

HEREDITY AS A FACTOR IN FEEBLE-MINDEDNESS

By J. M. Murdoch, M. D., Superintendent Minnesota School for Feeble-Minded

During the last quarter of a century the physical sciences have given us a wholly new philosophy as to the nature of matter. This has made possible such marvelous mechanical inventions as the aeroplane, the radio, the talking motion picture, and television. The achievements in biology may be less spectacular, but have contributed no less to human progress, in the banishment and control of communicable diseases, in improved technique in laboratory and operation room, and not least in the realm of heredity.

Until recently heredity was regarded as inscrutable, but since the beginning of the present century laws of heredity have been formulated as definite and precise as those of physics and chemistry.

Genetics, the science of heredity, has made possible better strains of live stock; meat production is more rapid; milk yield has been greatly increased; sheep produce longer and finer wool. The animal breeder sifts out the undesirable characteristics; isolates, combines and strengthens those which are desirable.

In dealing with plant life, like progress has taken place. New types are constantly brought out, increasing yield, adaptation to varied climatic conditions and resistant to pests which destroy or limit the yield of older types.

Such progress is interesting and of great economic value. Furthermore, it has been conclusively demonstrated that the fundamental laws of heredity are the same in all living organisms.

Man is an organism—an animal—and the same laws which have wrought improvement in corn and in the race horse hold true to man. He is subject to the same heredity mechanism as are the fruit flies in Morgan's Laboratory.

It is not within the scope of this paper to depict the machinery of heredity or give a technical account of genetic research, but rather to consider some of the facts which have been brought to light and how they may be utilized in dealing with the problem of feeble-mindedness.

Heredity as an etiological factor in feeble-mindedness was recognized in a general way by the early students of this subject, but the mode of transmission was not understood. In the year 1900 the botanists, DeVries, Correns and Tschermack, by independent investigation, verified and brought to light the long-forgotten Mendelian principle of heredity, and it was not long until the Mendelian theory was found to apply to the transmission of human characteristics, both mental and physical and among them mental defect.

The most extensive data in support of the heredity of feeble-mindedness has been presented by Dr. Henry H. Goddard, who from 1906 to 1919 was director of the Research Laboratory at the Vineland Training School, New Jersey. In 1910 Dr. Goddard read a paper before the American Breeders' Association in which he presented charts and family histories of feeble-minded inmates of the Vineland institution, showing the presence of mental defect generation after generation. Later, in 1912, Dr. Goddard published "The Kallikak Family," giving the history of five generations of the descendants of a feeble-minded woman who left 489 descendants of whom

it is stated, after careful inquiry into all available sources, 143 were feeble-minded and only 46 normal, while the rest were unknown or doubtful.

In 1911 Arthur C. Rogers, M. D., late superintendent of the Minnesota School for Feeble-Minded, began studies of the family histories of the inmates of the Minnesota School. One of a series of these studies was published in story form by Maud A. Merrill, research worker, under the title "Dwellers in the Vale of Siddem," in which hereditary feeble-mindedness is traced from generation to generation.

Other well known studies of mental defect in families are "The Jukes" by Robert L. Drydale; "The Nau Family" by Arthur H. Estabrook; "The Hill Folk" by Davenport and Danielson; "The Pineys" by Elizabeth H. Kite; "The Tribe of Ishmael" by O. C. McCullough.

The first large-scale systematic survey of the care and control of the feeble-minded was that undertaken by the British Royal Commission in 1904. The report of this commission in eight large volumes was published in 1908. In its four years' investigation the commission examined expert witnesses; visited America and other countries and instituted extensive studies in 16 separate districts, rural and urban.

Twenty-five expert witnesses called on the subject of heredity, attached supreme importance to the fact that in a large proportion of cases of mental defect there is a history of mental defect in the parents or near ancestors. The conclusions of A. F. Tredgold, M. D., well-known British authority on mental deficiency, as contained in the commission's report, were as follows:

"In 90 per cent of patients suffering from mental defect, the condition is the result of a morbid state of the ancestors which so impairs the vital powers of the embryo that full and perfect development cannot take place. In the milder cases the effects are seen in the nervous system only, since this is the most delicate and easily injured part of the organism; in the grosser cases other parts of the body are also affected, as seen in the various imperfections and abnormalities of structure called 'stigmata of degeneracy.' Possibly in 10 per cent of cases of secondary amentia, feeble-mindedness, the condition is due to accidental, and, for the most part, unavoidable, causes. Amentia is thus not only hereditary, it is also the final expression of a progressive neuropathic degeneration.

"With the exception of a very small proportion of cases which are due to accidental and unavoidable cause, we now know that mental deficiency is the result not of chance, but of law; that, in short, it is the consequence of a morbid inheritance, the ancestors usually being insane, epileptic, or sufferers from some other marked mental abnormality. Another important point is the transmissibility of feeble-mindedness in like form to a subsequent generation. This is a fact which is recognized by every experienced observer; indeed, it is probable that in the whole realm of medicine there is no disease which shows a greater tendency to be passed on to the offspring than does mental deficiency."

The first definite statement of the inheritance of mental defect in terms of the Mendelian formula was presented in 1919 by Dr. Charles B. Davenport of the Eugenics Laboratory, Cold Springs Harbor, New York, as follows:

"There are laws of inheritance of general mental ability that can be sharply expressed.

"Low mentality is due to the absence of some factor (gene), and if this factor or gene that determines normal development is lacking in both parents, it will be lacking in their offspring. Also, that aside from mongolians probably no imbecile is born except of parents who, if not mentally defective themselves, both carry mental defect in their germ plasm."

With a preponderance of evidence of heredity as the chief factor in the production of feeble-mindedness and as feeble-mindedness was until quite recently looked upon as a comparatively small problem, life segregation or segregation during the productive period in appropriate institutions was looked upon as the solution.

However, soon after the recognition of the perpetuation and multiplication of feeble-mindedness by biological principles of heredity, psychologists developed the machinery of measuring intelligence and thus a method of determining more or less accurately the degree of mental defect and the extent of mental deficiency in the general population. To the refinements of the intelligence tests must be given the credit for the discovery of an entirely new class of the feeble-minded—at the same time the most numerous and the most socially dangerous. This class consists of those so-called "high-grade" mental defectives, above the class previously cared for in our institutions for the feeble-minded and yet below normal—persons who might well appear to the casual observer as normal. To designate this class of high-grade defectives having a mental age above 7 years, Doctor Goddard suggested the term "moron," which term has been generally adopted in America.

The Binet-Simon tests and other later revisions and adaptations of them by Dr. F. Kuhlmann and others provided for the first time a means of estimating the extent and degree of mental deficiency in the country at large.

The opportunity of the psychological test to prove its real utility and to operate on an extensive scale came during the World War. The published results of these tests afford a basis of generalization such as had never before been available as to the extent of mental deficiency. By a conservative interpretation of the army tests, over 5 per cent of the general population and certainly 5 per cent or more of minors are feeble-minded, if we adopt the intelligence quotient of .70 as the criterion.

This means at least 100,000 in the state of Minnesota, 5,000,000 in the United States, too low in intelligence to manage themselves or their affairs with ordinary prudence. At least one-half of them carry mental defectiveness in their germ cells, available for the production of other defectives whenever chance brings an egg and a sperm of like quality together. It is obvious such numbers can not be given custodial care throughout the child-bearing years.

In childhood they are incapable of profiting by the ordinary methods of instruction in our public schools, but by appropriate methods the great majority are responsive to a good environment and appropriate training. Not that environment and training will raise the intelligence level or remove

the defect in their germ plasm, but that it can develop in him or her the capacity to do certain routine things which will give happiness and which, with sympathetic guidance, make it possible to compete in the struggle for existence.

The vast majority of morons are capable of being trained to be useful members of society. They are entitled to such training as will make them self-helpful.

The mere survival of a genetically feeble-minded individual, his enjoyment of life to the fullest extent of his ability, does no particular harm. He may prove an asset rather than a liability. His training, however, may increase, in fact does increase, the probability of his having children, and this should not be. Not survival alone but also propagation is required for the perpetuation of defective genes or germ plasm. Without propagation survival is harmless so far as race deterioration is concerned. The lives of feeble-minded persons should be made as satisfactory and complete as our most advanced methods can make them, but we must see that they do not propagate.

The prevention of propagation of even one congenitally defective individual puts a stop to at least one line of descent. Defective germ plasm is a hideous thing—a living self-perpetuating substance that blasts the child before it is born. It can only be killed by prevention of propagation of the eugenically unfit.

It is true that defective genes may be carried and are carried by many individuals not showing the defect, and in time, with increased general knowledge of eugenics, public consciousness will be aroused to such an extent that pedigree analysis will be considered before marriage or at least before assuming the responsibilities of parenthood. The fact that defective genes may be carried by normal persons is no reason why the propagation of congenitally defective persons should not be prevented, any more than the fact that some apparently healthy individuals are the carriers of the bacilli of diphtheria or typhoid fever is no reason why quarantine regulations should not be enforced, or why we should repeal our criminal laws because all criminals are not apprehended. Furthermore, the birth rate among feeble-minded women is very high; more than two and one-half times that of the Michigan State College alumna. For instance, although the mortality rate among the offspring of the feeble-minded is high, the surviving offspring much more than replace the parental group.

It is thus evident that there is great danger of constant and progressive racial degeneracy unless some plan is undertaken to prevent the propagation of the feeble-minded. Sterilization by surgical procedure at the request of parents had long been practiced, but its legality was questioned.

Restriction of personal liberty in the interest of the general welfare had been undertaken by the state through the exercise of its police power in the case of vaccination against smallpox and quarantine regulations to prevent the spread of contagious disease.

The limitation of marriage on account of mental defect and transmissible disease had been enacted into law. This law is wise and no doubt helpful.

Laws for the sterilization of the feeble-minded have now been enacted in at least 20 states, and the sterilization law as enacted by the state of Virginia has been upheld by the Supreme Court of the United States. The sterilization law as enacted by Minnesota is so well safeguarded that there seems to be no reasonable ground for criticism. Section 1 of this law is as follows:

"Section 1. Feeble-Minded May Be Sterilized.--When any person has lawfully been committed as feeble-minded to the guardianship of the state board of control the said board, after consultation with the superintendent of the state school for feeble-minded, a reputable physician, and psychologist selected by said board, and after a careful investigation of all the circumstances of the case, may, with the written consent of the spouse or nearest kin of such feeble-minded person, cause such person to be sterilized by the operation of vasectomy or tubectomy. Provided, that if no spouse or near relative can be found, the board of control, as the legal guardian of such feeble-minded person, may give its consent."

In Minnesota only those feeble-minded persons who, after training in the institution, give reasonable evidence of ability to get on in the outside world under such supervision as can be given either in the home or by social agencies, are considered for sterilization. Since the passage of the sterilization law in 1925, 155 persons have been sterilized in the Minnesota School for Feeble-Minded. The great majority of these have left the school and are doing well. None of the men and only twelve of the women have had to be returned to the institution. To this extent at least 155 lines of descent carrying defective genes have been cut off. It has been possible to give a fuller life and opportunity to these men and women. It has relieved the state of the expense of their care. It has given assurance that these men and women will not leave a heritage of feeble-minded progeny who, were it not for the precautionary measures taken, would in all probability be an increasing burden on society for untold future generations.

Mr. Swendsen: I want to thank Doctor Murdoch for his excellent paper.

We are now ready for the discussion of this paper. May we not have a lively one? If you do not want to discuss the paper, you may ask questions. Doctor Murdoch will be glad to answer them.

I notice Doctor McBroom is here. The Doctor was recently appointed superintendent of the Colony for Epileptics at Cambridge. He has been connected with the School for Feeble-Minded at Faribault for the last ten years, or more. Let us hear from you on this subject, please, Doctor.

D. E. McBroom, M. D., Colony for Epileptics: Mr. Chairman, I can add nothing to Doctor Murdoch's paper. Having been associated with him, I have absorbed his views intact. I agree with everything he says on the subject.

My only recommendation would be that I wish we could carry the program of sterilization in Minnesota on a little farther and a little more rapidly than it has been carried on. When the work was started at Faribault, the Board very judiciously appointed one of the leading surgeons of Minnesota, an outside man, a non-interested individual, to superintend and super-

wise and practically do all of this work, and it has been done under his direction throughout.

I am glad to say that the mortality has been nil; that the work has been very satisfactory; that the convalescent periods have been short; and all have been well pleased with the results.

It has been a big thing for the institution to be able to return a certain percentage of our higher-grade feeble-minded back to society for a period of years, at least until they approach the decline of life. Possibly at that time a few will be returned as wards of the state again, but think what that means to the public and the taxpayers. It means they have been self-supporting for a period of 10, 20, or 30 years. Even if they do come back in their old age, we know it will not be much of a burden, only until the time comes for them to shuffle off.

I should like to see the work done on a larger scale than we are doing it now. Every precaution is being taken. The Board has supervised the work very carefully, and we have been very careful not to make a move in the wrong direction.

Question: I should like to ask whether a feeble-minded parent would be allowed to give his consent to the sterilization of a feeble-minded child.

Doctor McBroom: We have assumed the attitude that if the parents have never been committed to the institution as feeble-minded, they can give their consent. That would follow the old principle that a man is innocent until he is proved guilty.

Mr. Swendsen: We took that matter up with the Attorney General, who has passed on that particular law. He states that the nearest kin, provided they know what they are doing, must give their consent; also the feeble-minded person. The law does not provide for the signature of the inmate, but he says, as a matter of precaution, it would be better to have not only the nearest kin but also the inmate sign the consent.

Mary L. Stewart, Home School for Girls: Doesn't requiring the consent of the person to be sterilized nullify this law?

Mr. Swendsen: The Attorney General states that that is simply a precaution. It does not nullify the law; it makes it that much stronger.

Mrs. Stewart: It seems to me the law ought to be changed so that it is not necessary to ask the consent of the person to be sterilized.

Mr. Swendsen: The law does not provide for that. We do it so as to be absolutely sure. You can always find some nearest kin or relative.

Mrs. Stewart: We have a girl that should be sterilized. The girl will not give her consent. The parents will not give their consent.

Mr. Swendsen: It must be voluntary. Persuasion must not be resorted to. We do not say to a feeble-minded person, "If you will consent to this operation you will be permitted to go out."

Mrs. Stewart: I think it should be made a little bit easier to get these people sterilized.

Charles F. Hall, Children's Bureau: As to whether or not the law should be changed, there are different opinions. Some people would go a great deal farther than the state of Minnesota does, but I believe it works out best as it now stands.

I am sorry I did not hear Doctor Murdoch's paper. I began work at the State Conference at eight o'clock this morning and have been very busy at other matters.

The Children's Bureau being a central point where inquiries are made as to what we are going to do with this problem and what we are going to do with that problem, the question of feeble-mindedness comes before us continually. When we study our case records it seems to us that heredity does have a great deal to do with feeble-mindedness, and that when we have problems of feeble-mindedness, children, adolescents, and so on, we usually find, back of them, feeble-minded fathers and mothers.

As the years go on the weight of evidence coming from histories of this kind impresses one deeply with the fact that the state of Minnesota, as well as any other state, if it is going to escape overbearing burdens in the future, must tighten its belt, must look to its methods of handling things if we are not going to be weighed down by a population that is unable to take care of itself. As life becomes more complex, as we drive automobiles sixty miles an hour instead of driving ox teams as of old, there is more trouble at the crossroads. You are dealing with high-powered machinery. It takes more than feeble-minded brains to handle such things. The keyed-up business of today is squeezing out the incompetent, and the feeble-minded person is becoming more of a burden on society.

Of course there are a great many angles to be considered in discussing this problem, but where one comes in contact with the problem as a whole in the state, he realizes that for the welfare of the competent individual as well as for the welfare of the incompetent individual the less feeble-mindedness we have in the next hundred years the better off society will be. The farmers found out long ago that poor cows did not pay and stunted hogs did not pay; that they are a trouble to themselves and everybody else. My conception of Christianity and civilization is that we want the best kind of individuals, and that neglect of incompetents by society is something that we should give attention to.

Mr. Swendsen: We should like to hear from Miss Thomson, who is the supervisor of the department for feeble-minded in the office of the Board of Control.

Mildred Thomson, Children's Bureau: Since much of the discussion following Doctor Murdoch's paper has been upon those who have been sterilized, possibly a little more detail may be of interest. Those who have had this operation have been for the most part girls, although there have been a few men. Most of these girls are self-supporting.

Doctor McBroom said that probably, when these women were older, they would have to be returned to the institution because they would not then be self-supporting. I doubt that. These persons are self-supporting at the present time, practically all of them. They are not only self-supporting, but they are getting bank accounts. Some of the girls who have been out of the institution only a year or two years have not only clothed themselves but they have in the bank from \$50.00 to \$200.00 or \$300.00 that they have saved. We see that they do save. We try, through the child welfare boards, to see that every girl has a bank account, no matter how small the amount she earns. We assist her with her shopping so that she may save, so that

these girls will not, in all probability, become a burden on society in later life. It is those who have been very delinquent before going to the institution who may again become delinquent and have to be returned. Perhaps there is something besides feeble-mindedness that makes it impossible for them to adjust.

You would be amazed at the number who are doing well. With the knowledge that no matter what may happen there will not be a baby to be provided for, we are much freer in feeling that we can try to make a place for that girl where she may get along satisfactorily. We look after her just as carefully after sterilization. We insist that she live just as rigidly and according to the moral code as though she were not sterilized.

Of those who have been returned to the institution—I believe Doctor Murdoch said twelve—a few were returned simply because they could not adapt, but several were returned because we saw they would become delinquent and would become problems.

I was here two years before that law was passed. It has certainly made our burden somewhat lighter to feel that we may experiment, and if we fail it will not be at the expense of a child who may become a burden not only to the community but probably to himself.

Mr. Swendsen: Doctor Kuhlmann is a recognized authority on feeble-mindedness in the United States. We want to hear from you, Doctor.

F. Kuhlmann, Research Department: I want to apologize for not being here sooner. I was detained at the office, and so missed the paper, but I know you got it straight because I know who gave it. I fear I won't hit many of the points that should be discussed in this paper.

I would say that we can classify all the causes of mental deficiency in two rough groups.

In one group would be all the diseases or physical conditions which leave their impression on the nervous system. The effect of these we can demonstrate. They are necessarily connected with mental development.

In the other group are all the factors which we can perhaps call hereditary which affect the germ plasma and mental development, but which we can not demonstrate directly.

We are, in a slow but general way, getting more and more factors into this first group. The medical profession is discovering more and more conditions that affect mental development. I think we are making real progress along that line.

I fear we are not making a great deal of progress in the other group unless we can say that the inheritance of mental deficiency according to the Mendelian law has been proven. But we are ridding ourselves of many misconceptions about hereditary factors and some of the others. These misconceptions have arisen from our misuse of statistical methods.

We find the literature full of figures showing that there are a large number of feeble-minded who, for example, are also tuberculous. In our old data we have frequently stated that 25 to 50 per cent of feeble-mindedness is associated with tuberculosis; therefore, it was concluded, tuberculosis is a very serious cause in producing feeble-mindedness in children. As a matter of fact it may not be any cause whatsoever. The mere

fact that we have a frequent association between the two things, feeble-mindedness in children and tuberculosis in parents, does not mean anything. For tuberculosis is frequent in the general population, with the normal as well as with the feeble-minded.

To illustrate: We have a very high frequency of association between tuberculosis and feeble-mindedness and a very low frequency between feeble-mindedness and infantile paralysis. Yet there is not any question but that infantile paralysis is ten, possibly a hundred, times more active a factor in feeble-mindedness than is tuberculosis. Our figures do not show infantile paralysis as a cause because that disease does not appear so often in the population as does tuberculosis, but when it does appear in the child it is unquestionably a very serious factor in the mental development of that child.

We have found it necessary to revise our conception as to the causes of mental deficiency very seriously because we have made these statistical errors. The statistical error comes about always in the fact that we are dealing with a selected group; we are dealing with the feeble-minded only and not with the whole population when we make statements about these factors. If we knew the percentage of the whole population that is tuberculous, and the percentage of all feeble-minded that is tuberculous, then we could say something more definite about tuberculosis as a cause of feeble-mindedness.

Sterilization was mentioned in discussing the paper. For a long time I have held the view that, so far as the advisability of sterilization is concerned, it does not matter one bit whether the mental condition is hereditary or not. If you are dealing with a genuine moron, be his mental condition due to inheritance or disease, it is a mental condition not adequate for bringing up children. Suppose the moron parent has normal children, aren't those normal children entitled to a better bringing up than that moron parent is capable of giving them? We need not consider the question of heredity when we are discussing the advisability of sterilization from a practical standpoint.

There is one more point, an old one which I always repeat, and that is that our main problem, in dealing with mental deficiency, always has been and probably always will be with the moron girl, not only with reference to the economic questions and inability to get along in society, but also from the standpoint of future generations. It is the moron that we do not get hold of. Although we handle a great many more morons than lower-grade cases in institutions, it is because there are so many more morons. Over 75 per cent of the feeble-minded belong in the moron group—it is certainly over 75 per cent—and we would for this reason alone get more morons in our institutions even if they were no greater problem.

When you get down to cases of the idiot grade, I think we are taking pretty good care of them. We are getting a high percentage of them for the very obvious reason that they are so very helpless, everybody knows they need assistance and nobody wants them in his home.

Mr. Swendsen: What have you to say, Doctor Kilbourne?

Arthur F. Kilbourne, M. D., Rochester State Hospital: Not very much of anything. I enjoyed Doctor Murdoch's paper. He certainly covered the ground in a very comprehensive manner.

I think we, as human beings, are likely to forget that we are members of the animal kingdom. If animals are improved by selection, it follows that the human being must be improved also by selection.

For the comfort of some people who have a single defective child in the family, I will say that I do not think they need to look back for the influence of heredity as a cause for that child's condition, because there are other conditions which may lead to that.

It is astonishing how many men marry women who are deficient in intellect. They have not been able to discover this fact during courtship, and not till after marriage do they realize this condition. Some of our brightest men have made this mistake. It is unfortunate that such a condition could not be discovered before it is too late. Women of good intellect do not ordinarily marry feeble-minded men, although we have instances of this in royalty and where money was the incentive, for the reason that the man is looked to for the support of the family, and such support all women have a right to expect.

To illustrate the fact that our mentality is hereditary, why not quote some of the brilliant families of this country, like that of Jonathan Edwards? Most of his descendants were noted people, judges, bankers, and so on, occupying prominent positions, which goes to show that heredity is a most wonderful influence not only in the feeble-minded but in all of us who grade up in intelligence. We can not all be descendants of Jonathan Edwards, but we can all make the best of the mentality that God has given us. You might just as well make up your mind that when you are born you are given a brain that has its limits, and you can no more add to its capacity than you can add to your stature by taking thought.

Mr. Swendsen: Before we close this particular discussion, I am going to ask one more lady to say something. We have not had enough representation by the women. I notice that the executive secretary of the Hennepin county child welfare board is here. Mrs. Davis, may we hear from you?

Mrs. Florence Davis, Hennepin County Child Welfare Board: Friends, I know I can not add anything to this discussion, but I am very glad to emphasize, if possible, some of the things that have been said.

Representing the office that is responsible to the Board of Control for the care of the feeble-minded in Hennepin county, I can say that some of the points that Miss Thomson brought out are the points that I would emphasize. I think these people who are sterilized and have been returned to the community are making good and are not going to become a financial burden by being returned to the institution. It is very gratifying, in supervising those who have been sterilized and returned to us, to know that they can continue, and we make every possible effort to adjust them to the community.

I have in mind the case of a young girl who was sterilized and returned to the community. There was some question in the neighborhood as to whether she was safe there. The easiest thing to do was to say, "Well, let her go back to the institution." But the institution is full, and we need it for other cases that are more urgent than this one. I said: "No; let us try her out a little further. We will try a different environment and a very close supervision," because of course we do not want the child to become

delinquent. If the girl had not been sterilized, we should have felt that it was a more serious and a more grave danger than otherwise.

The point that Doctor Kuhlmann brought up impressed me quite seriously as it has impressed me when I have heard that point brought up before by him. It is the fact that although the feeble-minded may not propagate their own kind they are not competent to raise a child, whether it is normal or feeble-minded; more particularly if the child is normal.

Seeing children brought into the juvenile court as I do, I am much impressed by what Doctor Kilbourne said about children who are brought to the institutions. It is the incompetent mother who is the cause of its being necessary to bring many of the children to the institutions, and it is the incompetent mother who is the cause of their being brought into the juvenile court as neglected, dependent and delinquent, whether or not they are deficient mentally.

Mr. Swendsen: I want to thank Doctor Murdoch and all who have taken part in the discussion.

You know that the state has a hospital for crippled children, the Gillette State Hospital. At that institution the very purest aid or charity is given, I think; perhaps more so than at any other institution in the state. This hospital is supported by the taxpayers. It is for indigent children. Not a penny is charged. Doctor Chatterton, the surgeon-in-chief, gives his services, as do the fifty doctors on his staff. On that account we think it is the most wonderful institution we have in the state.

The state of Minnesota was the first state in the Union to open an institution for indigent crippled children, which is a great credit to the state. No individual deserves more credit than does Doctor Gillette, who was the first surgeon-in-chief.

We are glad to have Doctor Chatterton here. As I stated, his services at this wonderful institution are free. He is going to tell us what they are doing over there. They are performing miracles. He is going to talk to us and show us some pictures, and I am sure we are going to have a very enjoyable hour. Doctor Chatterton.

THE STATE'S CARE OF CRIPPLED CHILDREN

C. C. Chatterton, M. D., Chief of Staff, Gillette State Hospital, St. Paul

Mr. Chairman, Ladies and Gentlemen: It is a pleasure to tell you some of the things that we are doing at the Gillette State Hospital for Crippled and Deformed Children.

The care of crippled children dates back almost to 500 B. C., and it can easily be divided into five different stages.

The first care of crippled children was destruction. The Spartan mother, when her child was born a cripple, knew he would not be a good soldier, so she destroyed him.

Along about 590 A. D., cripples were tolerated in Italy, principally because they were used for amusement as court jesters and objects of charity. The children deformed and crippled were used as a means of obtaining money, and if they were not deformed enough, the parent or guardian saw to it that his charge was so deformed that he would make a pitiful sight and in that way secure money by begging.

Asylum care was given crippled children about 1600 A. D. This was first started in England by Queen Elizabeth.

The first real school or training for crippled children was started nearly 300 years later by Father John Nepimak in Munich. His school was the first to combine care and industrial instruction. In 1872 the first real industrial school was established by Pastor Hans Knutsen in Sweden.

In the United States the care of crippled children is comparatively modern, the first orthopedic hospital being established in New York City in 1863. In 1866 the second New York orthopedic hospital was established. In 1884 the first American home for the care of crippled children was established in Philadelphia. The first school for crippled children in the United States was established in Boston in 1893.

These represent the five stages: first, the period of destruction; second, the stage in which cripples were tolerated; third, asylum care; fourth, care and some schooling; fifth, modern care and special education.

The movement in the United States has made more advance in the last ten years, perhaps, than all the rest of the time put together. I am very glad to tell you that the first legislation for crippled children in America was enacted in Minnesota. The first record we have of any effort being made in that direction was in 1896, when Dr. Arthur Gillette read before a gathering of the Minnesota Board of Charities and Correction a paper entitled, "The Duty of the State Toward the Crippled Child."

That same year a small crippled girl made a speech before the legislators and asked them if something could not be done for crippled children who, like herself, could not afford treatment.

I understand that the legislature was rather loath to start such procedure. When they were told that the physicians and surgeons would give their services in caring for the crippled children, they said they would like to see a doctor who would give his time to care for all the crippled children who would come. Doctor Gillette presented a paper similar to the one he had read before the Board of Charities and Correction, and the legislature gave