

C. J. Swendsen, Chairman State Board of Control: On behalf of the State Board of Control and the superintendent of this institution, I wish to extend to you a hearty welcome.

The conference has been held here before. Some of you know a great deal about this institution. It is one of the most charitable institutions in the state of Minnesota. I am not going into detail with regard to what is done here, but sometimes I feel that they perform miracles in this hospital. Thousands of children have come here with all sorts of deformities. They have left well and happy. You will find, when you go through the hospital, a splendid spirit here. The children are contented, happy, and most of them are smiling and hopeful.

This institution is the creation of Doctor Gillette, who was one of the greatest men in his line in the United States. This hospital stands a memorial to him. He was the one who first advocated it many years ago, and finally, through his persistence, the institution was established in 1907. I had the pleasure of being a member of the legislature when this institution was created by that body, and it is one of my happiest memories.

We are very much disappointed today not to have the speaker from Iowa, Dr. Voldeng, with us. He is a man who stands very high in his profession. He started one of the best hospitals for the insane in the United States, the institution at Cherokee, and spent fifteen years or so there. Then the Board of Control of Iowa appointed him to start a colony for epileptics. Last evening we received a telegram from him in which he stated that he could not possibly be here because of illness in the family. We of course regret that very much, but are happy to have someone to take Doctor Voldeng's place.

The University of Minnesota always co-operates with us when we are in need, so today we have with us Doctor Michael, of that institution, who is head of the out-patient clinic of The Medical School at the University. Doctor Michael will speak to us today, and I want to express to him the Board's appreciation for his coming. The subject which the Doctor will speak upon is "Epilepsy as a Curable Disease."

The reason we have selected this subject is that the Board has presented a bill to the legislature, in which we ask for authority and money to start a colony for epileptics. You perhaps are familiar with the conditions with reference to the feeble-minded and epileptics. The condition is deplorable. The institution at Faribault is filled up. There are over 1,900 patients, of which about 300 are epileptics. We have a waiting list of 200, about 200 out under supervision are feeble-minded, and quite a large number are in the hospitals for the insane temporarily, so it is one of the greatest needs we have. We hope the legislature will be kind enough to grant our request and that the bill will be passed so we can have some relief.

I will ask Doctor Michael to speak to the conference.

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## EPILEPSY AS A CURABLE DISEASE

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Epilepsy is a disease with recurrent attacks of impaired or loss of consciousness with which are associated sensory, motor or psychic features.

As a body of officials and workers in state welfare you have gathered today in conference to give particular consideration to the ever increasingly formidable problems connected with the care of epileptics. Usually there is not much optimism aroused in our minds when we contemplate on this distressing disease, yet I will undertake to bring out the curable features which we have learned from experience. Let us review by way of introduction:

(1) **Prevalence.** On January 1, 1920, 14,937 epileptics were housed in special institutions. Varying estimates have been given but it seems very probable that there are twenty times as many epileptics at large as there are confined in these institutions. Roughly, the incidence rate of epilepsy equals that of feeble-mindedness. Army examinations resulted in the rejection at the rate of 3.7 per 1,000 because of this illness. In grade school children about 1 to 1,000 are epileptic. Among juvenile delinquents about one out of a hundred shows the presence of this condition.

(2) **Causation.** About one-fourth of the feeble-minded are epileptic. Direct heredity occurs very rarely, about 1 per cent only; history in the family of neuropsychiatric disease in from 30 per cent to 50 per cent of the cases indicates the influence of heredity. Alcoholism in parents has been reported in percentages of from 10 per cent to 50 per cent. Here we must recall that alcoholism may be merely a symptom of an unstable or imbalanced constitutional makeup. Trauma to the head is often followed by epilepsy. Thus in a series of 100 head injury cases which I reviewed I found 36 suffering from epilepsy. Birth injuries, syphilis of the brain inherited or acquired, arteriosclerosis, nephritis, autointoxication or other toxic or infectious conditions, worms and emotional disturbances may bring on epilepsy. In one colony 11 per cent of the cases had infantile cerebral palsy. In about 60 per cent of all cases it is impossible to define an exact cause. Truly there is no one cause for this ailment. The circumstances of the first fit according to Turner is to be looked upon as the cause; succeeding seizures occur quite without relation to any definite cause. The percentage of males affected is a trifle higher than females. All in all statistics on epilepsy vary somewhat because the different types are not uniform in the groups studied.

(3) **Frequency of attacks.** According to Spratling little over half of the cases have a seizure once per week or oftener. Two per cent have an interval lasting six months or longer. This authority gives a higher rate than we find in our out-patient service at the university.

(4) **Age of onset.** No period of a lifetime is exempt. About one-third have their onset during the first decade of life. Over three-fourths of the total number begin before the age of 20. Less than 5 per cent have their first attack after 40. The idiopathic forms, cases with unexplainable etiology, begin in the majority of instances during or after puberty up to about the age of 30.

(5) **Relation to infantile convulsions.** Because of the poorly developed inhibitory mechanism in the cerebral nervous system of children, convulsions are easily induced during infectious diseases or toxic states. Not all children are alike in their tendencies to convulsionosis. Morse followed up 107 cases of spasmophilia in children and found that after reaching adulthood, 10 per cent of these were feeble-minded and about 10 per cent epileptic. It is not incorrect to believe that epilepsy is more prone to develop in individuals who were spasmophilic, so called, during childhood, yet actually that event is comparatively not so very common.

(6) **Course and complications.** Epileptics rarely live to be over 50 years of age. The average age of people dying because of epilepsy is given as 29½ years by Block. Feeble-mindedness is very prone to follow epilepsy in childhood. Approximately one-fourth of the deaths occur in status epilepticus. Another fourth are due to pulmonary complications, chiefly tuberculosis. One-eighth die from accidents. Thus one of our cases, a young man, was found with his face on the ground at the shore of the river, dead. Another, a boy, died during status, a long series of successive convulsive seizures, some six weeks after skull fracture sustained by falling on the ice while skating. The United States Census Bureau gave 3 per cent of all deaths as caused by epilepsy. Ten per cent become insane. Total amnesia of a temporary duration may follow a convulsion. Changes in the personality as irritability, suspiciousness, egocentricity and memory impairment may set in. Violent mania, melancholia, stupor, paranoid states or delirium are types of mental disorders found.

#### Treatment and Curability

Of the idiopathic cases from 5 per cent to 10 per cent get well. Of all cases about 20 per cent to 25 per cent recover under careful medical treatment. Rather, it would be more correct to say "arrested." In institutions where the most hopeless cases are congregated very few if any recoveries are noted. Spontaneous, unexplained permanent cures are known to have occurred. The grand mal type is most amenable to treatment, the petit mal less so and psychical epilepsy is the most intractable. When permanent mental changes have developed the outlook is very hopeless. Reduction in the number of grand mal seizures in our treated cases is the rule. Occasionally we meet one who is resistive to all medical measures. One boy of 12 who had as many as 120 petit mal attacks per day improved under sanitarium supervision and treatment by Gordon's method of subcutaneous injections of another epileptic's spinal fluid to the extent that for six months he had no more than 12 attacks every 24 hours.

An ex-service man, age 35, was struck in his temporal region by a steel pipe 10 years ago. An operation at the site of injury was performed.

During his army service his first convulsive seizure came on. After returning home he succeeded in getting back his old job, railroad conductor. When employees learned of his condition they were forced to discharge him. Whereupon he submitted to an operation. He was placed on mild sedative medication, got back his job and reports no trouble at all, no seizures in two years. However, old head injury cases with epilepsy are usually not so favorably influenced by surgery.

A school girl, age 12, was referred to me last fall. Frequency of attacks was given as three per week. She had seizures for a year and a half. No determinable cause found. After four months of treatment she has not suffered from a single attack and she has been able to do her school work without difficulty up to the present time.

Another ex-service man was having idiopathic epileptic attacks 4 to 5 times weekly. When first coming to the hospital he suffered from a series of attacks which were followed by delirium. He threatened to kill an attendant and attempted jumping out of the window. His case was gotten under control, mental condition cleared up and freedom from attacks followed for three months when he decided to get married one afternoon while on leave from the hospital. He told his prospective bride that he thought he was cured and her enthusiasm for him could not have been very restricted for she secured and paid for the license. However, after "one night" our patient was worse than ever according to the bride's story given the next day, a sample of what marriage may do to some epileptics. Further hospital treatment could not be avoided. Neither has his subsequent course been at all favorable.

At the University we have some patients under medical treatment who have not had a seizure for two, three and four years. Some of our cured, or rather "arrested" cases, fail to appear for further measures. We have not been able to check up on all these. I have been able in the short time available to look over records of some 35 cases. I will quote the following to show possibilities of treatment:

Case No. 10092—Idiopathic Epilepsy. Age 32. Ordinary frequency 2-3 per month. Since February, 1920, had free intervals of 2 months, 12 months and 4 months.

Case No. 30082—Idiopathic. Age 30. Ten years' duration. One per week to 2 weeks. No attacks in 9 months when he stopped medicine.

Case No. 6738—Idiopathic. Age 26. Nine years' duration. One spell every 8-10 days for a year. Free intervals for 7 months and 14 months. Stopped medicine at time of last seizure. Bromide therapy.

Case No. 9264. Age 32. Eight years' duration. First free interval 4 months, then 3 months. (Idiopathic case.)

Case No. 15066. Age 17. Fifteen years' duration. (Idiopathic.) Frequency from 7 in one day to one per week. Bromides. First free interval 10 days, attack came after being without medicine, second 2 months; then 4 months; 3 months; 5 months, after which course has not been so satisfactory. Dull mentally. Outlook poor.

Case No. 25873. Age 26. Three years' duration. Came on after a month interval when seeing her brother killed in an auto accident. First free interval 5 months; second 9 months; then pregnant 3 months. No attack during pregnancy.

Case No. 29917. Age 24. Three years' duration. Seizures came on once a month. Bromides for 6 months. No attacks. (Idiopathic.)

Case No. 27394. Age 26. Eighteen years' duration. One per 3 weeks to one month; nearly finished high school. One free interval of 4 months since treatment was begun.

Case No. 1855. Age 32. Six years' duration. Migraine and nervous spells in family. Free interval 2 years. Bromides. During former pregnancy attacks increased.

The general management of these cases is important. An outdoor life allowing fresh open air with free activity, preferably on a farm, is most advisable. There irksome influences of the "herd" are avoided. Auto-intoxication and exogenous intoxications are guarded against.

Foci of infection in teeth, tonsils, sinuses, etc., must be removed. Indeed, all determinable bodily deviations should be treated. Emotional life should be without strain. Avoidance of hazardous situations; driving automobiles, handling machinery, rowing boats alone, etc., is emphasized. For drugs the bromides or luminal are depended upon; sometimes both are administered. Meat and eggs are removed from the diet. Salt is also advised against in bromide therapy.

The colony treatment is the best solution for cases with frequent attacks. General management can be more effectively applied, and hygienic and specific therapeutic measures carefully supervised. The excitements of extramural life do not exist here and seizures cause little embarrassment. The demented types are cared for, of course, in hospitals for mental cases.

But a great percentage of epileptics really are in many respects able to carry on on the outside with some help and guidance. Occupations should be selected. Agricultural or allied pursuits are the most desirable because of isolation and absence of hazards as mentioned above. Of around 300 ex-service men about 45 were placed in training before the difficulties of vocational adaptations were fully realized by the government. However, about half of these in training are reported to be making satisfactory progress, a third are doing very poorly and the remainder are holding their own with much difficulty. Of 36 cases following head wounds, one-third are making fair progress, one-third cannot even sustain themselves, and the other third can do some work at times but need the continued support of their families or the government. Not a small number of our university dispensary cases are getting along fairly well in an occupation while they are under treatment. Certainly, the vocational problems are quite difficult to meet for our epileptics in the community.

**The Chairman:** We are fortunate to have with us a gentleman from St. Paul, Doctor Ball. Doctor Ball was the first one who was appointed by Doctor Gillette for neurological service in this particular institution. Of course he is very familiar with the hospital for crippled children. He is also very familiar with epilepsy, the subject on which he will speak. Doctor Ball.