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A STUDY OF THE RACIAL
INCIDENCE OF TUBERCULOSIS
IN THE PROVINCE OF MANITOBA
FOR THE YEAR 1932

By

Charles H. A. Walton, M.Sc. H.D.
Winnipeg, Manitoba.

Under the Fenton Bequest.

This study was undertaken in June 1933 to learn the racial incidence of tuberculosis in Manitoba as shown by records of deaths. As the enquiry developed, other data were secured which are also recorded. After consideration it was decided that an intensive study should be made of the year 1932.

It had long been known that people of Indian blood suffer a high tuberculosis death rate, and this has become more and more evident as mortality statistics of Indians have been more accurately recorded. But, as will be shown, data even of treaty Indians have been difficult to get accurately, and no separate statistical information existed about people of part Indian blood, most of whom have been put into various European classes on account of the white part of their ancestry, and but few into the Indian class. More recently some of those known to have a definite Indian admixture have been classified as "half-breed" for vital statistics purposes but the official records of such are so fragmentary as to make this re-classification of little use.

It was considered that the most satisfactory method of study would be to examine each original certificate of death filed in the Vital Statistics Department of the Provincial Department of Health and Public Welfare. In this study names of people who from place of residence or other reason might be thought to be of partial Indian extraction were noted and investigated individually. Through the Public Health Nursing Service and otherwise it was possible to ascertain something of the ancestry of each individual. The "half-breed" deaths recorded in this study can thus be said to be accurate in that they are all well known and investigated. Obviously some deaths may be missed by this method, but the total is at any rate minimal.

A word regarding our classification of Indians and "half-breeds". It has long been known that many who live on reserves and "take treaty" have various admixtures of white blood; indeed on many reserves this is true of all the inhabitants. It is commonly stated that scarcely any pure-blooded Indians remain in Manitoba, except possibly in the hinterland. Practically all Manitoba Indians, then, are of mixed blood. In addition, there are many people of mixed blood who are not on reserves, and are not classified or known as Indians, and who are citizens of the province. Some of these in appearance and ways of life are scarcely distinguishable from ordinary citizens, while others are scarcely distinguishable, in appearance or ways of living, from Indians on reserve. In this study we classed as "Indians" all who live on reserve and "take treaty" and the occasional known Indian who for some reason or other has left the reserve, and classed as "half-breeds" all who are known to have a definite and obvious mixture of Indian blood, which may vary from one eighth to seven eighths Indian, and who do not "take treaty".

Wodehouse (1) in a recent paper drew attention to the fact that the tuberculosis death rate in Manitoba is higher than that of Ontario, and much higher than that of Saskatchewan, and asked the question, "is the influence of the incidence of tuberculosis in the Indian and half-breed population the factor in accounting for this"? He quoted figures tending to show that this was not the factor. But he used only the official census figures for Indians and half-breeds, and these, as I will show, took into account only the half-breeds on reserves, classing them as Indian, and did not count the large number of half-breeds resident in the province and enumerated chiefly as Europeans. An approximate enumeration of these people of mixed blood will be discussed in the report. The tuberculosis deaths in this group are shown in Table I. As a similar enumeration of half-breeds as distinct from Indians has not, so far as I know, been undertaken in other provinces, a comparison cannot be made, but there is historical basis for the assumption that there are more half-breeds in Manitoba proportionally than in the other western provinces. The Red River became the important centre for half-breed settlement a century and a half ago and Manitoba has remained the chief centre.

Obviously the taking of a number of names out of various European classifications, and putting them into a new classification as half-breeds makes a re-study of all groups necessary.

T A B L E I.

Tuberculosis deaths in 1932, classified according to Racial Origin.

(1)

INDIANS

Died on reserve	106	
Died off reserve but in province	<u>21</u>	127

(2)

HALF-BREEDS

French (usually classed as such)	33	
Scotch (" " " ")	20	
English (" " " ")	<u>5</u>	<u>58</u>

Total with Indian Blood

185

Table I continued on page 3.

Table I Continued.

<u>OTHER RACES</u>	<u>Born in</u> <u>Canada (3)</u>	<u>Born in</u> <u>Europe (or Asia)</u>	<u>Total</u>	
<u>BRITISH</u>				
English & Welsh	22	22	44	
Scotch (4)	19	8	27	
Irish	<u>19</u>	<u>5</u>	<u>24</u>	
<u>Total British</u>	<u>60</u>	<u>35</u>	<u>95</u>	95
<u>FRENCH</u>				
	6	3	9	9
<u>SLAVIC (5)</u>				
Polish	8	24	32	
Ukrainian	10	15	25	
Austrian	7	7	14	
Hungarian	0	1	1	
Russian	1	4	5	
Choko-Slovak	0	1	1	
Galician	0	1	1	
Roumanian	1	2	3	
Ruthenian	3	1	4	
Serbian	0	<u>1</u>	<u>1</u>	
<u>Total Slavic</u>	<u>30</u>	<u>57</u>	<u>87</u>	87
<u>SCANDINAVIAN</u>				
Icelandic	5	2	7	
Swedish	2	3	5	
Danish	<u>1</u>	<u>1</u>	<u>2</u>	
<u>Total Scandinavians</u>	<u>8</u>	<u>6</u>	<u>14</u>	14
<u>GERMANIC</u>				
Gorman (6)	2	5	7	
Mennonite	<u>2</u>	<u>4</u>	<u>6</u>	
<u>Total Gorman</u>	<u>4</u>	<u>9</u>	<u>13</u>	13
<u>LATVIAN</u>				
	0	1	1	
<u>FINNISH</u>				
	1	0	1	
<u>JEWISH</u>				
	0	1	1	
<u>CHINESE</u>				
	1	2	3	
<u>NEGRO</u>				
	<u>1</u>	<u>0</u>	<u>1</u>	
<u>Total Misc.</u>	<u>3</u>	<u>4</u>	<u>7</u>	7
<u>TOTAL "NON-INDIAN"</u>				225
<u>TOTAL "INDIAN"</u>				185
TOTAL DEATHS, TUBERCULOSIS (7)				<u>410</u>

Footnotes to Table I

- (1) Death certificates from reserves include those of six individuals described as half-breeds who had not "taken treaty", but live on or near reserves. We have classed them in Table I as half-breeds.
- (2) This total includes the above mentioned six half-breeds.
- (3) This includes an occasional individual born in the U.S.A.
- (4) Includes one case not listed in the provincial department as tuberculosis but is a definitely known case.
- (5) The people included in this group may not all have been Slavs in a strict sense, but it is a convenient and reasonably accurate grouping. A more rigid analysis of the racial origin of the peoples from the countries listed in this group does not seem necessary for the present purpose.
- (6) Although the Mennonites are racially German they form a distinct group and it was thought wise to show them separately.
- (7) This total is probably too high. See discussion below re question of diagnosis.

T A B L E 2

Non-Indian Tuberculosis deaths classified as to place of birth

<u>Racial Group</u>	<u>NUMBER of DEATHS</u>		<u>POPULATION</u>	
	Born in Canada (1)	Born outside of Canada	Born in Canada (2)	Born outside of Canada
<u>BRITISH</u>	60	35 (36.7%)	267,081	106,992 (28.6%)
<u>SLAVIC</u>	30	57 (65.5%)	50,320	90,395 (64.2%)
<u>SCANDINAVIAN</u>	8	6 (42.8%)	19,766	11,931 (37.6%)
<u>GERMANIC</u>	4	9 (69.2%)	34,517	3,561 (9.4%)
<u>OTHERS</u>	9	7 (43.7%)	65,248	23,710 (26.6%)
<u>TOTALS</u>	<u>111</u>	<u>114 (51.5%)</u>	<u>436,932</u>	<u>236,582 (35.1%)</u>

Footnotes: (1) Includes U.S.A.
 (2) Exclusive of Indians and half-breeds.

In all non-Indian races the Canadian-born had lower tuberculosis death rates than the non-Canadian-born, the most outstanding being those of Germanic race in which the 90 per cent. Canadian-born suffered but 30 per cent. of the deaths for that group while the 10 per cent. foreign-born suffered 70 per cent. of the deaths. Of the Slavs the Canadian-born and foreign-born suffered almost equally. In the total the Canadian-born (non-Indian) who were 65 per cent. of the non-Indian population suffered only 48.5 per cent. of the tuberculosis deaths.

Table 3 shows residences by municipalities of those who died of tuberculosis in 1932. Rates per population have been given only for the cities and larger towns. It is obvious that in the towns and municipalities statistics over a period of years would be required to strike an approximate rate.

Wodchouse (1) suggests that the large metropolitan area of Winnipeg may account at least in part for the high rate for Manitoba as compared with the other western provinces. It will be noted in Table 3 that the figures do not bear out such a contention. The metropolitan area of Winnipeg, comprising the City of Winnipeg, the City of St. Boniface and the municipalities of St. James, Fort Garry, St. Vital, East and West Kildonan has a total population of about 281,000. In this same area there were in 1932 100 tuberculosis deaths corrected for residence. This gives a rate of 35.5 which is well below that for the province as a whole.

Table 3 shows also the half-breed deaths by municipalities of residence. The relatively high rate in the poorly developed and poorly organized districts is striking. Indians who died off reserves are shown. A list of Indian deaths by reserves is appended. Winnipeg, with many half-breed families, showed no deaths from tuberculosis in that group in 1932.

T A B L E III

TUBERCULOSIS DEATHS, CLASSIFIED AS TO MUNICIPALITY OF RESIDENCE

<u>MUNICIPALITY</u>	<u>Non-Indian</u>	<u>Half-Breed</u>	<u>Non-reserve Indian</u>	<u>Rate per 100,000</u>
<u>CITIES</u>				
WINNIPEG	85			38.8
St. Boniface	3			18.4
<u>Suburban Municipalities</u>				
St. James	3			21.5
Fort Garry	0	1		25.1
St. Vital	2	3		48.5
East Kildonan	2			22.1
Brooklands	1			40.1
Greater Winnipeg Total	96	4		35.5
Brandon	2			12.0
Portage la Prairie	2	2		60.0
Total for Cities	100	6		32.8
<u>TOWNS & VILLAGES</u>				
Beausejour	1			
Birtle	2			
Boissevain	1			
Carberry	2			
Carman	2			
Dauphin	2			
Elkhorn	1	1	1	
Flin Flon	1			
Garson	1			
Gladstone	1			
Grandview	0	1		
Minnedosa	2	1		
Morden	1			
Morris	1			
Pine Falls	0	1		
Roblin	3			
Selkirk	2	3		
Shoal Lake	2			
Swan River	2	1		

Table 3 Con'd.

	<u>Non-Indian</u>	<u>Half-Breed</u>	<u>Non-reserve Indian</u>
Teulon	1		
The Pas (town)	2		
Transcona	1		
Winkler	1		
Winnipegosis	0	1	
<hr/>			
Totals for towns and villages	32	9	1

RURAL MUNICIPALITIES &
UNORGANIZED TERRITORIES

Archie	1		
Argyle	1		
Armstrong	1		
Arthur	1		
Assiniboia	0	1	
Bifrost	3		
Boulton	1		
Brokenhead	1		
Cartier	1	1	
Chatfield	3		
Clanwilliam	1		
Coldwell	1	1	
Cornwallis	0	2	2
Cypress, North	1		
Daly	2		
Dauphin (rural)	1		
Ellice	0	2	
Eriksdale	1	1	
Ethelbert	2	0	
Franklin	1		
Gilbert Plains (rural)	2		
Gimli (rural)	2		
Hanover	4		
Hillsburg	1		
Kreuzberg	1		
Lakeview (unorg.)	0	2	
Lawrence (unorg.)	2		

Table 3 Con'd.	<u>Non-Indian</u>	<u>Half-Breed</u>	<u>Non-reserve Indian</u>
Macdonald	1		
Minitonas	1		
Mossy River	2		
Norfolk, North	1		
Norfolk, South	1		
Oakland	1		
Pipestone	2	1	
Pembina	1		
Portage la Prairie (rural)	3		
Rockwood	1		
Rosedale	2		
Rosburn	1		
St. Andrews	5	4	
St. Clements	1	3	
St. Paul, West	2		
St. Laurent	0	7	
Ste. Anne	0	2	
Ste. Rose du Lac	1	1	
Shellmouth	1		
Silver Creek	1		
Springfield	1		
Stanley	1		
Strathclair	2		
Stuartburn	2		
Siglunes	0	2	
Shell River (unorg.)	0	2	
Strathcona	1		
The Pas (unorg.)	1	1	1
Thompson	1		
Turtle Mountain	1		
Westbourne	1		
Woodlands	1		
Woodlea	1		
Woodworth	1		
Total	77	33	3

<u>Districts, not official municipal units - all within unorganized areas</u>			
Camperville	0	6	1
Cranberry Portage	0	1	1
Cross Lake	0	1	
Manigotogan	0	1	
Pelican Rapids	0	1	
Ste. Genevieve	1	0	
Total	1	10	2

Table 3 Con'd.	<u>Non-Indian</u>	<u>Half-breed</u>	<u>Non-reserve Indian</u>
<u>Residence in other provinces</u>			
Ontario	1		
Saskatchewan	3		
<u>Total</u>	<u>4</u>		
Mental Hospital not inc. in above			
<u>Cities</u>	100	6	0
<u>Towns and Villages</u>	32	9	1
<u>Municipalities</u>	77	33	3
<u>Districts, &c.</u>	1	10	2
<u>Total</u>	<u>225</u>	<u>58</u>	<u>6</u>

FOOTNOTES: (1) Winnipeg Health Department gives Winnipeg deaths as not 85 but 84, disputing as from tuberculosis the case of leucacmia referred to below.

(2) These eleven patients had been in mental hospitals of the province too long to show residence elsewhere.

APPENDIX TO TABLE 3

INDIAN TUBERCULOSIS DEATHS CLASSIFIED ACCORDING TO RESERVES OF RESIDENCE

<u>Indian Reserve</u>	<u>Tuberculosis Deaths</u>	<u>Indian Reserve</u>	<u>Tuberculosis</u>
Berens River	5	Moose Lake	2
Bird Tail	2	Nelson House	10
Bloodvein	4	Norway House	2
Cornwallis	1	Oak River	7
Cross Lake	4	Oxford House	5
Dog Creek	1	Peguis	4
Ebb and Flow	2	Pine Creek	1
Fort Alexander	2	Poplar River	6
Fisher River	5	Port Nelson	2
Hollow Water	2	Rolling River	1
Island Lake	3	Split Lake	4
Jack Head	2	Swan Lake	2
Lake St. Martin	8	Sandy Bay	7
Lake Manitoba	2	St. Peters	2
Little Saskatchewan	1	The Pas	14
Long Plain	1	Valley River	2
Unspecified	3	Waywayseecappo	1
		York Factory	1
<u>Total of 34 reserves</u>		<u>Deaths from tuberculosis - 121</u>	

NOTE: There are 12 Indian Agencies in Manitoba with some 49 reserves. Six treaty Indians who died of tuberculosis in 1932 had not recently lived on reserves and are shown as having been resident in municipalities. (Table 3) Fifteen of the above listed Indians died off reserves, and of these, thirteen died in hospitals.

Table 4 shows the number of deaths from tuberculosis occurring in the larger hospitals. From the point of view of Public Health it is an important matter that deaths from infectious diseases should occur in hospitals where infection can be suppressed rather than in homes, especially poor homes, where it cannot but be scattered. So it is note-worthy that a high proportion of the non-Indian deaths, a much smaller proportion of the half-breed deaths, and a still smaller proportion of Indian deaths, occurred in hospitals.

In institutions shown in Table 4 are only the larger ones and possibly some deaths indicated as occurring outside of hospitals may have occurred in the small rural hospitals. In the case of Indians, however, the records have been very carefully searched, and Indian deaths, even in the smallest hospitals, counted.

T A B L E 1 V
DEATHS FROM TUBERCULOSIS IN HOSPITALS
AND SANATORIA

<u>Greater Winnipeg</u>	<u>Non-Indian</u>	<u>Half-breed</u>
Central Tuberculosis Clinic	14	2
Winnipeg General Hospital	10	
Winnipeg Municipal Hospitals	28	
Children's Hospital of Winnipeg	6	
St. Boniface General Hospital	11	3
St. Boniface Sanatorium, St. Vital	25	9
Misericordia Hospital	3	
Victoria Hospital	2	
St. Joseph's Hospital	2	
Deer Lodge Hospital (D.P. & N.H.)	1	
 <u>Provincial</u>		
Manitoba Sanatorium (Ninotto)	28	4
Portage la Prairie General Hospital	1	1
Minnedosa Hospital	1	
The Pas Hospital	1	
 <u>Mental Hospitals</u>		
Selkirk Mental Hospital	8	
Brandon Mental Hospital	9	
Home for Aged and Infirm at Portage la Prairie	7	
Total	157	19

Tuberculosis deaths in institutions were, non-Indians, 157 out of a total of 225, or about 69 per cent.; half-breeds, 19 out of 58 deaths or about 32.8 per cent., and Indians, 13 out of 127 deaths, or 10.2 per cent.

The statistics show as would be expected, and as is always found elsewhere, a high tuberculosis death rate among mental hospital patients.

T A B L E V

POPULATIONS AND TUBERCULOSIS DEATHS, BY PROVINCES FROM DOMINION (1931) RECORDS, AT OTTAWA - SHOWING INDIANS SEPARATELY.

	<u>Population</u>	<u>Indian Pop.</u>	<u>%</u>	<u>Tot. T.B. Rate</u> <u>deaths.</u>	<u>Ind. T.B. Rate</u> <u>deaths</u>	<u>Rate</u>
All Canada	10,362,833	117,322	1.1	7,616	73	573
P.E.I.	88,038	233	0.3	68	77	429
N.S.	512,846	2,191	0.4	524	102	548
N.B.	408,219	1,685	0.4	339	83	475
Quebec	2,874,255	12,312	0.4	3,178	111	195
Ontario	3,431,683	30,368	0.9	1,728	50	372
Sask.	921,785	15,268	1.7	326	35	517
Alta.	731,605	15,249	2.1	382	52	1030
B.C.	694,263	24,599	3.5	642	92	695
Manitoba	700,139	15,417	2.2	429	61	694

Manitoba 1932 as worked out in this survey - Indians given are Treaty Indians only.

Manitoba 1932 - 709,000 15,479 2.17 410 58 127 820

Table VI gives the approximate death rates per 100,000 population in the various racial groups. The greatest difficulty in computing these rates has been in the lack of accurate records of the half-breed population. We have a census of half-breeds taken in 1885 in Manitoba. At that time in the small original province with its northern boundary at about Winnipeg Beach and its western boundary at Austin, there were 5,575 Indians and 7,985 half-breeds. It is to be noted that the present Indian population as given by the 1931 census is 15,479. After considerable enquiry and some actual enumeration in several districts we estimate that the half-breed population is approximately 20,000 in probable proportions of French 12,000, Scotch 4,000, English 3,000, and others 1,000. These figures are, of course, not given as accurate, but are probably close enough for practical purposes. These half-breed estimates have been subtracted from the figures for the French, English and Scotch, in the Decennial Census of 1931 which is used throughout.

T A B L E VI

TUBERCULOSIS DEATH RATES PER 100,000 BY RACIAL GROUPS FOR THE YEAR 1932

<u>RACIAL GROUP</u>	<u>No. Deaths</u>	<u>Population</u>	<u>Rate per 100,000</u>
INDIANS	127	15,479	820
Half-breeds	58	20,000 (est)	290 (est)
TOTAL with Indian blood	185	35,479 (est.)	521 (est.)
<u>BRITISH</u>			
English (less H.-B.)	44	169,992	25.9
Scotch (less H.-B.)	27	108,326	25.0
Irish	24	77,559	34.9
"Others"	0	5,133	
TOTAL British	98	361,010	27.1
FRENCH (less H.-B.)	9	35,039	25.7
Slavic Races	87	140,718	61.9
Scandinavian	14	31,397	44.6
German (incl. Mennonite)	13	38,078	34.2
Hebrew	1	19,341	5.1
"Others" &	12		

Population of Manitoba 1932 is estimated at 709,000 (4)
 Total tuberculosis deaths 410
Uncorrected crude rate per 100,000 57.9
 Total (uncorrected) non-Indian Tb. deaths 225
 Crude rate for non-Indians about 33.4

Mennonites in Manitoba number 14,984.

It will be noted that the non-Indian death rates with the exception of that of the Slavic group are very much below that for the province as a whole. The fall of the tuberculosis death rate in Manitoba from something over 150 per hundred thousand population twenty-five years ago to 57.9 in 1932 may appear favorable. But when it is considered that the 150 of twenty-five years ago took in not one Indian death and very few deaths of half-breeds, practically none in outlying settlements, while the rate of 1932 carries a very heavy load of both, the actual true reduction is much greater than represented merely by the difference between 150 and 57.9. Indian deaths were not incorporated in Manitoba statistics by the Dominion authorities until 1926, and not by the Manitoba authorities until 1929. Since the province took over the work they have been recorded in increasing volume and with increasing accuracy until, in 1932, 31 per cent of the total tuberculosis deaths in Manitoba were deaths of Treaty Indians. Thus the rate of 57.9 in 1932, without the Indian element, becomes 41.5, and, as has been stated, records of half-breeds in outlying districts, as well as those of Indians, have increased in volume and accuracy. If the total deaths of people with Indian blood were removed the non-Indian rate will stand at about 33.4.

Table VII gives the deaths from all causes, and the tuberculosis deaths of Indians as in the Dominion Records and also in the Provincial records. The apparent increase in both total and tuberculosis deaths is due entirely to the fact that until recently little was done to collect complete Indian Vital Statistics, and so many an Indian died without any record. I am informed that 1932 was probably the first year in which fairly complete records were collected. The increase is therefore an increase in records, not deaths. Further, it should be pointed out that the larger Dominion totals are due to the fact that the Dominion has so far classified as Indian all who are referred to as half-breeds in the death certificates. If this Indian group took in all people of Indian blood it would be valuable. But since it only adds a few non-treaty half-breeds to the treaty Indians and calls the resultant total Indian, while the larger mass of half-breeds remain classed as French, Scotch and English, nothing is accomplished but confusion. The provincial figures are accurate for Indians, but the province is unable to give complete half-breed statistics, due to lack of information as to their true racial origin. To sum up, the Dominion figures, including some half-breeds, are too low for all with considerable native blood and do not distinguish the two groups, Indian and half-breed; the provincial figures for Indians are probably accurate but have no information re half-breeds at least no complete information.

T A B L E VII

DEATHS OF MANITOBA INDIANS BY YEARS AS RECORDED BY THE DOMINION & PROVINCE

<u>Year</u>	<u>DOMINION</u>		<u>PROVINCE</u>	
	<u>Deaths from all causes</u>	<u>Deaths from Tuberculosis</u>	<u>Deaths from all causes</u>	<u>Deaths from Tuberculosis</u>
1926	137	39		
1927	190	51		
1928	205	72		
1929 (1)	340	73	255	63
1930	260	86	203	66
1931	304	107	248	84
1932		147 (3)	265	119 (2)

FOOTNOTES:

- (1) 1929 was the first year in which Indian records were collected by Manitoba.
- (2) This figure (119) is the total from the Provincial Vital Statistics enumeration and differs from that given in this report (127) as our more detailed information classed eight persons as Indian the province has classed otherwise.
- (3) This figure (147) is the Dominion total for 1932 and includes some people called half-breeds in the death certificates, but of course includes only a small proportion of the half-breed tuberculosis deaths.
(see Table I)

PROBLEMS IN DIAGNOSIS AND CLASSIFICATION

These problems resolve themselves into two: the first, the training and qualifications of the diagnostician and his opportunities for making a correct diagnosis; the second the proper coding and classification.

T A B L E VIII

CLASSIFICATION OF TUBERCULOSIS DEATHS ACCORDING TO STATUS OF CERTIFIER

<u>INDIAN</u>	Certified by Physicians	68	(53.5%)
	Certified by Laymen	59	(46.5%)
		<u>127</u>	
<u>Half-breed</u>	Certified by Physicians	41	(70.7%)
	Certified by a Registered Nurse	1	
	Certified by Laymen	16	
<u>Non-Indians</u>	Certified by Physicians	223	(99.1%)
	Certified by Registered Nurse	1	
	Certified by Laymen	1	

As will be seen in Table VIII 78 deaths were classed as from tuberculosis which had been certified by men and women who were not physicians. The majority of these occurred among Indians and half-breeds in the unsettled districts of the province. Other deaths in these districts, were necessarily certified by physicians on information given by missionaries, officials and others without medical training. That tuberculosis is rife among the Indian people on reserves and surrounding areas is unquestioned and a large proportion of tuberculosis deaths would be expected, so in all likelihood most of them are correct. However, there is no certainty. Even under hospital and sanatorium conditions in the pre-x-ray days post mortem examinations upset not a few diagnoses. Then there is always the tendency where tuberculosis is known to be very prevalent not to permit the poor Indian to die of anything else. Considering the possibility of over-diagnosis in the unsettled districts it is worth pointing out that in Saskatchewan the Indians are more accessible and therefore more likely to be accurately diagnosed, and that the Indian tuberculosis death rate in Saskatchewan (provincial record) is barely more than half that of Manitoba. Physicians working along the edge of Manitoba's hinterland consider that on the whole the records are accurate enough and that errors in the lay reports are negligible.

The second group of problems arises when a statistical study is made of deaths classed as from tuberculosis. When the certifier clearly states that the death was from tuberculosis of some particular form the classification is easy. Where there is misunderstanding or doubt the registrar tries to get further guidance from the certifying physician. But in not a few cases the statisticians must apply certain fixed rules of the Vital Statistics game giving certain diseases priority, and so decide whether to classify a death as from tuberculosis or otherwise.

I wish to make it plain that the provincial recorders of vital statistics have done their work very carefully according to the guides and principles that apply to all such work. When these guides led to manifestly wrong conclusions they have been very willing to reclassify according to the facts. But naturally there are cases with more room for differences of opinion, and in which the dominance given by statistical rules to tuberculosis over other conditions is more definite, in which one would not expect the department to change its classifications until changes are made in the guiding rules under which they act. A few examples of both kinds of cases may be of interest.

1. The primary cause of death of a young woman, who died in October 1932, was given as "Haemorrhage of the Lung", and the contributory cause as "Septic Chest". This young woman was well known to several physicians as non-tuberculous, but because of the mention of haemorrhage the death was originally classified as from tuberculosis. It has since been reclassified.

2. A man, aged thirty years, died in September 1932, the primary cause of death being given as "Myelogenous Leukaemia", and the contributory cause as "Pulmonary Tuberculosis". According to the guides used in vital statistics (3) tuberculosis takes precedence over leukaemia as a cause of death, in spite of the fact that the former is a uniformly fatal disease. In this case it was ascertained that there was no clinical evidence of active tuberculosis.

3. A seventy year old man died in April 1932 as a result of a strangulated inguinal hernia. Autopsy revealed an unsuspected pulmonary tuberculosis which was put down as a contributory cause of death. Though the real cause of death was obvious it was classified as from tuberculosis. This has also been reclassified by the department.

4. A man, aged forty-six, died in August 1932 of carcinoma of the oesophagus in the Winnipeg Municipal Tuberculosis Hospital. Pulmonary tuberculosis was given as a contributory cause of death although he had only an old fibrosed and long inactive lesion. This death has also been reclassified.

5. A Chinaman, aged forty-one, died in March 1932 without medical attention. A coronor's autopsy revealed "acute myocarditis" and the contributory cause was given as pulmonary tuberculosis. Although the etiology of the myocarditis is obscure it seems improper to class this as a tuberculosis death.

6. A French half-breed died in January 1932, aged fifty-seven. Autopsy revealed a calcified aortic valve and "old tuberculosis". The history of disease in this case is obscure but it would seem unlikely from the autopsy findings that this was a tuberculosis death.

7. A French half-breed died at St. Laurent of mitral regurgitation and cardiac decompensation. Cause of death was given as pulmonary tuberculosis. However, one might well doubt that this is a tuberculosis death even if this was a half-breed and came from a district with a very bad record for tuberculosis.

8. An orderly, aged forty-two, at the Sanatorium, Ninotto, had worked and enjoyed normal health without any symptoms for twelve years following tuberculosis with empyema that had put one lung out of use. In April 1932 he died after a five day illness of acute lobar pneumonia. There had been no recurrence whatsoever of tuberculosis, and the death was very definitely from pneumonia, which was reported as the primary cause of death, and the contributory cause given as pulmonary tuberculosis. The guiding rules (3) however indicated that the latter should take precedence. And indeed such a case explains the principle of giving dominance to tuberculosis. The pneumonia in an otherwise fit man was probably fatal because he had just one lung in use and this condition was due to a former active tuberculosis, long healed and almost forgotten. In this case, perhaps, the rule making tuberculosis dominant should score.

It would seem reasonable to classify the above eight cases as non-tuberculous with the possible exception of number eight. As already mentioned three of them have been reclassified. The other four might reasonably be deducted from the total of 410.

There are several others in which the cause of death is obscured by qualifying statements.

9. A boy of eleven is reported as having died of tuberculous meningitis in January 1932. The physician added the remark that a wounded right knee was infected, and that meningitis followed. The probability of this having been a death from pyaemia and not from tuberculosis is obvious.

10. When a Jewish woman, aged thirty-eight, died in June 1932 the primary cause of death was given as "Nephritis and Uraemia" and the contributory cause as "Pulmonary Tuberculosis". This certainly gives the impression of a non-tuberculosis death although the staff physician who attended her, when asked about it a year later thought that the tuberculosis was definite.

11. A Ukrainian, aged fifty-three, died in unorganized territory in June 1932 and was not seen by a physician until after death. He had been sick for more than two years and from his history the doctor made a post-humous diagnosis of pulmonary tuberculosis. Possibly right but by no means certain.

12. Similar to above. Post humous diagnosis. No medical attention.

13. A man, thirty nine years old, died in June 1932. The primary cause was given as pulmonary tuberculosis and the contributory cause as "Influenza and Lung Abscess". One naturally wonders if this man really had tuberculosis.

14. A Chinaman, aged thirty-six years, died in April 1932 after an illness during which he had no medical attention. Death was certified by a physician as "probably tuberculosis". There was no autopsy.

15. The death of a Cree Indian in August 1932 was certified by a lay registrar as "tuberculous meningitis following influenza". Obviously this may just as well have been a septic meningitis and not tuberculous.

16. A man of forty-six years of age died in October 1932. An autopsy revealed tuberculosis of the adrenals. This was quite properly classed among the tuberculosis deaths but one wonders how Addison's disease is classified without autopsy findings.

Summary

At this date there are no means to verify the facts in many of the above cases but it would seem reasonable to believe that some are probably not tuberculosis deaths. The net results in the totals for the year is small but they show the variety of problems that arise. So far as the accuracy of statistics is concerned we can hope that wrong classifications on one side are balanced by wrong classifications on the other.

SUMMARY AND CONCLUSIONS

1. In an endeavor to ascertain the racial incidence of tuberculosis in Manitoba a minute study was made of all deaths classified as from tuberculosis in the year 1932, the racial strains of those who died, determined, and these compared with populations as given by census. Where the census data were inaccurate or defective - chiefly in relation to half-breeds - they have been corrected and supplemented.
2. The original copies of registration of all tuberculosis deaths in 1932 were individually examined and studied.
3. Of these deaths it was shown that 127 were of "treaty Indians." Diagnosis in this group was found open to question, but likely substantially accurate.
4. Records of Indian deaths have been very incomplete until the collection of vital statistics of Indians was transferred to the province in 1929, and since then they have become increasingly accurate. Until 1932 many Indian deaths were not recorded, and most certifications were given by laymen. There had been no agreement as to the definition of the term Indian, with resulting inconsistencies and discrepancies. In this enquiry the taking of "treaty" has been held to define the Indian.
5. In addition it was shown that 58 tuberculosis deaths occurred among people of sufficiently obvious Indian admixture to be termed "half-breed". This total may be incomplete but it is, as far as it goes, accurate and minimal. Formerly a few of these deaths were classified as Indian, but most were included in European groups; i.e. French, Scottish and English.
6. The number of half-breeds in Manitoba is not accurately known, but an estimate of 20,000, based on some enumeration and a wide enquiry has been adopted, meantime. (French 12,000; Scottish 4,000; English 3,000 and others 1,000).
7. The tuberculosis death rate among people without Indian blood is shown to be 33.4 per 100,000 population which would show considerable progress in the attack on this disease in Manitoba, as this figure

is comparable with a rate of 150 or more of twenty-five years ago.

8. The death rate for Greater Winnipeg is seen to be 35.5 per 100,000 population and therefore of the same order as that of the white races of the province as a whole.

9. The French death rate, and to a lesser extent the Scottish and English, are considerably lowered by counting the people of Indian mixture separately. The French rate drops to 25 per 100,000.

10. The official tuberculosis death rate for Manitoba in 1932 is 57.8 deaths per 100,000 population. The study now reported shows elements that tend to keep this rate high. The death rate of treaty Indians as enumerated is 820 per hundred thousand, and that of people of Indian blood, apart from treaty Indians, approximately 290 per hundred thousand. Thus Manitoba's non-treaty-Indian tuberculosis death rate is not 57.8 but 41 and the non-Indian-blood rate, 33.4.

11. Other racial strains show tuberculosis susceptibility above the average, notably the Slavic, with 87 deaths during 1932, or a rate of nearly 62.

12. Fifty-one and a half per cent. of the non-Indian deaths occurred among people born outside Canada, who number only thirty-five per cent. of the non-Indian population. The tuberculosis death rate among immigrants is higher than among the white Canadian born.

13. In dealing with an infectious disease it is of great importance that the infective period of illness is spent, or the inevitable deaths occur, where infection will not be spread, that is in institutions and not in private homes. In 1932 sixty-nine per cent. of non-Indian deaths occurred in institutions, thirty-three per cent. of half-breed deaths and ten and one-fifth per cent. of Indian deaths.

14. The question of accuracy of diagnosis is discussed and it is noted that forty-seven per cent. of deaths of Indians and thirty per cent. of deaths of half-breeds are notified by non-physicians.

In conclusion I would express my great appreciation of the assistance rendered me by Dr. D. A. Stewart who has been in consultation in the carrying out of this work; also to Mr. A. P. Paget, Recorder of Vital Statistics for Manitoba, and his courteous staff, and to Mr. A. G. Lawrence, Secretary of the Department of Health of Winnipeg and the cooperative members of his staff. I have had access to all available records and every assistance in their study and analysis. The Dominion Bureau of Statistics were also most co-operative in making data available. I am also greatly indebted to Miss Wilson, R.N. and other members of the Public Health Nursing Service of Manitoba for their assistance in obtaining the family histories and other information required in the study of racial origins.

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