
University of Manitoba Non-replicating viral vector					
VIDO-InterVac, University of Saskatchewan Protein subunit					
University of Alberta Protein subunit					
Western University Replicating viral vector					
Entos Pharmaceuticals DNA					
IMV Inc. Protein subunit					

- In 1953-54, there was one polio vaccine candidate, the development, testing and production of which had quite considerable Canadian involvement…

April 24, 1954:
Launch of Salk Vaccine Field Trial

- 1,800,000 “polio pioneer” children enrolled across U.S; in May, Alberta, Manitoba and Halifax joined trial, along with parts of Finland
- For this triple-blind field trial, children (grades 1-3) received either the vaccine, a placebo of Medium 199, or were observed

Time (Canadian Edition), March 29, 1954

VOLUME 46 TORONTO, JULY 1955 NUMBER 7

Preparation of Poliomyelitis Virus for Production of Vaccine for the 1954 Field Trial†

L. N. FARRELL, W. WOOD, H. G. MACMORINE, F. T. SHIMADA, AND D. G. GRAHAM
Connaught Medical Research Laboratories
University of Toronto

THE important demonstration of Enders, Weller and Robbins (3) that viruses of poliomyelitis proliferate in cultures of human embryonic tissue opened wide areas for study of the cause and prevention of this disease. When Rhodes and his associates showed (5) that the entirely synthetic nutrient Medium no. 199 devised by Morgan, Morton and Parker (6) can replace conventional tissue culture media containing antigenic material such as horse serum, a cell-free vaccine suitable for use in children became a possibility. Salk and his colleagues in fact used Medium no. 199 in tissue cultures to prepare their [illegible] man subjects

Canadian Journal of Public Health, July 1955, p. 265

April 24, 1954:
Launch of Salk Vaccine Field Trial

- Meanwhile, Connaught proceeded to prepare the full vaccine while the federal and provincial governments planned an all-Canadian observed-controlled trial of it that would start in April 1955, regardless of U.S. results
- Each batch of vaccine was double-tested by Connaught and the Laboratory of Hygiene in Ottawa

Sanofi Pasteur Canada Archives

Globe & Mail, April 5, 1954, p. 21

All Virus for U.S. Polio Inoculations Made in Connaught Laboratories

By KEN W. MacTAGGART

During the next eight weeks, one of the greatest projects in medical history will be launched. By June 1, between 500,000 and 1,000,000 children of Grade Two age in the United States will have been inoculated against polio-myelitis. In the weeks that follow, medical authorities the world round will be watching breathlessly.

of brews, tested various tissues. Boston had been able to keep the virus alive on rare, hard-to-obtain embryo tissues. Connaught tried others, suddenly came up with monkey kidney tissue, and delved back into years-old studies to rediscover that a fluid, labelled by its Connaught discoverers years ago as 199, met all the needs. It was costly; one of its 62 ingredients alone costs $2,500 a bottle.

The National Foundation had been watching Connaught. Swift-

team is spread through two of its divisions: College St., opposite police headquarters, and Spadina, the venerable building on the crescent which was salvaged by the scientists. Some idea of the work entailed, with thousands of flasks and tubes used daily, is given by the knowledge that 20 people work steadily at the single job of cleaning and sterilizing the glassware.

Three times a week, a station-wagon with the license-plates of a U.S. state arrives with a team

POLIO WEAPON

A Toronto lab is helping make vaccine that may protect half a million U.S. children in history's biggest medical experiment

By Jacqueline Moore
WEEKEND Staff Writer

Photos by Herb Nott

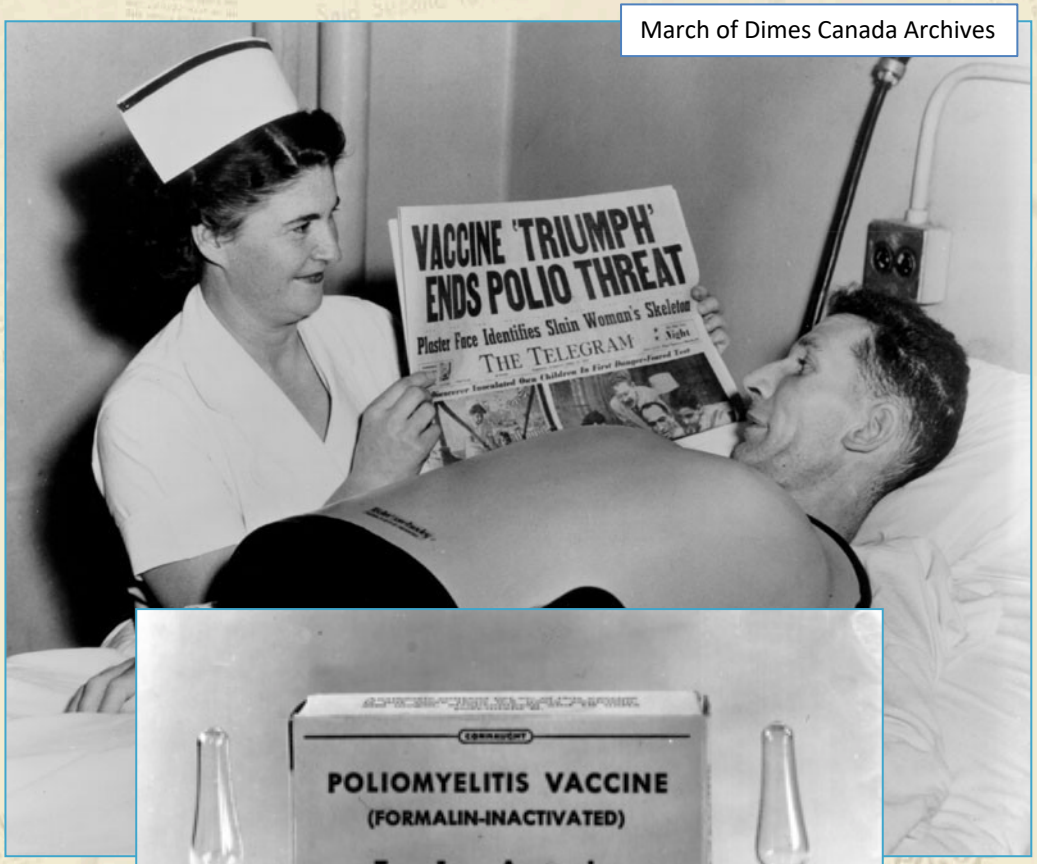
Cancer researcher Dr. Raymond Parker made the discovery being used in producing experimental polio vaccine.

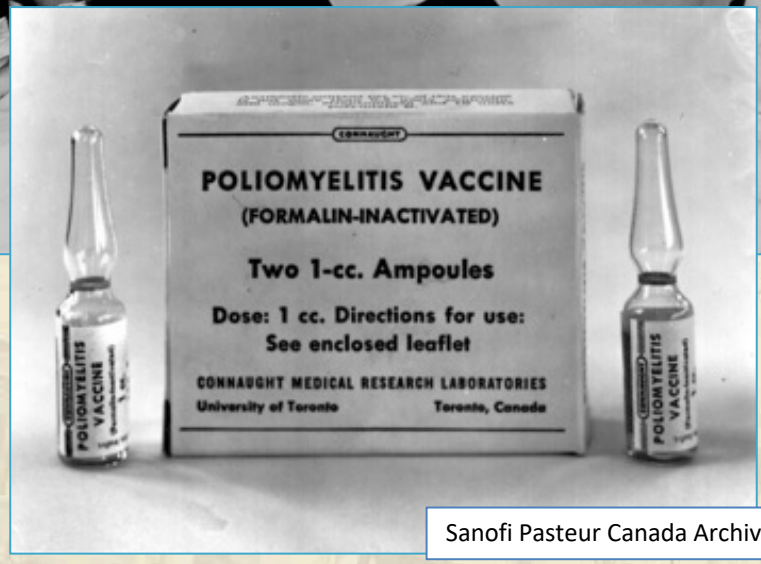
Weekend Magazine, April 1954

April 12, 1955:
"V-Day": Salk Vaccine Trial Results Announced

- **April 12, 1955** – Unprecedented media attention to announcement of field trial results in Ann Arbor, Michigan
- Salk vaccine proves to be 60-90% effective against the three types of poliovirus
- Vaccine immediately licensed in U.S. and Canada
- In Canada, Salk vaccine distributed through a special federal-provincial free program for children and subjected to further study of its effectiveness

March of Dimes Canada Archives





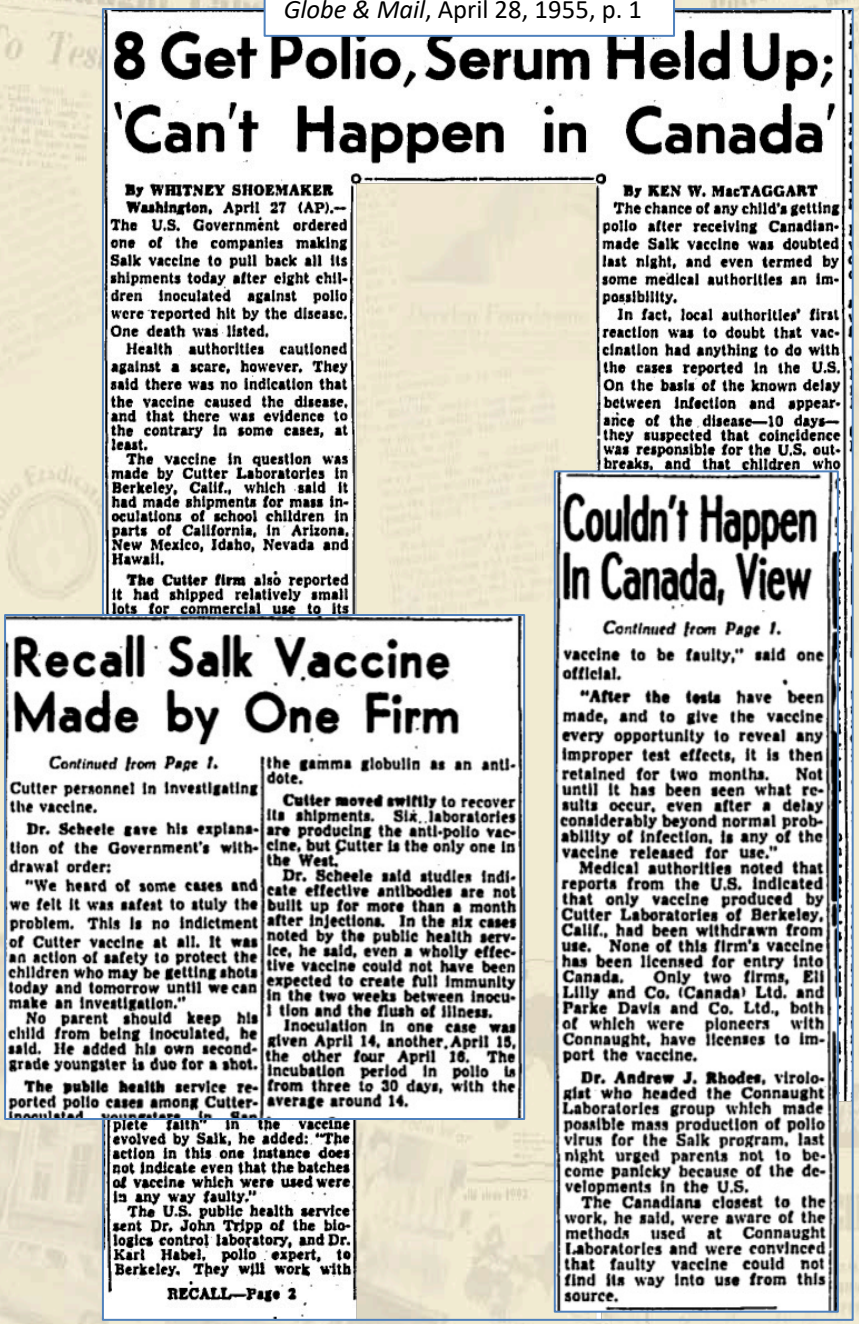
Sanofi Pasteur Canada Archives

"Cutter Crisis"
U.S. Vaccine Suspension; Canada's Choice?

- **April 25, 1955** – However, there was a major setback when it was discovered that some batches of vaccine from one U.S. producer, Cutter Labs in California, were not fully inactivated, leading ultimately to 79 polio cases linked to the bad batches
- **May 7** – After first recalling all of Cutter's vaccine, and then setting up a national polio surveillance system, the U.S. Surgeon General suspended the entire vaccine program

- North of the border, the burning question was what should Canada do?

Globe & Mail, April 28, 1955, p. 1



8 Get Polio, Serum Held Up; 'Can't Happen in Canada'

By WHITNEY SHOEMAKER

Washington, April 27 (AP).—The U.S. Government ordered one of the companies making Salk vaccine to pull back all its shipments today after eight children inoculated against polio were reported hit by the disease. One death was listed.

Health authorities cautioned against a scare, however. They said there was no indication that the vaccine caused the disease, and that there was evidence to the contrary in some cases, at least.

The vaccine in question was made by Cutter Laboratories in Berkeley, Calif., which said it had made shipments for mass inoculations of school children in parts of California, in Arizona, New Mexico, Idaho, Nevada and Hawaii.

The Cutter firm also reported it had shipped relatively small lots for commercial use to its

By KEN W. MacTAGGART

The chance of any child's getting polio after receiving Canadian-made Salk vaccine was doubted last night, and even termed by some medical authorities an impossibility.

In fact, local authorities' first reaction was to doubt that vaccination had anything to do with the cases reported in the U.S. On the basis of the known delay between infection and appearance of the disease—10 days—they suspected that coincidence was responsible for the U.S. outbreaks, and that children who

Recall Salk Vaccine Made by One Firm

Continued from Page 1.

Cutter personnel in investigating the vaccine.

Dr. Scheele gave his explanation of the Government's withdrawal order:

"We heard of some cases and we felt it was safest to study the problem. This is no indictment of Cutter vaccine at all. It was an action of safety to protect the children who may be getting shots today and tomorrow until we can make an investigation."

No parent should keep his child from being inoculated, he said. He added his own second-grade youngster is due for a shot.

The public health service reported polio cases among Cutter-inoculated youngsters in San

the gamma globulin as an antidote.

Cutter moved swiftly to recover its shipments. Six laboratories are producing the anti-polio vaccine, but Cutter is the only one in the West.

Dr. Scheele said studies indicate effective antibodies are not built up for more than a month after injections. In the six cases noted by the public health service, he said, even a wholly effective vaccine could not have been expected to create full immunity in the two weeks between inoculation and the flush of illness.

Inoculation in one case was given April 14, another April 15, the other four April 16. The incubation period in polio is from three to 30 days, with the average around 14.

plete faith" in the vaccine evolved by Salk, he added: "The action in this one instance does not indicate even that the batches of vaccine which were used were in any way faulty."

The U.S. public health service sent Dr. John Tripp of the biologics control laboratory, and Dr. Karl Habel, polio expert, to Berkeley. They will work with

RECALL—Page 2

Couldn't Happen In Canada, View

Continued from Page 1.

vaccine to be faulty," said one official.

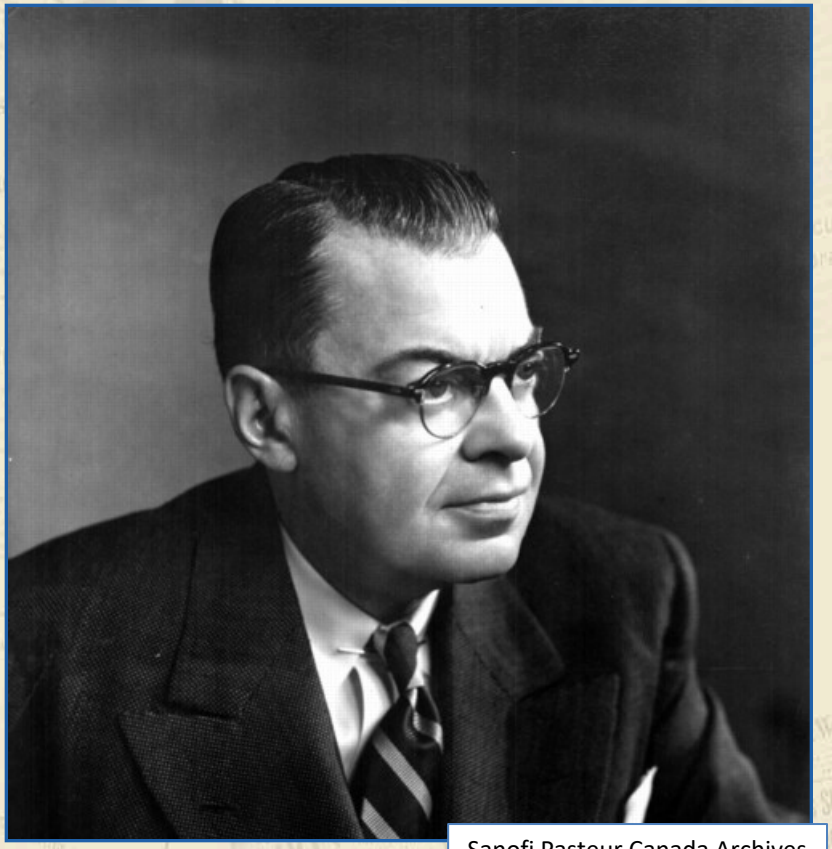
"After the tests have been made, and to give the vaccine every opportunity to reveal any improper test effects, it is then retained for two months. Not until it has been seen what results occur, even after a delay considerably beyond normal probability of infection, is any of the vaccine released for use."

Medical authorities noted that reports from the U.S. indicated that only vaccine produced by Cutter Laboratories of Berkeley, Calif., had been withdrawn from use. None of this firm's vaccine has been licensed for entry into Canada. Only two firms, Eli Lilly and Co. (Canada) Ltd. and Parke Davis and Co. Ltd., both of which were pioneers with Connaught, have licenses to import the vaccine.

Dr. Andrew J. Rhodes, virologist who headed the Connaught Laboratories group which made possible mass production of polio virus for the Salk program, last night urged parents not to become panicky because of the developments in the U.S.

The Canadians closest to the work, he said, were aware of the methods used at Connaught Laboratories and were convinced that faulty vaccine could not find its way into use from this source.

"Cutter Crisis"
U.S. Vaccine Suspension; Canada's Choice?



Sanofi Pasteur Canada Archives

- While the U.S. launch of the Salk vaccine was suspended, after careful consideration and advice, yet some resistance from the Prime Minister, federal health minister, Paul Martin (himself a victim of polio, as was his son) decided that the Canadian launch of the vaccine should continue uninterrupted

Canadian-made Salk Is Safe Ottawa, All Provinces Sure

"There is nothing wrong with the Salk vaccine made in Canada and we are continuing the mass inoculations according to program," said Dr. T. J. Phair, deputy minister of health for Ontario, today.

"Some 256,000 children have had their first shots without any ill effects and this is most reassuring," he said. "If there is anything wrong with any U.S.-manufactured vaccine, which is used only in that country, it might be from the manufacture. It also might be psychological in many cases."

"We are confident there is nothing wrong with the Canadian Salk vaccine and are proceeding in all Toronto schools according to plan," said Dr. L. A. Pequegnat, Toronto medical officer of health.

"We have already inoculated more than 20,000 Toronto children in the first and second grades and this week we will give shots to some 10,000 third-grade students for the first time and seconds shots to the lower grades.

"It is 'No Stop' in the Toronto program — we have been convinced," said Dr. Pequegnat.

Canada has barred the entry of U.S.-produced Salk vaccine until the U.S. government releases its

(Continued on Page 13, Col. 3)

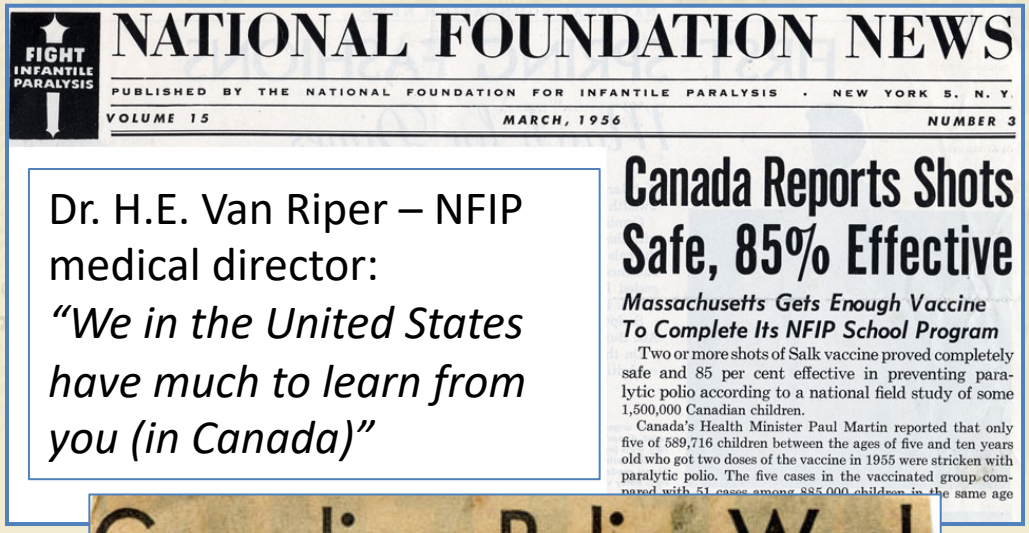
"SEE? NOTHING TO IT," PARK SCHOOL GIRL TELLS SCEPTICAL CHUM

Toronto Star, May 1955

"Cutter Crisis"
U.S. Vaccine Suspension; Canada's Choice?

- There had been no reports of cases linked to Connaught's vaccine and immunization continued uninterrupted without incident
- Moreover, a detailed Canadian evaluation of the vaccine further demonstrated its safety and effectiveness

- Considerable debate ensued over the different approaches to the vaccine between the two countries
- The Canadian success meant a lot to Dr. Salk and led to full scale immunization programs in the U.S.



FIGHT INFANTILE PARALYSIS

NATIONAL FOUNDATION NEWS

PUBLISHED BY THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS · NEW YORK 5, N. Y.

VOLUME 15 MARCH, 1956 NUMBER 3

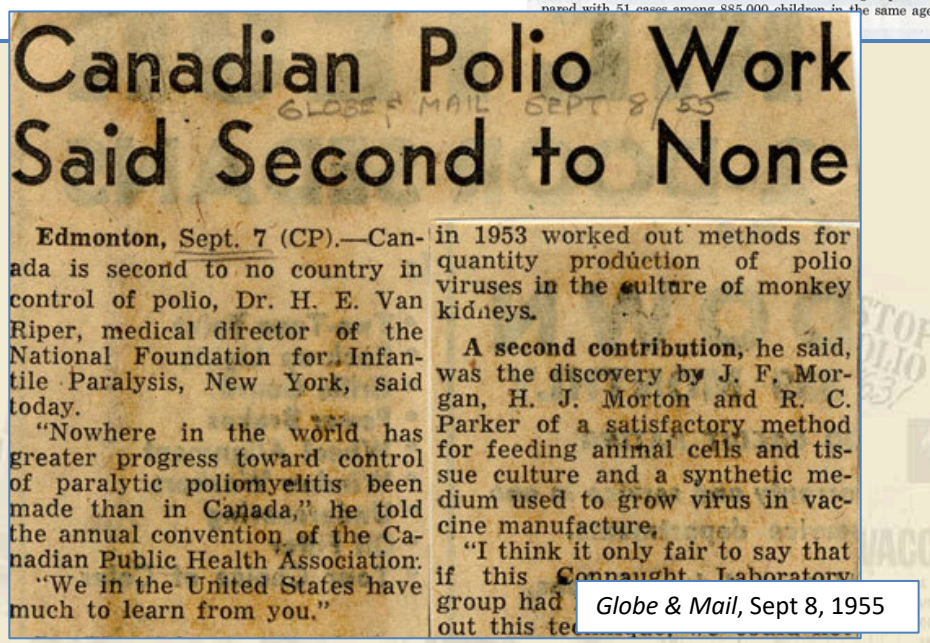
Dr. H.E. Van Riper – NFIP medical director:
"We in the United States have much to learn from you (in Canada)"

Canada Reports Shots Safe, 85% Effective

Massachusetts Gets Enough Vaccine To Complete Its NFIP School Program

Two or more shots of Salk vaccine proved completely safe and 85 per cent effective in preventing paralytic polio according to a national field study of some 1,500,000 Canadian children.

Canada's Health Minister Paul Martin reported that only five of 589,716 children between the ages of five and ten years old who got two doses of the vaccine in 1955 were stricken with paralytic polio. The five cases in the vaccinated group compared with 51 cases among 885,000 children in the same age



Canadian Polio Work Said Second to None

GLOBE & MAIL SEPT 8/55

Edmonton, Sept. 7 (CP).—Canada is second to no country in control of polio, Dr. H. E. Van Riper, medical director of the National Foundation for Infantile Paralysis, New York, said today.

"Nowhere in the world has greater progress toward control of paralytic poliomyelitis been made than in Canada," he told the annual convention of the Canadian Public Health Association. "We in the United States have much to learn from you."

in 1953 worked out methods for quantity production of polio viruses in the culture of monkey kidneys.

A second contribution, he said, was the discovery by J. F. Morgan, H. J. Morton and R. C. Parker of a satisfactory method for feeding animal cells and tissue culture and a synthetic medium used to grow virus in vaccine manufacture.

"I think it only fair to say that if this Connaught Laboratory group had out this te

Globe & Mail, Sept 8, 1955

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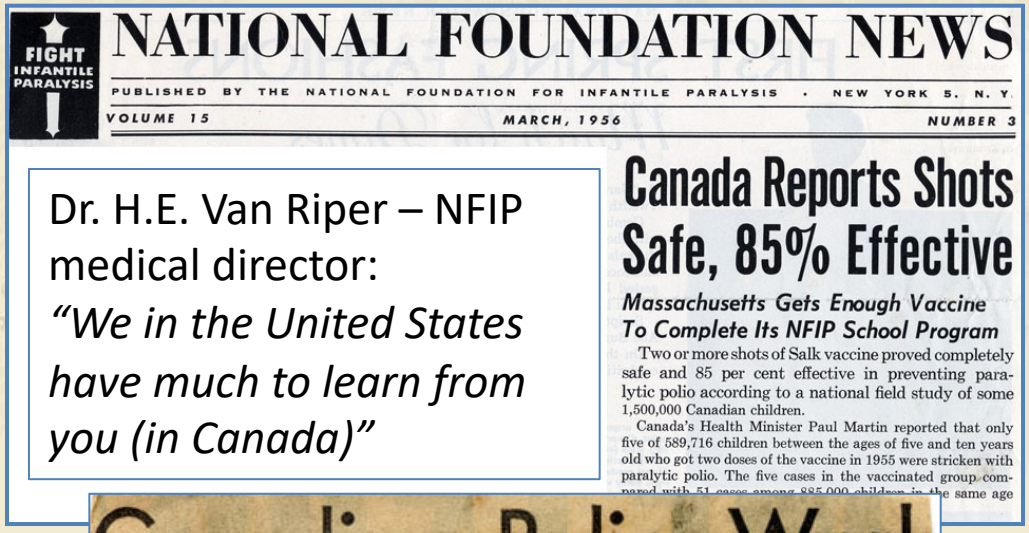
- There had been no reports of cases linked to Connaught’s vaccine and immunization continued uninterrupted without incident
- Moreover, a detailed Canadian evaluation of the vaccine further demonstrated its safety and effectiveness

- Once one or more COVID-19 vaccines have passed similar field trials, are licensed, and are hurried into large scale production and broad distribution, it will be very much a mission of everyone to avoid any repeat of the “Cutter Incident”



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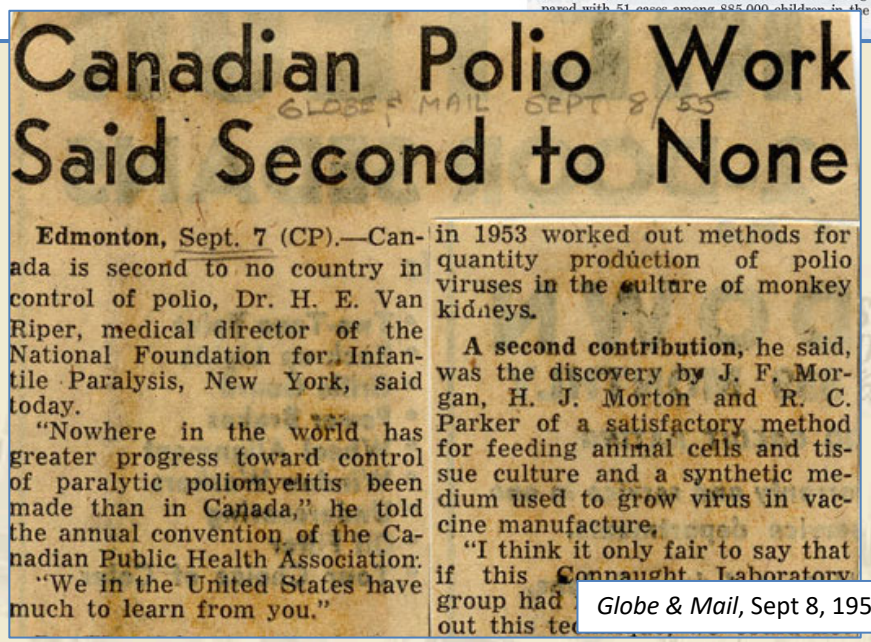

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Globe & Mail, Sept 8, 1955

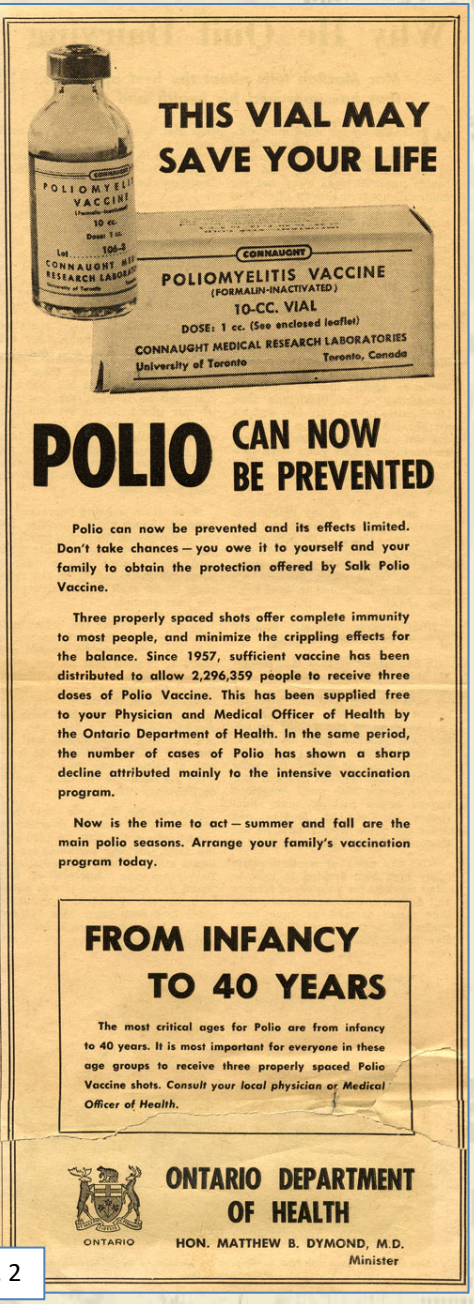
Preventing Persistent Polio

- Despite the successful introduction of the Salk polio vaccine in Canada, it took time for all age groups to be immunized and time for polio outbreaks to end
- **1958-59** - In particular, significant polio epidemics struck several parts of the country, primarily effecting un-immunized pre-school and older children, as well as adults

Financial Post, Jan 11, 1960

Polio Score

	Cases 1959	Deaths 1959
Que.	1,131	101
Ont.	198	21
Nfld.	139	12
B.C.	132	12
Alta.	81	12
N.B.	62	6
Sask.	46	3
Man.	26	2
N.W.T.	10	4
N.S.	8	0
P.E.I.	7	1



99 New Cases, Polio Total Climbs to 969

Ottawa, Sept. 25 (CP)—There were 99 cases of paralytic poliomyelitis reported in Canada last week, more than half of them from Quebec, the Health Department said today.

They brought to 969 the number of 1959 cases up to Sept. 19, compared with 131 at the corresponding date last year. This year's total includes 73 polio deaths as against 14 at this time a year ago.

Only Manitoba, the Yukon and the Northwest Territories reported no polio cases last week. Nova Scotia had its first case of the year.

The Montreal outbreak and other Quebec cases have accounted for 656 in the national total of 969 cases. Only 35 were reported to this date last year.

Ontario reports 101 paralytic cases up to Sept. 19, compared with seven a year ago. Newfoundland had 95 cases, up from three at the same time last year.

Cases in other provinces, with comparable 1958 totals in brackets:

New Brunswick 28 (1); Prince Edward Island 2 (0); Manitoba 17 (60); Saskatchewan 16 (0); Alberta 22 (17); British Colum-

Globe & Mail, Sept 26, 1959, p. 2

POLIOMYELITIS—A CONTINUING MENACE

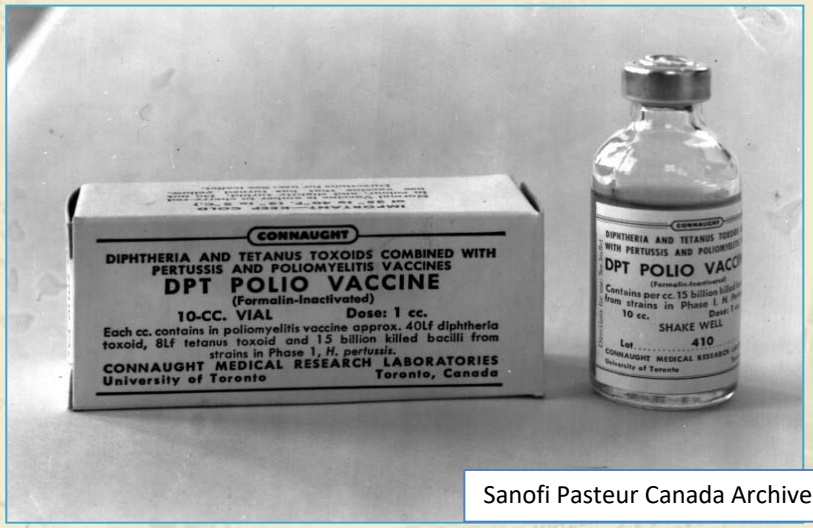
CASES of paralytic poliomyelitis in Canada last year numbered 177, the lowest number since 1949. There were 26 deaths. To the end of September of this year 151 cases were reported in contrast with 134 at the same time last year. Almost all the cases and all the deaths occurred in persons who had not received three doses of Salk vaccine. Throughout Canada, widespread use of the vaccine has been made as a result of the combined efforts of the federal and provincial departments of health and the medical profession. The Department of National Health and Welfare has given outstanding leadership by assisting the provincial departments through the payment of half the cost of the vaccine. The vaccine, in turn, has been supplied without charge by provincial departments of health to local health departments and to physicians for use in the age group under 20 years.

Canadian Journal of Public Health, Nov 1958, p. 489

Preventing Persistent Polio:
The Right Combination

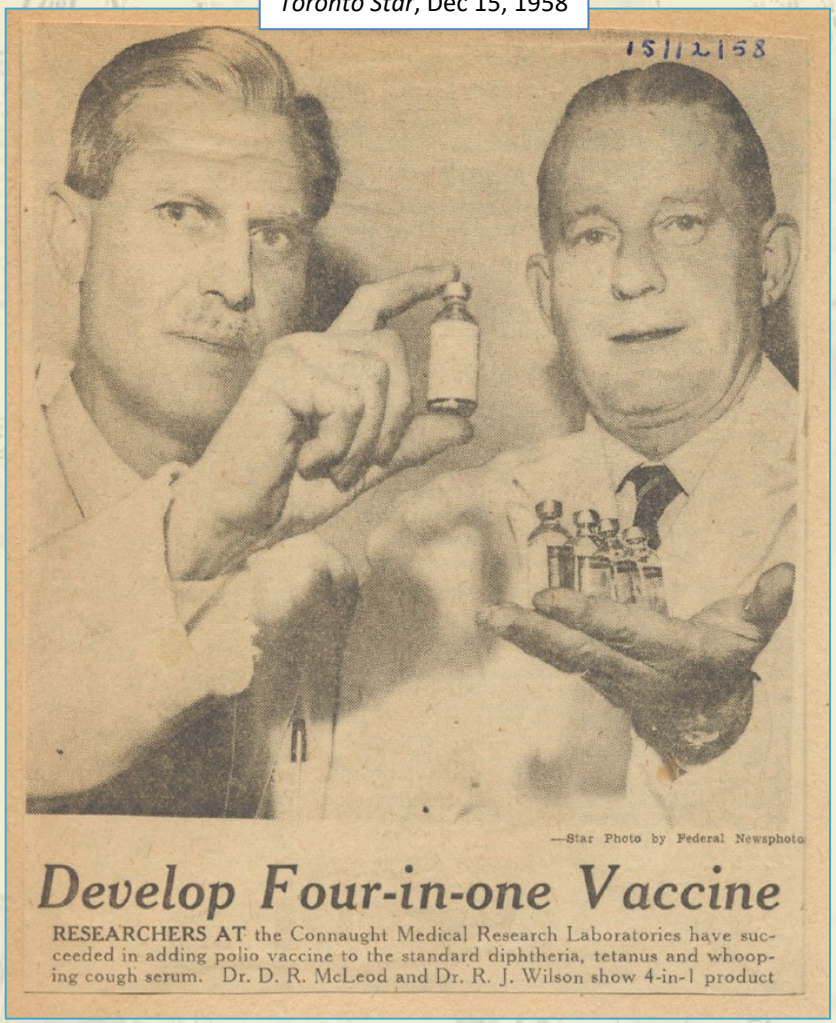
- The best strategy to broaden and simplify polio immunization was to build on the DPT combination vaccine model and add in Salk polio vaccine

- **Jan 1959** - Connaught pioneered a new generation of combined vaccines:
- DPT-Polio for primary immunization, DT-Polio for booster shots, and T-Polio for adult boosters



Sanofi Pasteur Canada Archives

Toronto Star, Dec 15, 1958


15/12/58

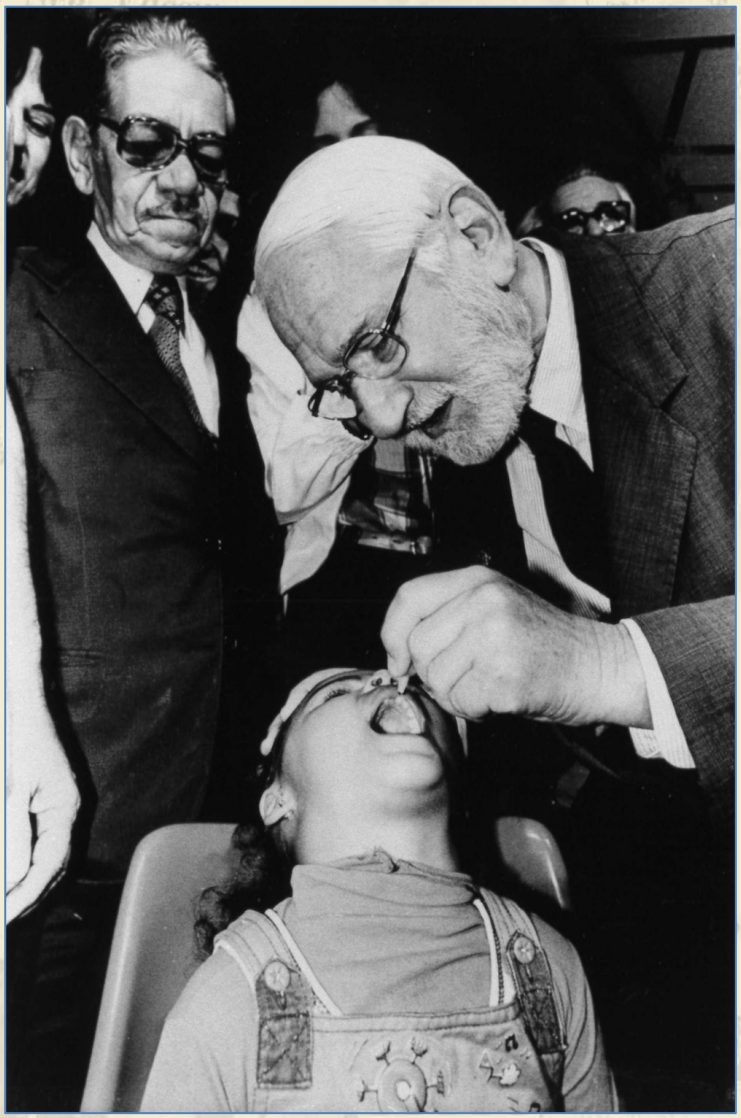
—Star Photo by Federal Newsphoto

Develop Four-in-one Vaccine

RESEARCHERS AT the Connaught Medical Research Laboratories have succeeded in adding polio vaccine to the standard diphtheria, tetanus and whooping cough serum. Dr. D. R. McLeod and Dr. R. J. Wilson show 4-in-1 product

Preventing Persistent Polio:
From Salk IPV to Sabin OPV

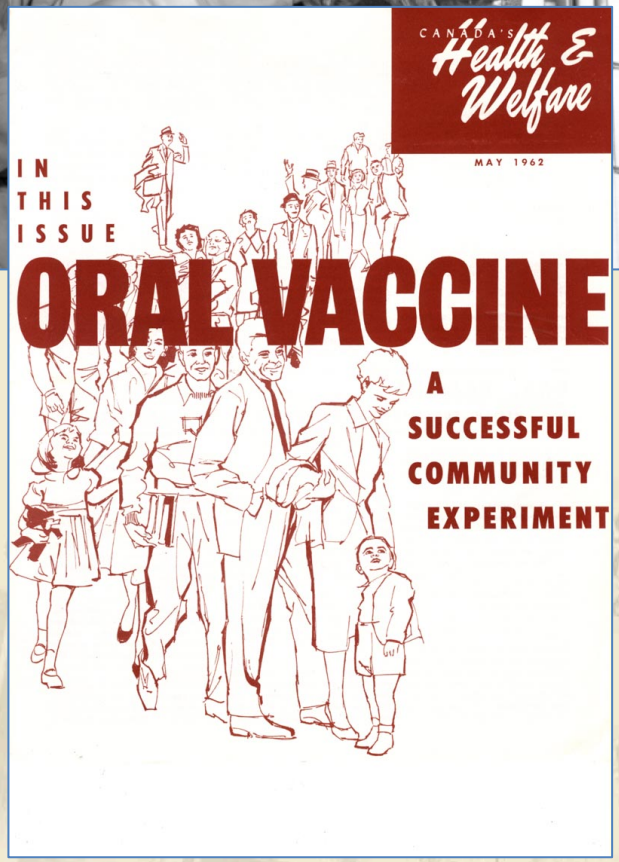
- Persistent polio incidence during the late 1950s also highlighted the limits of the Salk inactivated vaccine
- Growing polio incidence internationally pointed to the need for another type of polio vaccine that was cheaper to produce and could be more easily given
- Salk's vaccine built blood immunity, but Dr. Albert Sabin focused on preparing a vaccine that would build immunity in the digestive tract – where the poliovirus naturally replicates
- Sabin's goal was to carefully cultivate live attenuated or weakened poliovirus strains, which would be administered with a spoon



Preventing Persistent Polio:
From Salk IPV to Sabin OPV

- **1959** - Connaught's OPV research intensified after Sabin provided attenuated strains from which vaccine could be produced
- The major challenge was maintaining the genetic stability of the vaccine strains
- Nevertheless, Connaught's key contributions included facilitating OPV field testing through uniquely designed "demonstrations" in several parts of Canada

Sanofi Pasteur Canada Archives



Preventing Persistent Polio:
From Salk IPV to Sabin OPV

1961 – Connaught also provided OPV on an experimental basis to a several countries facing major polio epidemics, such as in New Zealand and Japan

March 1962 – Connaught's trivalent Sabin Oral Polio Vaccine was licensed in Canada

Reveal Canadian Aid Halted Japanese Polio

Globe & Mail Feb 20, 1965

The story of how Canada helped to check a serious outbreak of polio in Japan during the late summer of 1961 was disclosed yesterday in the report of Dr. J. K. W. Ferguson, director of the Connaught Medical Research Laboratories.

With supplies of anti-polio vaccine scarce, the Japanese Government bought 3,000,000 doses of Sabin vaccine from the Con... and 10,00...

myelitis had occurred. A low incidence prevailed for the balance of the year."

The results were so spectacular that the Japanese Government decided to extend the program to older children and continue it during the winter of 1962. Requiring some 17,000,000 additional doses, the Japanese Government issued invitations to tender competitively.

Chief competitors for the ... Russian ... European

Globe & Mail, Feb 20, 1965

Sanofi Pasteur Canada Archives

Five Generations Sip Sabin Polio Vaccine

Baby Is First in Line of Five-Generation Family at Cottingham School

From left: Mrs. Anne Cooper; Cory Richardson, 15 months; Mrs. Karen Richardson, mother; Mrs. Eleanor Birkenshaw, grandmother; Mrs. May Beal, great-grandmother; Mrs. Elizabeth Castigane, 89, great-great-grandmother.

Globe & Mail, 1961 uncertain

Preventing Persistent Polio:
From Salk IPV to Sabin OPV

- Several provinces, and most of the United States, soon switched to OPV, although the Salk vaccine was preferred in Ontario and Nova Scotia

Sanofi Pasteur Canada Archives

Canadian Journal of
PUBLIC HEALTH
VOLUME 53 APRIL 1962 NUMBER 4

Live Poliovirus Vaccine for Oral Use

J. K. W. FERGUSON,[1] M.D.

SINCE 1958 poliomyelitis vaccines for oral administration have been used with satisfactory results in many countries. They are known as *attenuated live poliovirus vaccines*. Attenuated polioviruses are specially selected strains which have almost no capacity to cause paralytic disease even when injected directly into the brains of monkeys. They retain, however, the capacity to multiply in the human alimentary tract. Several different strains of attenuated poliovirus have been developed and tried extensively as vaccines. Only the strains introduced by Dr. Albert B. Sabin of Cincinnati, U.S.A., have been approved as yet for use in a large number of countries including Canada, Great Britain, and the United States of America (1, 2, 3, 4).

Mode of Action

Each dose of Sabin vaccine contains thousands of particles of living but harmless virus. When these are swallowed they multiply in the wall of the digestive tract where they cause an infection but no illness. In response to this infection, antibodies against poliovirus develop in the body and circulate in the blood stream. Circulating antibodies act as a barrier to prevent virulent poliovirus from passing from the digestive tract by way of the blood stream to the central nervous system. In this way circulating antibodies prevent paralytic poliomyelitis. It is thought that attenuated live poliovirus vaccine acts also by another mechanism. It seems probable that it induces local immunity in the digestive tract which prevents multiplication of poliovirus in the digestive tract. By this means it can reduce the number of carriers of poliovirus infection in the community.

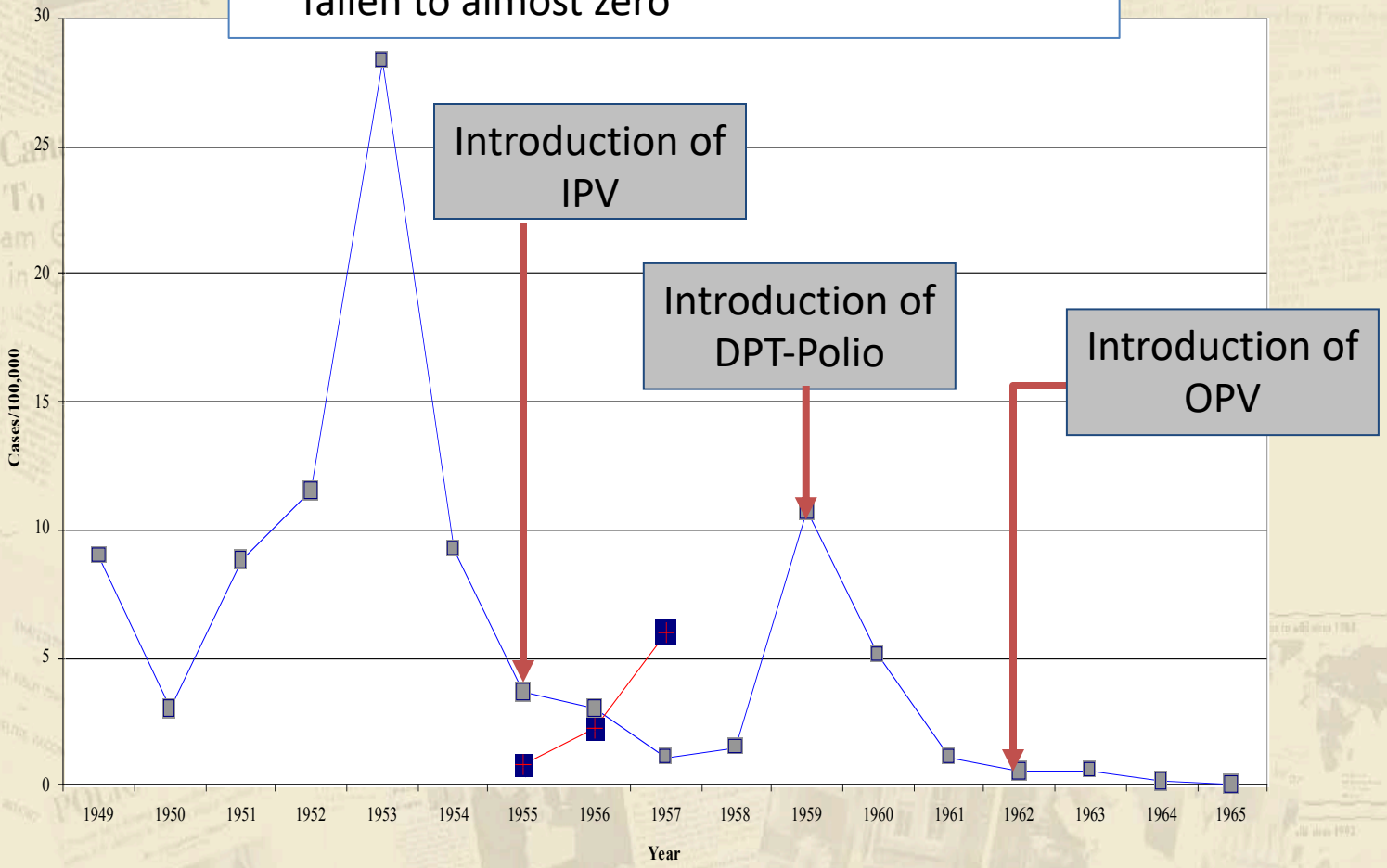
Advantages of Oral Poliovirus Vaccine

Oral vaccine can be given more easily to large numbers of persons because no needles or syringes are used. The cost of this equipment and of sterilizing it is eliminated.

[1]Director, Connaught Medical Research Laboratories, University of Toronto, Toronto 4, Ontario.

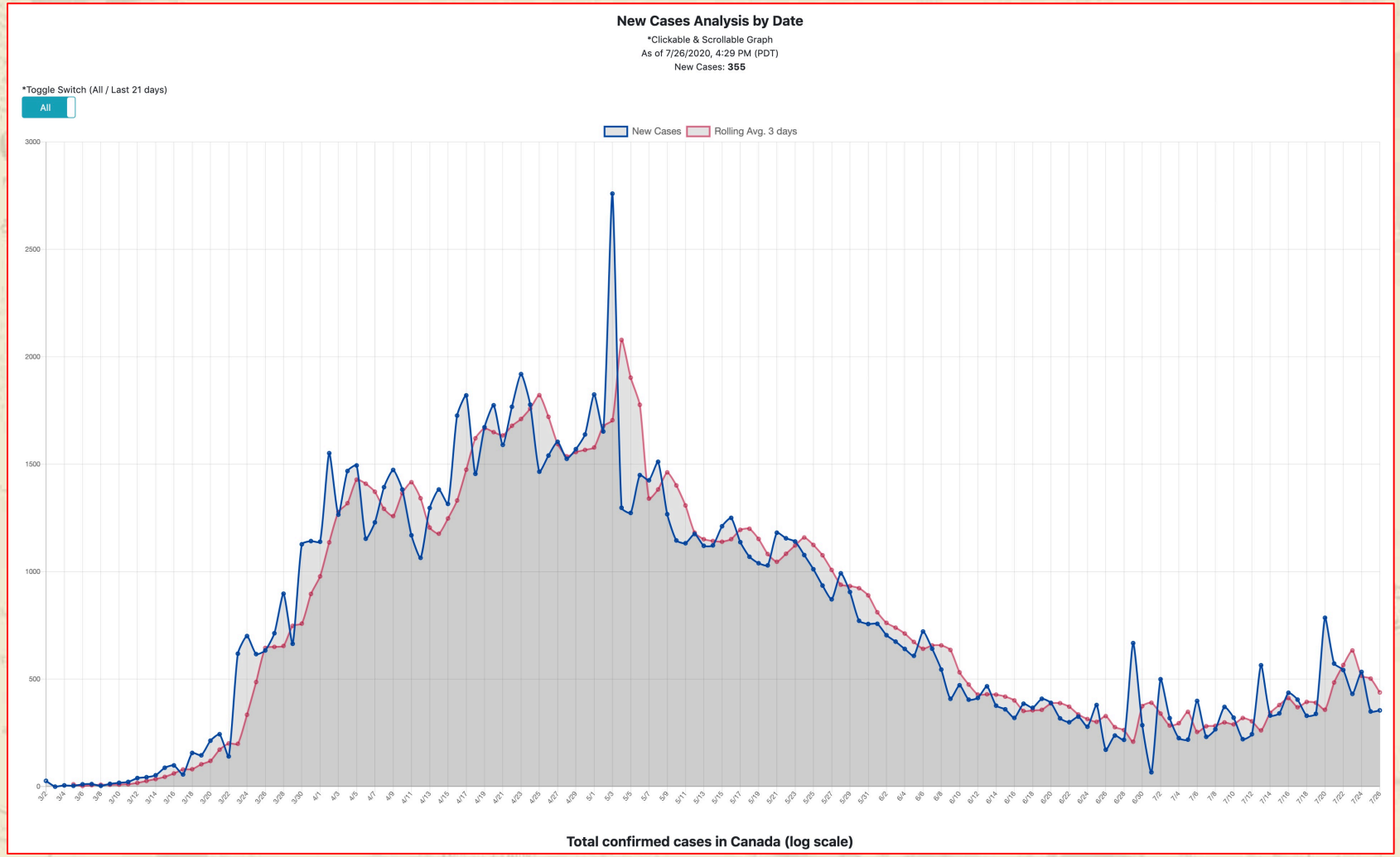
Preventing Persistent Polio:
From Salk IPV to Sabin OPV

- By 1965, polio incidence in Canada had fallen to almost zero



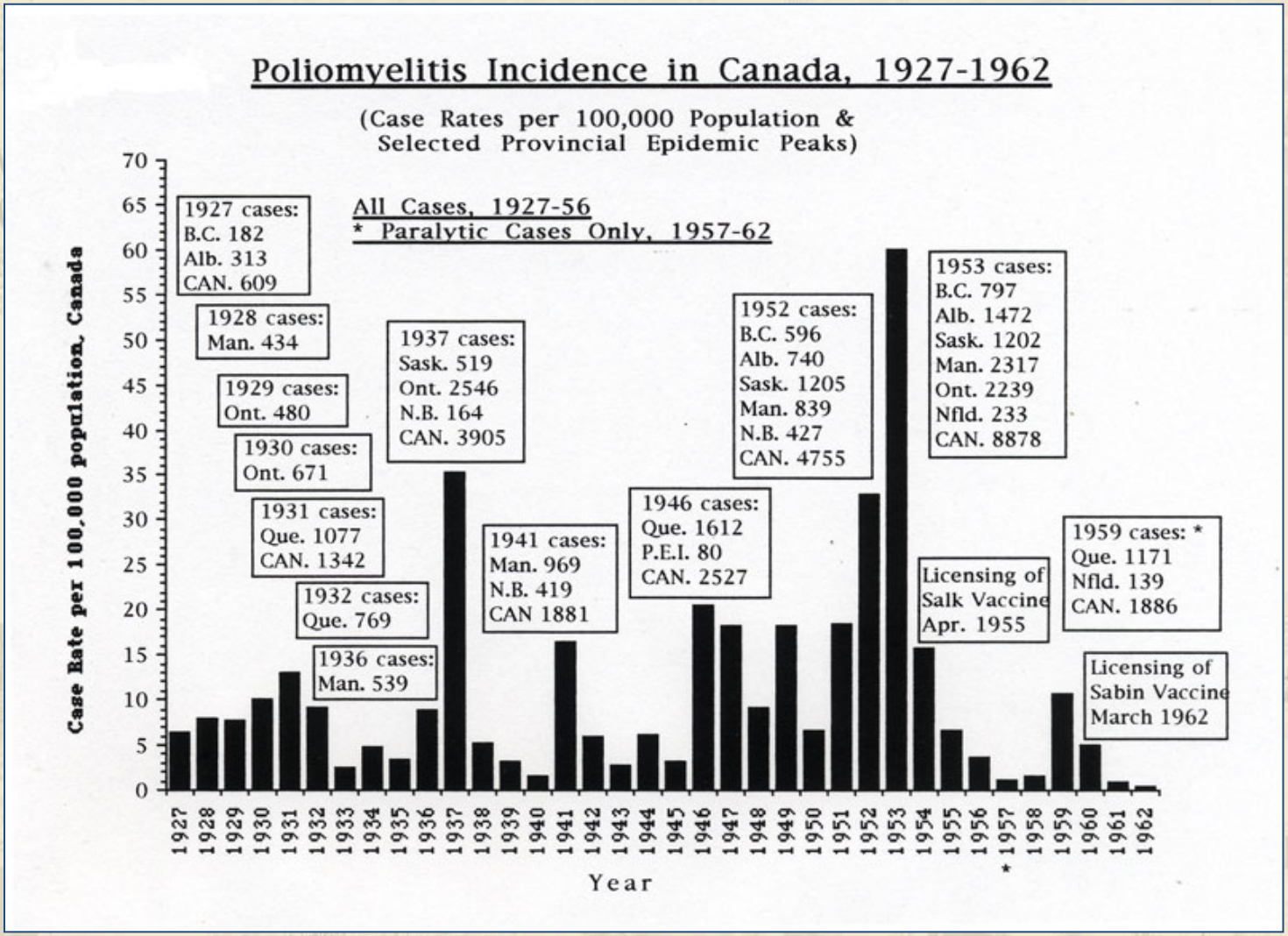
COVID-19 in Canada:
Following the Polio Path?

- Hopefully Canada's COVID-19 incidence graph will soon follow a similar pattern…



COVID-19 in Canada: *Following the Polio Path?*

- However, until a COVID-19 vaccine (or vaccines) is available, the Canadian COVID-19 incidence graph may well echo the pre-1955 polio incidence graph



Thank You

Direct any questions and comments to Christopher J. Rutty:
hhrs@healthheritageresearch.com
Also active via: http://twitter.com/cjrutty

Useful resources on the history of polio and polio vaccines in Canada:

- http://www.museumofhealthcare.ca/explore/exhibits/vaccinations/polio.html
- http://connaught.research.utoronto.ca/history/ (Articles #7 & #8)