that the remedy is derived from the well-known seaweed called "kelp". Apparently, this is not so. A course of treatment lasting sixty days, at the low cost of $10.00, is said to be sufficient to cure diabetes. A letter to the Bureau of Investigation of the American Medical Association has brought us the following information from Dr. Arthur J. Cramp, the Director:

"We have not yet felt justified in going to the expense of analyzing Kelpekoe. The stuff has been on the market for some time and was earlier known as 'Pacific Health Ore', marked by the Pacific Health Ore Company of Salem, Ore.

"The stuff has been advertised for various conditions. In 1932 they were stressing its alleged virtue as a rejuvenator. In 1932, also, they were attempting to sell stock, and in their prospectus estimated that they should net a profit of from $50,000 to $100,000 a month. In the prospectus they reproduced a purported analysis made by the Bowser-Morner Testing Laboratories of Dayton, Ohio, which showed the chief ingredients to be aluminium sulphate (about 5 per cent) and ferrous sulphate (about 2½ per cent), with about 2½ per cent of organic matter.

"Also, according to the same stock-selling prospectus, Kelpekoe was said to be a 'natural deposit of highly mineralized blue shale'. The company claimed that it had sufficient ore to assure continuous output for many years and that they were selling it at $9,700 a ton.

"The idea of exploiting this nostrum as a cure for diabetes seems to be a comparatively recent one.

Very sincerely yours,

(Sgd.) ARTHUR J. CRAMP."

Medical men can draw their own conclusions.

A.G.N.

Special Articles

THE INDIAN TUBERCULOSIS PROBLEM AND SOME PREVENTIVE MEASURES*

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In 1931 among the Indian population of Canada there were 672 deaths from tuberculosis, a death rate of 546.72 per 100,000. This death rate from tuberculosis is seven and one-half times the average for the total population of Canada. The general death rate among the Indians of Canada for the same year was less than twice that of the entire population. In the Province of Saskatchewan in 1931 the Indian tuberculosis death rate, using the census population of 1931, was 517.42 per 100,000, or fourteen times that for the total population of Saskatchewan.

The information derived from research studies carried on during the past six years by the Department of Indian Affairs, the National Research Council of Canada, and the Saskatchewan Anti-Tuberculosis League, supported by the experience of the Qu'Appelle Indian Health Unit during the past three years,† has made possible the proposal of a program for prevention and control in Saskatchewan, varying according to conditions, which it is considered will be both practical and economical.

The annual examination of Indian children in two schools on the Qu'Appelle Indian Research area for the past six years has demonstrated that the age of maximum morbidity in this group is between 10 and 14 years. During these years it attains an incidence more than ten times that of the white population in the same age group. This is the period when the children are actually attending the boarding schools. The boarding schools, therefore, are the strategic battle grounds for the control of tuberculosis among the Indians.

In the boarding schools environment and living conditions are under control, and a standard of sanitation can be maintained. In the Province of Saskatchewan approximately two-thirds of the Indian children attending school are at present being educated in government boarding schools, and when it is recalled that the children enter these schools at the age of 6 to 7 years and remain there until 16 or 18 years old, during which period infection with tuberculosis becomes almost universal, you may realize the opportunity that is afforded for maintenance of health and increasing resistance against tuberculosis in this controlled environment.

If all children with lesions were identified on admission and were removed from the boarding schools, other things being equal, a result approximating that which has been secured at the File Hills Boarding School, where only one breakdown has occurred during the past six years, might be anticipated for the remainder of the boarding schools in Saskatchewan. Few children would develop tuberculosis after admission to the schools, and when they became infected while in the schools the degree of infection would be sufficiently small to assist them in developing greater resistance.

* An abstract of a paper in the Transactions of the Twenty-Ninth Annual Meeting of the National Tuberculosis Association, being an account of an investigation being carried on by the National Research Council of Canada, the Department of Indian Affairs, and The Saskatchewan Anti-Tuberculosis League.

† (a) "Tuberculosis among the Indians of the Great Canadian Plains", Trans., Fourteenth Ann. Con. of Nat. Ass. for the Prevention of Tuberculosis, 1928.

(b) Reports, Qu'Appelle Indian Research to the Associate Committee on Tuberculosis, National Research Council of Canada, 1930, 1931, and 1932.

Observation over a period of six years has proved that when well nourished afebrile spreaders are retained in the schools, as has been done at the Qu'Appelle Indian School, an average of one pupil each year among those absolutely negative on admission has developed demonstrable tuberculosis, not to mention the possibility of reinfection in the case of others who have broken down.

For the past six years the second highest mortality among the Indians of Canada was found in the age period of 15 to 19 years, the rate being 772.47 per 100,000, the corresponding rate for Saskatchewan being 928.91 per 100,000. It is hoped that in future when these young adult Indians are discharged from the schools at an average age of sixteen in good health fewer will be found to develop the disease during the next decade, after which tuberculosis among the Indians quickly approaches the mortality of the white people.

Healthful schools and healthy school children would mean less infectious parents for the succeeding generation, less massive infection, and a much lowered mortality from tuberculosis among infants, in which group we now find the highest mortality from this disease. This group will also receive special consideration in the program, as will be seen later.

The preventive measures that are being instituted for the boarding school problem in Saskatchewan for the purposes of demonstration are:

1. A selective x-ray and physical examination of the Indian school children throughout the province, as soon as possible after the opening of the schools in the autumn.
2. As previously, the exclusion of the children actually sick.
3. The segregation of the tuberculous children who, though showing lesions, are still well nourished, in a school set aside for their education and care, at a cost little more than an average boarding school. These children in the past have been retained in the schools as "spreaders".
4. The elimination of bovine tuberculosis from the dairy herds of the boarding schools and from any reserves where raw milk is being used.
5. The intensive education of these children in matters of sanitation.
6. The application of general health principles in these schools.

Secondly, there is the pre-school problem, that of caring for infants and children in an uncontrolled environment where a large percentage of the families are tuberculous and where the tuberculosis death rate among infants is tremendous. During the past six years in Canada the average tuberculosis death rate among infants up to one year has been 1018.39 per 100,000, and the corresponding rate for the Indian infants of Saskatchewan has been 1603.49. Where both protection against infection by isolation and improvement in sanitation must await the progress of the evolution of a primitive race, the change, however stimulated, will be slow.

TABLE SHOWING THE AGE INCIDENCE OF MORBIDITY AND CALCIFICATION ON THE QU'APPELLE INDIAN HEALTH UNIT, 1930-1931

Age groups	*Number in each group*	*Total active tuberculosis* No.	percentage	*Total inactive tuberculosis* No.	percentage	*Total calcification* No.	percentage
Under 1 yr.	25	..	..	..	..	3	12.00
1 – 4 yrs.	115	7	6.08	..	..	24	20.87
5 – 9 yrs.	137	4	2.91	..	..	73	53.28
10 – 14 yrs.	132	8	6.06	4	3.03	83	62.87
15 – 19 yrs.	139	2	1.43	12	8.63	88	63.30
20 – 24 yrs.	57	2	3.50	2	3.50	31	54.38
25 – 49 yrs.	186	5	2.68	11	5.91	110	59.14
50 and over	97	1	1.03	9	9.27	48	49.49
Total	888	29	3.26	38	4.28	460	51.80

A demonstration, including the following undertakings, has been arranged on the Qu'Appelle Indian Health Unit in an endeavour to solve the pre-school problem. (1) Prophylactive vaccination with B C G will be instituted in the hope of protecting the non-resistant group. (2) The Health Unit will gradually be "sanitated" through the efforts of the Medical Superintendent, the Nurse, and the Indian Agents. (3) Such isolation of spreaders as can be accomplished on the reserves and in the unit hospital will be carried out, in an endeavour to reduce massive family infection.

Thirdly, there is the problem of the reserve community as an industrial unit, where the standard of living and the instinct for providence will be gradually improved by the efforts of the Indian Department through their interested agents. Progress in this regard has been very commendable in the past and is a great credit to the Department.

It is considered that this is a program within the economic reach of the Indian Department

even during these years of depression. It will largely eliminate the needless waste occasioned by infection and mortality among children who enter boarding school healthy, and will lay the foundation for a more complete program when economic conditions make this possible.

SUMMARY OF THE FINDINGS OF THE QU'APPELLE INDIAN RESEARCH, 1926-1932

1. In 1931 the Indian tuberculosis death rate for all Canada, omitting the North-West Territories and the Yukon, was 546.73 per 100,000, *i.e.*, 7½ times the tuberculosis death rate for the total population of Canada.

2. In Saskatchewan the Indian tuberculosis death rate in 1931 was 517.42 per 100,000, or 14 times the tuberculosis death rate of the total population of the province for that year. In comparison with the tuberculosis death rate of 646.10 per 100,000 in 1926 the present high figure, however, shows quite a marked reduction.

3. The mortality from tuberculosis among infants up to one year is even higher, the average for this group during the past six years being 1018 per 100,000 for Canada, and 1603 per 100,000 for Saskatchewan.

4. The incidence of active tuberculosis among Indian school children in western Canada is more than 10 times that found among the surrounding white children. These findings have been confirmed by the extensive surveys made by Vrooman and Hill in British Columbia and by Stewart and Meltzer in Manitoba.

5. The general death rate for the Indians of Saskatchewan for 1931 was 17.81 per 1,000, approximately 3 times the general death rate of the total population. The general death rate for the Indians of Canada for 1931 was 17.24, less than twice that for the entire population which was 10.1.

6. In the Qu'Appelle Research area, which is taken as a representative section of the Indian population of Saskatchewan, the disease became epidemic about 1884, reached a height of 9000 per 100,000 in 1890, rapidly fell to 1000 per 100,000 in 1907, and remained between that figure and 800 until 1926.

7. The Qu'Appelle Indian Health Unit, embracing the above research area, was formed in 1930, and the application of anti-tuberculosis measures for the past three years in this unit has been coincident with a further reduction in tuberculosis death rate in this area to 273 per 100,000 in 1931.

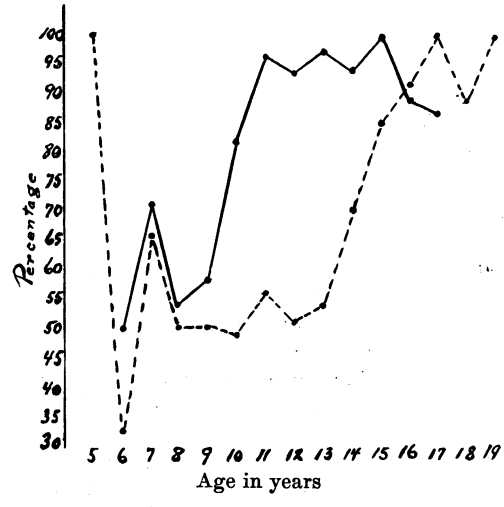
8. Significant changes observed, coincident with the falling death rate in the research area, which may throw light on increasing resistance, are:—

(a) The disappearance of glandular disease. The incidence of glandular tuberculosis was reported by resident physicians attending these reserves as affecting one-third of the population at the height of the epidemic in 1890. Nineteen decimal six per cent of the children in the Qu'Appelle School were operated on for excision of glands in 1906. This malady has receded to less than 1 per cent among the children in the same school in 1932.

(b) A change in the clinical course of the disease. The acute type, terminating fatally in a few months, was the dominant one at the height of the epidemic in 1890. Among 25 cases that have developed in the schools between 1926-32 four, or 16 per cent, were acute, *i.e.*, terminated fatally within a year of the discovery of the lesion. The dominant type of the disease is therefore now chronic, and apart from the non-resistant group referred to above as acute, the more resistant cases show localized disease and appear to be equally as chronic as in the case of our white children of the same age group.

(c) The age incidence of maximum fatal susceptibility is gradually shifting towards that of the surrounding white population. The age incidence of highest mortality was 1-5 years during the first two decades of the epidemic, 10-14 years during the second two decades, and 15-19 years during the period 1927-32. Among the white population of Saskatchewan at the present time the highest incidence of mortality is in the age period 25-29 years.

(d) The age of maximum morbidity in the reservation population of the research area, which was 10-14 in 1925-26, was approximately the same in the age groups 1-4 years and 10-14 years in the period 1927-32. It will be seen that the high morbidity coincides with the pre-school and school age periods.



Tuberculin sensitiveness in relation to age among Indian school children. Continuous line—*re* 374 children, 1928. Broken line—*re* 273 children, 1933.

(e) No decrease in incidence of morbidity has been observed among those presenting themselves for admission to school. The incidence of active disease found among 657 children on first examination was 7.6 per cent. This incidence is practically the same as that found

among 5504 white family contacts examined in Saskatchewan in 1931-32, which was 7.32 per cent.

(f) In 40 specimens typed, mostly glandular material, the variety of tuberculous infection was found to be human; no bovine infection was discovered. It should be pointed out that the Indians on these reserves have not been drinking milk to any extent.

(g) The incidence of infection in the schools of the Health Unit is considerably lower than previously. The incidence of infection, as indicated by the tuberculin test in 374 children in two schools of an average age of 12.4 years, was 92.24 per cent in 1926-1927. The tuberculin test on 273 children of an average age of 12.35 years in the same schools showed an incidence of 62.63 per cent in May, 1933. The incidence of infection on admission to school was practically the same in 1933 as in 1927, suggesting that home infection is about the same and that the reduction in infection has been due to reduction in school infection. Two possible factors are involved in this reduction, the elimination of bovine infection from the school dairy herds and the reduction of human spreaders in the schools.

(h) Pulmonary lesion cases retained in school, considered closed and non-infectious, as indicated by nutrition, absence of noticeable cough and expectoration, proved to have bacilli in excreta in 11 out of 40 cases investigated, *i.e.*, had positive fæces, urine or both.

(i) Improved living conditions, in the broadest sense, among primitive people are important factors in controlling tuberculosis. This was established on the File Hills Demonstration Colony in the period 1901-1926, where the living conditions approximated those of the white settlers, and it was found that 14 per cent of the third generation of the colony had died of tuberculosis, compared with 21 per cent of the same generation on the adjoining reserve. This fact has been repeatedly observed by officials of the Indian Department on reservations and in schools with varying living conditions.

Medical Economics

THE MEDICAL CARE OF INDIGENTS IN THE PROVINCE OF QUEBEC

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Quebec

It is to my mind quite evident that any discussion on the care of indigents in Canada should commence with the consideration of the situation as it presently exists in the Province of Quebec. Not only was this the earliest settled province in the Dominion, but also it is the province in which the greatest achievement has been accomplished in this difficult problem, and this to the credit of that devoted band of religious workers who since the days of Jeanne Mance and Mère Marie de l'Incarnation have devoted their lives to the relief of the sick and poor. We know that the early colony, through its various vicissitudes, at times suffered severe poverty and distress, and, being as it was far removed from the brilliant court of France and the accompanying evils of feudal tenure in its decadence, it was thrown very much to its own resources. Following the British conquest and the rapid development of the settlements on the seigniorial grants, village life was the predominant feature. The indigent children were adopted by some of the numerous relatives, and the aged who had ceased to be able to carry on the burden of arduous toil were given a nook by the fire-side of some of their numerous progeny. The habitual indigent became a professional beggar, and roamed the country at will, being sure of a welcome at the nearest farmhouse when night overtook him, and what few remained uncared for were taken in charge by some of the many religious institutions supported mainly by private charity.

In such a primitive community, the question of the medical care of indigents was practically non-existent. Doctors were few and far between, and usually unskilled. The sick were nursed to health by wise women who resorted to mediæval methods and remedies whose sole virtue was their nauseousness; fractures and dislocations were treated by the district bone-setter. The growth of industrialism and the development of manufacturing centres, the assimilation of culture from Europe and the United States, the spread of education and decline of illiteracy, have gradually resulted in a change in the nature of the population, from one more or less homogeneous and with no distinctive levels of class, to one in which the classes of wealth, comfortable bourgeoisie, and poverty are more sharply defined. It is with the last class and the care which they are given in times of sickness that we shall deal.

The population of Quebec is now about 3,000,000, of which 51 per cent is rural and 49 per cent urban, and of this latter, over 1,300.000, or 40 per cent, reside in Greater Montreal. Up to within recent years the donations and bequests of charitable individuals and the devotion of the different members of the charitable religious orders sufficed. With the growth of industrialism and the facilities of transportation it has become increasingly easy for the poor to drift to the cities for support and eventually become a