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## TUBERCULOSIS SANATORIA IN THE UNITED STATES.

According to the eight edition of the American Medical Directory for 1923, there were five hundred seventy seven tuberculosis sanatoria in the United States. New York state ranks first with seventy five and Oregon is one of the lowest with only three, as follows.

Portland Open Air Sanitorium, Milwaukie.  
Pierce Sanitorium, Portland.,  
Oregon State Tuberculosis Hospital Salem.

About eighty five years ago a country physician in England, advised his patients to live out of doors. In 1862 a German physician established a sanitorium in the mountains. The credit of outdoor life for the treatment of tuberculosis is rightly given to Dr. Edward L. Trudeau, who at the age of twenty five, soon after having graduated from medical school, contracted the disease. He was advised to take a vacation, and went to the Adirondack Mountains. One day while driving in the mountains he was caught in a blizzard, his horses were exhausted and Trudeau and his family were obliged to remain, for two days in the snow. Finding that he did not feel any worse for the exposure he decided to spend the winter in the mountains. At that time about fifty five years ago, fresh outdoor air was considered harmful to sick persons. He soon improved in health and was soon able to practise medicine among the mountain people. In a few years other tuberculosis patients came to him for aid and Trudeau established the Adirondack Cottage Sanitorium.

In the summer of 1890 at a meeting of the International Medical Congress in Berlin, Koch announced that he had found a substance that if inoculated into guinea pigs would render them immune to the tuberculosis virus and would also arrest the active cases. This substance was later found to be a concentrated glycerine bullion culture from which the unbroken bacilli were removed by filtration. As every one knows there have been no cures from Kochs tuberculin.

In his autobiography Trudeau states that the idea of building a sanitorium came to him in 1882 after reading an account of Brehmers institution, and that of his pupil Dettweiler. Brehmer believed that

tuberculosis was in some way ~~connected~~ dependent upon or related to a small heart, and he had his patients climb grades of different lengths in order to strengthen the heart. Dettweiler however thought that there was no relation between a weak heart and pulmonary tuberculosis and was an advocate of complete rest.

Trudeau writes that although tuberculosis was not at that time considered to be a transmissible disease, he thought that crowds should be avoided, and so he started his sanatorium on the cottage plan. In 1915 at the time of his death his sanatorium had grown into a small village consisting of thirty buildings, scattered over the hillside, with the cottages grouped about an administration building. In addition to the patients cottages, there was a nurses home, an infirmary for bed-ridden patients, a post office, a library and a fire proof laboratory.

For the first few years Trudeau and his cottage sanatorium was recognized only by his personal friends, however his good work soon became known throughout the country. In 1891 Bowditch opened a tuberculosis hospital in Sharon, Mass. The first state tuberculosis sanatorium was at Rutland, Mass., in 1898. At present every state in the union and almost every large city has public tuberculosis sanatoria, while the number of ~~public~~ private hospitals increase each year.

The officers of the different sanatoria differ widely in the class of patients they admit. Usually these institutions desire to secure only incipient or only moderately advanced cases. The National Tuberculosis Association has adopted the following classification. (1) Incipient: Slight infiltration limited to the apex of one or both lungs or a small part of one lobe. No tuberculous ~~manifestations~~ complications. Constitutional symptoms (including gastric or intestinal disturbance, or rapid loss of weight) may be slight or absent. There may be slight or no elevation of temperature or acceleration of pulse at any time during 24 hours. The expectoration is usually small in amount or absent. Tubercle bacilli may be present or absent. (2) Moderately advanced: Marked infiltration more extensive than under incipient, with little or no evidence of cavity formation. No serious tuberculous complications and no marked impairment of function, either local or constitutional. (3) Far advanced: Extensive local infiltration or consolidation in one or more lobes, or large cavity formation. Serious tuberculous complications, with marked impairment of function, local or constitutional. (4) Acute Military Tuberculosis: In this classification

one of the three stages are based on certain specific pathology and clinical symptoms. Unfortunately, however, lesions and symptoms are not interchangeable, but are immobilized in each of the three stages. This is confusing, for occasionally an advanced case may present only incipient symptoms.

In the diagnosis of pulmonary or glandular tuberculosis in childhood the following definitions are given. (1) Loss of weight: By loss of weight should be understood an unexplained loss of at least five per cent below normal limits for that particular child or an unexplained failure to gain weight over a period of four months.

(2) Loss of Strength: By loss of strength in its pathologic sense is meant ease to tire and lack of staying power which are unusual for the individual child and which cannot be satisfactorily explained.

(3) Fever: In children rectal temperatures alone are dependable. To constitute fever in its pathologic sense in childhood there must be more or less constant elevation of temperature over 100 degrees taken at various times during the day and lasting over a period of one week.

(4) Pulse: No definite standard can be laid down. Observation should be over a longer period than in adults, before attaching significance to this as a symptom in childhood.

(5) Hemorrhage: As in adults any amount of blood, with or without sputum, requires investigation as to its source. This is a very rare symptom in childhood.

(6) Family History: An occasional case of tuberculosis in the patient's uncles, aunts, cousins, etc., should not be considered of importance, unless there has been intimate exposure and personal contact with such a case; It is an important fact, however, when the patient's immediate relations, as mother, father, brother, sister, nurse, etc., have had tuberculosis and especially so when there has been prolonged and intimate contact.

(7) Exposure: Exposure to tuberculosis, no matter how slight, from a human source, or from milk, is of great importance. Prolonged exposure, especially under unhygienic habits or surroundings is of greater importance.

(8) Cough: No cough is characteristic of tuberculosis in childhood. Persistent cough for six weeks requires investigation. Tuberculosis can and often does exist

without any cough whatever. In certain cases of bronchial gland tuberculosis there may be a brassy, strident, paroxysmal cough, resembling that of pertussis.

- (9) Sputum: Sputum, if present should be examined. It is comparatively rare in tuberculosis in childhood.
- (10) Hoarseness: Any huskiness or persistent hoarseness requires investigation. This is rare in childhood.
- (11) Rales: Rales are not to be regarded as essential in diagnosis and are not in themselves evidence of tuberculosis; in fact, by the time rales are found in tuberculosis in childhood the disease is usually advanced and the diagnosis only too evident.
- (12) Dulness: Only very light percussion should be used. Dulness is not to be looked for at the apices as in adults, but over both sides of the sternum (parasternal dulness) and between the scapulae (inter scapular dulness).
- (13) Altered voice and breath sounds: Pure bronchial breathing and egophony are comparatively rare in tuberculosis in childhood. Harsh, prolonged, high-pitched expiration and an intense whispered voice are often present. The whispered voice and not the spoken voice should be used.
- (14) D'Espines Sign: Intense whispered voice below the third dorsal vertebra is considered by many as abnormal and indicates the presence of enlarged bronchial glands. Such enlarged lymph nodes are not necessarily tuberculous.

For adults the following definitions are given.

- (1) Loss of Weight: By this should be understood an unexplained loss of at least five per cent below normal limits for that particular individual in four months time.
- (2) Loss of Strength: In its pathologic sense, by loss of strength, is meant undue fatigue and a lack of staying power which are unusual for the individual patient and which can not be satisfactorily explained.
- (3) Fever: An occasional temperature of 99 should not be considered fever. A temperature that persistently runs over 99.4 taken at least four times a day, over a period of one week (by mouth five minutes) should be considered as fever.
- (4) Pulse: When the average normal pulse of the patient is known, an elevation of fifteen beats per minute when the pulse is taken quietly at home during various periods of the day should be considered abnormal. In cases where the average pulse is not known, one should consider an average pulse of 85 or over in men and 90 or over in women to be normal. The combination of sub-normal temperature and an elevated pulse as defined, should be considered of great importance.
- (5) Hemorrhage: Any amount of expectorated blood, with or without sputum, may mean that tuberculosis is present and requires careful investigation as to its source. Blood streaks or blood spots may or may not mean tuberculosis.

(6) Family History: An occasional case of tuberculosis in the patients distant relatives, should not be considered important, unless there has been intimate exposure and ~~near~~ personal contact with the case. It is of more importance if the patients immediate relatives have been tuberculous and especially when there has been prolonged and intimate contact. (7) Exposure; Childhood exposure is of the greatest importance. Moderate exposure among normal healthy adults is of less importance. Prolonged contact with unhygienic habits or surroundings may be a dangerous factor at any age. (8) Cough: There is no cough characteristic of tuberculosis. Every cough that persists for six weeks or over requires investigation. Tuberculosis may exist without any ~~any~~ cough. (9) Sputum: The presence of sputum is not necessary for a positive diagnosis. The constant raising of sputum, with or without cough requires investigation. Absence of bacilli in the sputum after one or more laboratory examinations is not necessarily proof against the presence of active tuberculosis. (10) Hoarseness. Any hoarseness or persistent huskiness demands investigation.

As its name implies, a sanatorium is a place for recuperation from a disease. It has proved a very valuable agent in limiting the dissemination of tuberculosis. In it the patient is taught to take care of his sputum and other excretions without endangering the lives of others.

The treatment given in the several hundreds of sanatoria throughout the United States varies with the different personnel. The three great forces which are of great value in tuberculosis sanatoria are (1) education, (2) rest and (3) food. Sanatoria treatment fails largely because in the majority of cases it is necessary for the individual to return after a short residence and a temporary improvement to his former conditions of living, which results in a large percentage of cases in a speedy return of the active symptoms of the disease.

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