

TUBEROULOSIS AMONG THE OGLALA SIOUX INDIANS.¹

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A PROPORTION of the population of South Dakota larger than that of any other State in the union, except California, Tennessee, and Kentucky, is tuberculous. This is not because the unavoidable conditions of South Dakota favor the development or progress of this disease, but because so large a proportion of the population consists of Indians who are affected with tuberculosis to a much greater extent than are the white residents.

The Pine Ridge Reservation is in South Dakota, and has the largest Indian population of any reservation in the State, and the second largest of any in the United States. This population is 6686, of whom 4870 are full-blood Oglala Sioux, and 1816 are mixed-bloods. The distinction between full-bloods and mixed-bloods is made, because the differences between these two classes of people are so great and so many that to consider them indiscriminately in social statistics of any kind would give erroneous conclusions in regard to both. For this reason the Indians referred to in this paper are only the full-blood Oglalas.

For ten years an effort has been made to keep trustworthy sanitary and vital statistics, and statistics of other social factors that might have an influence on the health of these Indians, and advantage has been taken of every opportunity to secure trustworthy information relative to these matters previous to the time when the statistics were begun. The data obtained in this manner form the basis of this paper. Tedious statistical details are avoided, and only conclusions believed to be justified by recorded facts are given.

Tuberculosis among these Indians does not differ in any respect from tuberculosis among white people. The infecting material is the same, and is produced and disseminated in the same way, individuals are infected in the same manner, and the disease runs the same course, produces the same results, and is subject to the same measures, remedial or preventive, as it is among the white people. It does not show any especial affinity for the Indian, nor affect him under any condition in which it would not affect a white man. There is no inherent peculiarity of the Indian which renders him more liable to infection with tuberculosis than is a white man under like circumstances.

The average length of the newborn Indian infant is 19.5 inches, and its average weight is 7.5 pounds, which is a little longer and heavier than is the average infant born of white parents in the

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United States. It appears then that the Indian infant begins life with a little better physique than does the white infant. The growth of the Indian, through childhood and adolescence, as compared with that of the whites, is normal. They arrive at their full stature, the male at twenty-three, and the female at twenty-one years of age. The average height of the adult male Indian is 69.57 inches, and of the female 64.5 inches. This makes the average height of the male Indian 1.9 inches above that of the average male white of the United States; as I have no statistics relative to the height of the white women, no comparison of the heights of females is made.

The male Indian increases in weight until forty-five years of age, when the average weight is 161 pounds, which is six pounds heavier than the average weight of the white man. The female increases in weight until fifty years of age, when the average weight is 153 pounds.

The average measurement of the chest of the male Indian is 38.75, which is 0.25 of an inch less than that of the white man. The average of the female Indian is 36.5 inches. The average expansion of the chest of the male Indian is 3.25 and of the female 2.75 inches. These measurements indicate that the respiratory organs of the Indians are normal. The average strength, endurance, and vitality of these Indians appear to be about the same as that of the whites.

It thus appears that in person the Indians are as well adapted to fulfil the requirements of a healthy life as are the whites. Yet a much larger proportion of these Indians than of the white people are infected with tuberculosis. This must be the result of external conditions that do not especially pertain to the Indians.

To learn what these conditions are is of the greatest importance, not only to these Indians, but to mankind.

Tuberculosis existed among these Indians before they came into contact with the white people, but at that time the disease was rare among them, and remained so until they changed their nomadic to a settled life in houses. When they began to live in houses, tuberculosis began to increase among them, so that the conditions which caused this increase must have been different from those surrounding them when they lived in tepees.

They were filthy both when they lived in tepees and when they lived in houses. It was statistically demonstrated that those who were the most cleanly were less susceptible to infection by any disease than were the most filthy, and, conversely, that the most filthy were the most susceptible to infection of every kind; but there is no evidence that this filth ever caused tuberculosis, except when it was mingled with the specific germs of the disease.

In their primitive life the principal food of these Indians was flesh. Sometimes they had this in an abundance, and sometimes they had little. In times of plenty they would surfeit upon raw

or poorly cooked meat, and in times of scarcity they would go hungry. They had no meal times, but ate when inclined or opportunity offered. Notwithstanding this unsanitary way of eating, they were comparatively free from tubereulosis.

When they began to live in houses the Government supplied them with an abundance of food, and in n much greater variety than they had been accustomed to. It also supplied them with cooking stoves and utensils, so that their food was better cooked than it was when they lived in tepees. Coincident with this increase of food, prepared and taken in a more sanitary way, was the increase of tuberculosis among them.

But it was demonstrated that those who prepared their food the best and in the most cleanly manner, and took it in moderation and at regular intervals, were freer from infection of every kind, including tuberculosis, than were those who glutted themselves upon food filthily prepared and insufficiently cooked. But the question of food was only the question of fortifying the system more or less securely against infection, for there is no evidence that food of any kind, including tuberculous beef, ever caused tuberculosis in any Indian.

During their savage life the clothing of these Indians was of skins fashioned after n primitive style, the same for every season of the year, except that the robe was added in the winter time. They never laundered them or changed them for purposes of cleanliness. At this time they were often subjected to inclement weather with insufficient clothing, and often slept with insufficient covering to keep them warm. They often were exposed to great hardships and to exhausting physical exertion. But the evils of poor clothing, hardship, and exposure were offset by the invigorating effects of their out-door life, and they were less vulnerable to infection of every nature than they were afterward.

When they began their settled life in their houses they were provided with better clothing in sufficient quantity, and they were supplied with blankets and bedding sufficient to keep them comfortable at night. The reasons for their exposures and hardships were removed, and they led a much quieter and easier life. But with these improved conditions there was nn increase of tuberculosis among them. The benefits of their better clothing and their relief from hardship and exposure were offset by the debilitating effects of the sedentary life they began to live.

Their tepees were so constructed that they were amply ventilated at all times. They were moved often, and each time were thoroughly freed from dust, and renovated before being set up. When living in them they threw their slops about the door, but moved before these began to putrefy. In the tepee the handiest place to spit is in the open fire in the centre, and the Indians habitually spat there. The sanitary condition of these tepees, thus, was good

at all times. They were too small to permit of many crowding into them, and were moved so often that neighborly relations were constantly changing. Such a life in such habitations would tend to promote a vigorous constitution, and to fortify the system against infection of every kind, and it would tend to prevent the accumulation of infecting material, or the subjection of many persons to it.

When these Indians were gathered on a reservation the governing policy was to get them settled in fixed homes, and they were urged to build houses. But no plan for building or instruction as to the sanitary requirements of a house was supplied them. They built their houses small and low, with tight dirt roof and the ground for a floor, with every crack or crevice stopped with daubing for the purpose of preventing ventilation.

A heating and a cooking stove were provided for each house. In cool weather these were both fired at once, and the Indians would crowd into these superheated cabins and swelter there. If the door of such a place were opened on a cold day the exhalations of the inmates would condense in a cloud that was stifling to one unaccustomed to such air. Such conditions of life were debilitating, and lowered the resistance to morbid agencies of every kind. They threw their slops about the door as they did when living in tepees, but they could not move away from them, and their surroundings soon became noisome with filth. They would make prolonged visits, two or more families crowding into rooms not large enough for one, and thus pollute the air and the surroundings at double the rate.

These Indians began the use of intoxicating drinks before they began to live in houses, and before tuberculosis began to increase among them. There is no evidence that this ever caused tuberculosis among them, but it was demonstrated that it did produce a condition that was favorable to infection with tuberculosis and hastened its development and increased its virulence.

None of the conditions that have been mentioned, nor any other that was investigated, were sufficient to account for the increase of tuberculosis among these Indians at this time, except when taken in connection with the presence of the specific infecting material of the disease.

From time immemorial there were a few cases of tuberculosis among these Indians. When they lived in tepees the conditions of their lives were such that the infecting material was reduced to the minimum, their resistance to infection was raised to the maximum, and the opportunities for infection were few. Consequently the number of cases were few. But when they lived in houses these conditions were reversed.

The conditions of life aggravated the disease in the tuberculous sick, increasing the infecting material. They debilitated all and increased their susceptibility to infection, and crowded them together

in the presence of the infecting material. In fact, all the requisites for the propagation and spread of the disease were supplied.

Where statistics were obtainable they showed that every new tuberculous subject had been exposed to contact with the waste products of the disease before he showed infection, clearly establishing the fact that each was infected by this means. It is reasonable to assume that every tuberculous subject among these Indians became infected in this way. This accounts for the increase of tuberculosis among them, and no other theory does so.

Thus the reason for the preponderance of tuberculosis among these Indians becomes as simple as would be the reason for the preponderance of smallpox among them if they should expose themselves to infection by that disease. Just as smallpox can be prevented among them by preventing their coming in contact with its specific infecting material, so can tuberculosis be prevented, as has been demonstrated by the following experiment:

In 1896 it was asserted that more than one-half of the Oglalas were tuberculous, and that more than 75 per cent. of the total number of deaths among them was caused by this disease. This was an exaggeration that is common in discussing tuberculosis among Indians.

The facts were that there were at that time 4983 Oglalas, of whom 741 were tuberculous; of these 124 died that year. That is 148.7 per 1000 were tuberculous, and the annual death-rate from this disease was 24.88 per 1000. As the entire annual death-rate was 52.88 per 1000, the deaths from tuberculosis was but 47 per cent. of this. But this death-rate was appalling, since the annual birth-rate was but 41.34 per 1000, which showed a decrease of 11.64 per 1000, the excess of the death-rate over the birth-rate.

At this time the control of tuberculosis among these Indians was undertaken. The following premises were assumed: Tuberculosis is an infectious disease caused by a specific material. This material is mingled with the products of the disease, and is not produced naturally otherwise. When discharged from the body with these products of the disease, this material may be collected and destroyed. If this infecting material is prevented from coming in contact with the uninfected, tuberculosis will be prevented.

The plan was to impress these Indians with an effective understanding that tuberculosis is always caused by the infectious material coming from one who has the disease, and that this infecting material is contained in the sputum of consumptives and the discharges from scrofulous sores.

Attempts were made to induce the Indians to use every means to prevent the uninfected from contact with infectious material; to get the infected Indians out of their houses and into their tepees again, or into tents, and keep them in the free air and sunshine as much as possible; to prevent their mingling with the uninfected

as much as possible; and to collect carefully the products of the disease, and destroy them before they could come into contact with others.

It was not expected that this plan could be brought into effect at once, but it was intended to develop it as fast as circumstances would permit. At first the authorities gave hearty support to the work, and the co-operation of the Indians was secured beyond expectation, so that the work was made effective according to the plan much more rapidly than had been foreseen.

Tuberculosis was steadily and continuously reduced among these Indians for five years from the time the work was begun, when the proportion of tuberculosis was found to be reduced from 148.7 to 105.4 per 1000, and the annual number of deaths from this disease from 24.88 to 13.45 per 1000; that is, tuberculosis was reduced nearly one third, and the death-rate from it nearly one half.

There would, doubtless, have been a greater reduction had the Indians been so situated that better supervision could have been given them, but they were scattered over a territory as large as the state of Connecticut, and it was impossible for one physician to give to all the personal supervision necessary to keep them from lapsing from the sanitary work required of them to produce the best results.

After five years of this work the physician who had charge of it was deprived of the opportunity of giving it his personal supervision, and the Indians became neglectful of sanitary conditions, whereupon, tuberculosis began again to increase among them. When they observed this they lost confidence in the efficiency of their work, and because there was no one whom they considered authority on the disease to supervise them, it became intermittent and ineffectual. Thus, the disease has increased and now the proportion of tuberculous among them is 120.64 per 1000.

As the conditions of these Indians, except those effected by the effort to control the disease among them, have remained the same, before, during, and since this effort was made, the soundness of the premises assumed before beginning it, and also, the fact that tuberculosis can be suppressed among them, are proved.

In view of these facts the following proposition is submitted:

A practical method for suppressing tuberculosis among these Indians would be by the establishment of a sanitary camp, where all that are infected with the disease should be collected and maintained, under competent supervision, until each case terminates.